FINAL EIA REPORT (Vol - I)

Expansion of Telangana Super Thermal Power Project from 1600MW (Phase-I: 2x800 MW) to 4000MW by addition of Phase II: 2400MW (3x800 MW) project

at Village Ramagundam, Kundanpalli, Ranapur etc. District Peddapalli, State- Telangana

APPLICANT

NTPC Limited

TOR Letter- F.No. J-13012/112/2010-IA.II(T) dated 10.04.2024

MCPL/EIA/9/2023-24 Rev 01 July, 2025

BASELINE STUDY PERIOD FOR EIA- MARCH, 2024 to MAY, 2024

Prepared By

MANTEC CONSULTANTS PVT.LTD.

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ANNEXURE-VII (As per NABET format)

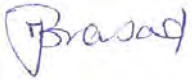
DECLARATION BY CONSULTANTS

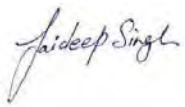
Declaration by Experts contributing to the preparation of EIA –
I, hereby, certify that I am a part of the EIA team in the following capacity for the EIA report of "**Expansion of Telangana Super Thermal Power Project from 1600MW (Phase-I: 2x800 MW) to 4000MW by addition of Phase-II: 240MW (3x800 MW) project**":

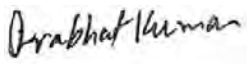
EIA Coordinator (February 2023-till now) (Category A)	
Name	Mr. A. S. Brara
Signature& Date	

S. No.	Functional Areas	Name of the Experts	Involvement (task & period)	Signature & Date
1	**AP**	Mr. A.S. Brara (FAE) Cat A	**December, 2023-till now;** Identification of Air Quality Monitoring Network Supervision of ambient air quality monitoring Review of primary air quality monitoring report and analysis Addressing air quality issues in EIA Report and suggesting mitigation measures for impacts due to air pollution and review Review and analysis of primary meteorological data	

2	**WP**	Mr. A. S. Brara (FAE) Cat A	**December, 2023 - till now;** Identification of water sampling locations, their time and frequency pertaining to site conditions Counter checking of analysis of data by literature study and consultation with local people and concerned departments Identification of water quality by analysis report study and detection of potential hazards due to developmental activity Checking of water availability by literature study and by interacting concerned Govt. Officials like GWB and irrigation dept.	
3	**SHW**	Mr. Nilesh Vittal Potdar (FAE) Cat A	**December, 2023-Febraury, 2025;** Assess the waste sources and status in the study area. After studying the sources, prepared the Impact report and suggested Mitigation measures and involvment development of EMP.	
4.	**SE**	Mr. Braj Vallabh Pandey (FAE) Cat A	**December, 2023 - till now;** Design and develop format/ questionnaire for baseline survey, social changes arising out of development projects and assessment of data so collected Evaluation of socio-economic status of tribal/ non- tribal areas Assessment of social impact Collection of secondary information Survey tool design	

		Mr. Pankaj Kumar (FAA)	**December, 2023 - till now;** Data mining from Census of India 2011 and other sources. Assisted in report making under the guidance of the FAE	
5	**EB**	Mr. Kamal Kumar Saxena (FAE) Cat A	**December, 2023 - till now;** Identification of potential impact due to the project interventions and developing mitigation measures. Field Visit to study the related impact and mitigation measures and study of biodiversity of the project area	
6	**HG**	Mr. R. K. Khanna (FAE) Cat A	**December, 2023 - till now;** Identification of Hydro- Geological condition of the project and study the possible sources, prepared the Impact, risk report and suggested Mitigation measures and development of EMP	
7	**GEO**	Mr. S. I. Tanveer (FAE)	**December, 2023- till now** Identification of Geological conditions of the project and study the possible sources and prepared the Impact and suggested Mitigation measures for EMP.	
8	**SC**	Dr. B.J Prasad (FAE) Cat A	**December, 2023-March, 2025:** Review of soil quality and soil type for establishing the baseline condition. Assessing the impact on soil due to various activities of the project. Suggest mitigation measures for control the adverse impact and soil conservation	

9	**AQ**	Mr. A.S. Brara (FAE) Cat A	**December, 2023-till now;** Analysisof air quality data, meteorological data, traffic data etc. as per the requirements of pollution dispersion model (ISCST3) Assessment of secondary data requirements for modeling, collection of secondary data like mixing height, stability class etc. Predict air quality using pollution dispersion model (ISCST3) Interpretation, analysis and presentation of predicted results of pollution dispersion modeling Review and finalization of report	
10	**NV**	Mr. A. S. Brara (FAE) Cat A	**December, 2023 - till now;** Identification of Noise Quality Monitoring Network and noise sensitive location along the project stretch Supervision of ambient noise quality monitoring Review of noise quality monitoring report Addressing noise related issues in EIA report and suggesting measures for impacts due to noise pollution. Analysis of noise quality data, traffic data etc. as per the requirement of mathematical model of FHWA-TNM Interpretation, analysis and presentation of predicted results.	
11	**LU**	Mr. Jai Deep Singh (FAE) Cat A	**December, 2023-till now;** Identification and collection of satellite images and other associated maps for the project. Creation of GIS database and	

			processing of satellite imageries.	
12	**RH**	Mr. P.K. Srivastava (FAE) Cat A	**December, 2023 - till now;** Identification of the potentially hazardous material and events that might occur during various Phases of the project Devising contingency plan for each type of hazard Incorporation of the same in the EIA report.	

Undertaking by Head of the ACO/ Authorized Person

I, A. S. Brara, hereby, confirm that the EIA report of "**Expansion of Telangana Super Thermal Power Project from 1600MW (Phase-I: 2x800 MW) to 4000MW by addition of Phase-II: 2400MW (3x800 MW)** Project by NTPC has been checked and finalized by Mantec Consultants Pvt. Ltd., Noida.

Head of ACO / Authorized Person:
Name : Mr. A. S. Brara (CMD)

Signature: 

Name of the EIA Consultant Organization: M/s Mantec Consultants Pvt. Ltd., Noida
NABET Certificate no: NABET/EIA/2326/RA 0305_Rev 01
Issue date: 01th January, 2024
Validity upto: 20th April, 2026

एनटीपीसी NTPC
A Maharatna Company

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)

केन्द्रीय कार्यालय / Corporate Centre

Ref. No.:CC:EE:9591:2025:EIA **Date:22.07.2025**

UNDERTAKING BY PROJECT PROPONENT

NTPC Limited has complied with all the prescribed Terms of Reference (ToR) issued by Ministry of Environment, Forest & Climate Change (MoEF&CC) vide letter no J-13012/112/2010-IA.II(T) dated 10.04.2024 for Expansion of Telangana Super Thermal Power Project from 1600MW (2x800 MW, Phase-I) to 4000MW by addition of 2400MW (3x800 MW, Phase-II) in an area of 738.5503 Ha located at village Ramagundam, Kundanpalli, Ranapur and etc. District Peddapalli, Telangana by NTPC Limited.

We undertake that the information and data provided in the Final EIA report and submitted to the Ministry of Environment, Forests & Climage Change are factually correct and project proponent is fully accountable for the same.

For NTPC Limited.

Authorized Signatory

R. Malik
22/7/25

(Rajesh Malik)
AGM & Group Head (Env. Engg.)

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ToR Compliance for Telangana STPP Phase-II (3x800MW)

S.N.	ToR Points	Compliance	Sections
1	**Environmental Management and Biodiversity Conservation**		
1.1	Plot the wind rose diagram using the typical meteorological year (TMY) data for the period considered for the study. The monitoring units shall be deployed in the field based on the coverage area ratio and direction of the wind. Amath1ematical model shall be developed for the local site rather than using the standard model available in software for both air & water quality modeling.	Meteorological data of nearest IMD station has been studied and monitoring units have been deployed accordingly. Local monitoring of the meteorological has been carried out and Wind Rose Diagram has been plotted after the collection of Meteorological Data for the study period of Mar-24 to May-24.	Chapter 3 Section 3.6 Figure 3.9
1.2	PP shall align its activities to one/few of the Sustainable Development Goals (SDG) and start working on the mission of net zero by 2050. PPs shall update the same to the EAC.	Activities of the project have been aligned with the Sustainable Development Goals (SDG) and brief on the same has been incorporated in the EIA report.	Chapter 2 Section 2.19.1
1.3	PP shall submit the EIA/EMP report after the plagiarism check using authenticated plagiarism software.	Plagiarism check has been done using authentic software and Certificate has been incorporated in the EIA/EMP report.	Annexure XXXII
1.4	PP shall explore all the possibilities to minimize to land requirement of the ash pond area. Either by increasing ash utilization or increasing the proposed height. A detailed action plan for fly ash utilization as per CPCB guidelines needs to be submitted.	The layout and height of ash dyke is based on topo survey, Geotech investigation etc. Therefore, the proposed 246.858 Ha is already optimized to meet ash disposal system requirements of multi lagoons and ash decantation requirements and may not be optimized further by increasing height. Further, the above is also in line with the norms of 0.1 hectares per MW for Ash Dyke allowed as per the MoEF&CC notification dtd. 30.12.2022. The Telangana Phase-I has only 80.858 Ha. ash pond area. Hence, for ensuring smooth and continued	Chapter 10 Section 10.8 Table 10.6

		power generation, proposed ash pond is very much needed. Detailed ash utilization plan has been incorporated in the EIA Report.	
1.5	The SRSP canal is passing in the proposed site.The PP shall submit the impact of the fly ashdisposal on the same. PP shall submit a study report for the diversion of the same and permission from the concerned authorities.	SRSP canal area is not covered under Proposed Land Acquisition of Ash Dyke area. Hence, no diversion has been envisaged for the canal. As the area on the west side of canal to be acquired, there will be no impact of the fly ash disposal on the canal and permission from concerned authorities not required.	--
1.6	The forest is very close to the project site, the impact of the ash disposal on the same along with the mitigative measures needs to be submitted.	Suitable Lining of the ash pond, Sprinklers for Fugitive Dust Suppression, AWRS, Plantation on peripheral area, regular monitoring of the groundwater etc. are the mitigative measures which will be adopted to minimize the impact of fly ash on nearby sensitive areas. Various measures like ESP, Dust Extraction Dust Suppression etc. are envisaged for the prevention and control of pollution from the proposed plant.	--
1.7	A wild life conservation plan shall be prepared, in consultation with the State Forest and Wild life Department, with adequate funds for wildlife habitat management, preserving wildlife and its corridors and be submitted along with the EIA/EMP report. Human-wildlife conflict issues shall be studied, and such incidences reported in the study area during the last 10 years	Detailed Wildlife Conservation Plan has been prepared incorporating data on Human-Wildlife conflict has been attached as Annexure. The same has been approved by the PCCF, Forest Department, Govt. of Telangana vide letter dated 26.03.2025.	Chapter 7 Section 7.11 Table 7.29 Annexure VIII

	shall be submitted .No provision for purchasing the vehicle shall be made in the wild life conservation plan.		
1.8	Details of the existing rail, and road networks and alignment of transmission lines along with the quantity of coal being transported/to be transported for existing units and proposed expansion, its source and transportation mode shall be submitted.	Details of Existing Rail siding network map along with proposed augmentation of railway sidingis attached as Annexure-IX. Road network of the study area is shown in General Layout Plan. Coal Transportation requirement for the existing units (Phase-I) is 8MTPA while the requirement for the proposed units (Phase-II) is envisaged as 11.73 MTPA corresponding to 90%. Source of Coal: Coal source for the project is SCCL as per the SLC (LT) minutes and mode of transportation is MGR/Indian Railways.	Chapter 2 Section 2.13 Annexure IX
1.9	Radioactivity studies along with coal analysis to be provided (sulphur, ash percentage and heavy metals including Pb, Cr, As and Hg). Details of auxiliary fuel, if any including its quantity, quality, storage, etc should also be given.	Radioactivity study has been done, and the reports have been attached as Annexure-X. Coal Analysis Report is included as Annexure-XI.	Annexure-X, Annexure-XI
1.10	A comparative chart shall be prepared with changes observed from previous base line study and present baseline study.	The comparative chart with respect to previous baseline data has been prepared and is attached in the EIA Report	Chapter 3 Section 3.7 Figure 3.13
1.11	PP should submit the detailed plan in tabular format (year-wise for the life of the project) for afforestation and green belt development in and around the project site. The PP should submit the number of saplings to be planted, the area to be covered under afforestation & greenbelt, the location of the plantation, the target	Plantation and Greenbelt development has been carried out at various locations under Telangana STPP (Phase-I). Miyawaki method of plantation has also been adopted at project site for the first time in 2019-20. About 187.975 Ha land has been identified	Chapter 10 Section 10.8

	for survival rate and the budget earmarked for the afforestation & green belt development. In addition to this PP should show on a surface plan (5-year interval for the life of the project) of suitable scale the area to be covered under afforestation & greenbelt mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditures to be incurred need to be submitted. The plantation plan should be prepared in such a way that 80% of the plantation is to be carried out in the first 5 years and for the remaining years the proposal for gap filling. These edling of height not less than 2 meters is to be selected and accordingly cost of the plantation needs to be decided. In addition to this, the plantation in the safety zone at project boundary the plantation should be planned in such a way that it should be completed within 2years only.	for development of plantation/Greenbelt covering Telangana Phase-I & Phase-II. Out of this, greenbelt/plantation development has been completed on 125.95 Ha. by plantation of approx. 3.10 lakh trees at various locations. Further, development of plantation/Greenbelt is proposed on 62 Ha. area as per detailed action plan. The detailed plan for development of greenbelt/plantation has been incorporated in the Final EIA report.	
1.12	An action plan for the development of a greenbelt (40% of the total project cover area) along the periphery of the project boundary shall be provided with a drone video clip of the existing greenbelt. The plan shall be dully approved by the local forest department.	About 187.975 Ha land has been identified for development of plantation/Greenbelt covering Telangana Phase-I & Phase-II. Out of this, greenbelt/plantation development has been completed on 125.95 Ha. by plantation of approx. 3.10 lakh trees at various locations. Further, development of plantation/Greenbelt is proposed on 62 Ha. area as per detailed action plan. The action plan has been approved by State Forest Dept. vide letter dated 29.03.2025. Drone video of the existing green belt has been prepared and will be submitted during the appraisal	Chapter 10 Section 10.8 Subsection VI Annexure-XXXI

		meeting for Environmental Clearance.	
1.13	A detailed plan needs to be submitted for undertaking extensive green plantation within a 10km radius of the plant focusing on water reservoir, school, hospital and other institutional areas and the same needs to be incorporated in the EIA/EMP report.	Extensive plantation has been carried out in the surrounding areas in consultation with State Forest Dept. and shall be continued Further, locations of schools, water bodies, hospitals etc. in the 10km radius have been identified as shown in Annexure-XIII for carrying out detailed survey regarding the availability of area for the development of extensive green plantation in consultation with authorities.	Annexure XIII
1.14	An action plan shall be prepared for the maintenance of air pollution control equipment for proposed and existing units and shall be incorporated in the EIA/EMP report.	Air Pollution Control equipment (ESP, NOx Control and Dust equipment/Suppression system) are integral parts of main plant equipment and the same are being/shall be maintained as per operation and maintenance philosophy for optimum performance. Air Pollution Control equipment to comply with the guidelines of Statutory Authorities shall be provided for the new units and periodic checks and maintenance shall be carried out for the proposed new units as per the guidelines of OEM/Suppliers received in O&M manuals of respective equipment/systems.	Chapter 10 Section 10.8 Section 2.16
1.15	Details of Ash management of existing (last 5years) and the proposed project shall be submitted, along with a 5-year plan for 100% ash utilization.	Details of Ash management of existing units and plan for utilization with existing and proposed units have been provided.	Chapter 10 Section 10.8 (iv)
1.16	Details of the Dry Ash handling system along with the supplementary coal handling system shall be submitted.	The dry fly ash shall be extracted in dry form from Electrostatic Precipitator (ESP). This dry fly ash shall	Chapter 2 Section 2.15

		be conveyed to buffer hopper and then transported to the main fly ash/HCSD storage silos. The dry fly ash shall be unloaded in road tankers or in railway wagons for 100% dry fly ash utilization. Coal shall be transported from coal mine to the plant through IR rakes or through MGR. BOXN wagons shall be unloaded in wagon tippler & twin/tandem tippler and BOBR wagons shall be unloaded in Track Hopper.	
1.17	Proper protection measures like HDPE lining, the appropriate height of the bund and adequate distance between the proposed Ash Pond and water body (minimum 60 meters) etc. shall be planned so as to reduce the possibility of mixing of leachate with any fresh water body for under construction ash pond. A high-density Slurry disposal plan shall be prepared.	HDPE lining system is envisaged in OFL and Bentonite blended lining in all ash storage lagoons The appropriate safe height of ash dyke will be designed based on topo survey, Geotech investigation and availability of construction materials etc. Adequate distance between the proposed Ash Pond and water body etc. shall be maintained. In case of non-utilization of fly ash in dry form, the fly ash shall be disposed in high concentration slurry disposal form in ash dyke.	--
1.18	Pond and ground water quality (10 locations within a 2 km radius of the plant boundary) shall be studied and a report be submitted along with EIA/EMP. Action plan for Ground water monitoring stations on all hot spots like schools/hospitals within a 2 km radius of the plant boundary be submitted.	Surface and Groundwater Monitoring has been carried out in the study area as well as hotspots within 2 km radius area and monitoring data has been incorporated in the report.	Chapter 3 Section 3.8
1.19	Baseline Study for Heavy metals in Groundwater, Surface water and soil to be carried out and incorporated in EIA/EMP report.	The baseline study of the Heavy Metal is conducted, and the reports are incorporated in the EIA report.	Chapter 3 Section 3.8
1.20	Details pertaining to water source, treatment and discharge	Source of the water is Sripada Yellampally Barrage	Chapter 2

	should be provided.	Clarifier, Neutralization Pit, Oil Skimmer, Sludge Thickener, Centrifuge, STP, Reverse Osmosis etc. envisaged for Treatment of Water & Wastewater with Zero Liquid Discharge (ZLD). Details of water consumption, Wastewater generation, Effluent Treatment etc. have been incorporated in Final EIA Report.	Section 2.10
1.21	A Zero Liquid Discharge plan shall be submitted.	Zero Liquid Discharge Systems have been envisaged to ensure minimum water consumption. Details of Water Consumption and Water Balance Diagram are given in the report.	Chapter 2 Section 2.10 Figure 2.6
1.22	PP shall submit an action plan for using treated Sewage/Domestic wastewater for its operations	Tertiary treatment plant for STP is envisaged& treated water is to be used for horticulture purpose.	Chapter 2 Section 2.10 Figure 2.6
1.23	Project Proponent to conduct Environmental Cost Benefit Analysis for the project in EIA/EMP Report.	The Cost Benefit Analysis has been conducted and included in the report.	Chapter 9 Section 9.6 Table 9.3
1.24	An action plan shall be prepared for Water shed development within a 10 km radius of the plant boundary in consultation with a reputed government institution and incorporated in the EIA/EMP report.	Watershed of the area has been studied and development plan has been included in the report.	Chapter 7Section 7.10 Annexure XXVI
1.25	PP should bring out that what is the specific diesel consumption~ (Liters/Tonne of total material handled) and steps to be taken for reduction of the same. The year-wise target for reduction in the specific diesel consumption needs to be submitted. PP shall also explore the possibility of using e-vehicles/LNG/CNG-based machinery and trucks for the operation and transportation of Coal and ash.	Specific Oil Consumption details have been incorporated in the Final EIA Report. As per Design EOL Scheme is envisaged for Coal transportation. No Diesel Locos are hired. For Material handling, Dozers are being used. NTPC Telangana has deployed 13 nos. of Battery-Operated Trolleys in various departments like	Chapter 2 Section 2.14

		Electrical/Turbine / Boiler Maintenance, Ash Handling, Coal Handling, Stores, Offsite, Chemistry etc. for material handling inside plant premises. NTPC shall further explore the usage of e-vehicles in other usages also.	
1.26	A Cumulative Environmental Impact Assessment study of all the existing and proposed projects in the15-km radius of the proposed project shall be conducted and the same shall be included the in EIA/EMP report. Details of industrial units present in a 10Km radius of the power plant shall be submitted.	The Cumulative Environmental Impact Assessment study has been done and included in the EIA report. List of the existing and proposed industrial units have been included in the report.	Chapter 4 Section 4.3
2	**Socio Economic Study**		
2.1	As per the Ministry's OM dated 30.09.2020, to address the concern raised during the Public Hearing, Project Proponent is required to submit the detailed activities proposed with year-wise budgetary provision (Capital and recurring) for 10years. Activities proposed shall be part of EMP. Tentative no. of project-affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared. The recommendation Socio-economic study may also be considered while planning the activities & budget.	Time bound action plan with budgetary provision has been prepared for the issues raised in Environmental Public Hearing and incorporated in the Final EIA. Details of socio-economic study, recommended activities and tentative budget provision has been prepared and incorporated in the report.	Chapter 7 Section 7.1 Table 7.3 Chapter 3 Section 3.13
2.2	Demographic details in a 10 km area shall be submitted.	Demographic details of the study area (10 km radius) have been included in the report.	Chapter 3 Section 3.13
2.3	The Public Health Delivery Plan including the provisions for drinking water supply for the local population shall be in the EIA/EMP Report. The status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening	NTPC has well established medical facilities. Dhanwantari hospital is a 50 bedded hospital provided medical services through OPD, IPD and emergency services to the employees and their	Chapter 3 Section 3.12

	existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the needs of the lab our force and local populace.	family members. The hospital is providing medical services to the identified project affected villagers on 80% concessional rates on 20% payment basis. The hospital is managed by specialist doctors, trained medical staff, testing facilities, ambulances etc. Infrastructure includes ICU beds, ventilators, X-ray machines, ALS & BLS ambulances, Ultrasound, Audiometry, PFT, ECG, Oxygen Concentrators, Oxygen Cylinders etc. One Mobile Medical Unit has been provided to take care of identified 24 CSR identified villages with two doctors, pharmacist, lab technician and staff nurse, free medicines are distributed to all the beneficiaries. One DOT ambulance to take care of TB patients in 20 identified CSR villages. Exclusive Occupational Health Center for Medical Checkup under CLIMS, Digital X-Ray, Ultrasonography, Audiometry, Lung Function Test, ECG facilities, well equipped pathology lab with biochemistry and hematology analyzers are available. Two First Aid Centres at plants (Ramagundam & Telangana) with 24x7 BLS Ambulances with First Aiders and Ambulance Drivers. In addition to NTPC Hospital, various medical	

		facilities are also available as listed below: 1. Medical College Hospital (SIMS) 03 km from the township 2. ESI Dispensary 0.5 km from Admin. Building 3. Primary Health Centre (PHC) at Ramagundam at 4-5 km from township 4. Multispecialty Private Hospital at 3 km from township with ambulance 5. Singareni Hospital at 5 km 6. CT Scan & MRI Centres at 4 km from township 7. Govt. Blood Bank at 3 km and Red Cross Blood Bank at 22 km 8. Empanelled Hospital at Karim Nagar 9. Empanelled Hospital at Hyderabad 10. Burn Unit at Apollo DRDO Hospital Hyderabad Socio-economic study has been conducted, and available medical facilities have been listed in the report. Public Health Delivery Plan has been included in the EIA/EMP report with tentative budget provision. Further, details have included in Final EIA/EMP report along with action plan for Public Hearing issues.	
3	**Miscellaneous**		
3.1	A detailed description of all the court cases including all directions given by the apex and the current status of them shall be	Detailed description of the court cases is given as Annexure in the EIA report.	Annexure XIII

	submitted.		
3.2	PP should provide in the EIA Report details of all the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after the grant of EC.	All the statutory clearance has been mentioned in the chronological order. Estimated timeline for obtaining Consent For Establishment and Consent For Operation for Telangana Phase-II is approx. three months and approx.59 months respectively from the grant of EC.	Chapter 1 Section 1.5 Table 1.2
3.3	PP shall submit details of court cases and their status for the project.	Detailed description of the court cases is added as Annexure in the EIA report.	Annexure III
3.4	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.	Monitoring photographs along with the original test reports are attached with the EIA Report	Chapter 3 Annexure XIV
3.5	PP should bring out the details of the man power to be engaged for this project with their roles/responsibilities/designations. In addition to this PP should mention the number and designation of persons to be engaged for the implementation of the environmental management plan (EMP).The capital and recurring expenditures to be incurred need to be submitted.	Approx. permanent manpower for Telangana STPP Phase-I is179 nos. and proposed deployment of permanent manpower for Phase-II is approx. 96 nos. during the construction phase and approx. 216 nos. during the operation phase. An indicative chart showing different departments with roles/responsibilities is given as Annexure-XVI in the report.	Chapter 2 Section 2.10 Annexure XVI
3.6	PP should submit the year-wise, activity-wise and time-bound budget earmarked for EMP, occupational health surveillance, and activities proposed to address the issues raised during the Public Hearing. The capital and recurring expenditures to be incurred	Activity-wise EMP budget with capital and recurring expenditure has been included in the report. Issued raised during Public Hearing has been addressed in the Final EIA.	Chapter 10 Table 10.12

	need to be submitted.		
3.7	Aerial view video of the project site and transportation route proposed for this project shall be recorded through drone and submitted.	Aerial video of the project site showing MGR area has been prepared and shall be submitted separately and presented during the EAC meeting.	--
3.8	In the case of ground water abstraction/intersection. The PP shall comply with the Ministry's OM dated 23/05/2019. Compliance status needs to be presented before EAC at the time of appraisal.	No ground water abstraction has been envisaged for the project.	--
3.9	Certified compliance report of previous EC certified by the Regional office of the MoEF&CC shall provide. Specific observations on the status of OCMS, ash utilization, green cover and emission control equipment of all units of the plant shall be done. In case of any non-compliance, the PP shall submit the ATR to the concerned RO and get it closed before applying to the Ministry.	The certified compliance report dated 31.12.2024 has been issued by the Sub- Office, MoEF&CC, Hyderabad. Action taken report has been submitted with respect to partial compliance, non-compliances observations. Copy of the Certified Compliance Report and Action Taken Report has been given as Annexure-XVII.	Annexure XVII
3.10	PP should submit the quantity of surface or groundwater to be used for this project. The complete water balance cycle needs to be submitted. In addition to this PP should submit a detailed plan for rainwater harvesting measures to be taken. The PP should submit the year-wise target for reduction in consumption of the ground/surface water by developing alternative sources of water through rainwater harvesting measures. The capital and recurring expenditures to be incurred need to be submitted.	Quantity of Surface water requirement for the Phase-I is 1, 15,200 KLD and required for the proposed Phase-II is 56,520 KLD. No Groundwater usage/extraction is envisaged for the proposed project. Study on Rainwater Harvesting work has been undertaken under Phase-I and further work is proposed to be undertaken. Capital Expenditure for Rainwater Harvesting is estimated as Rs. 64 Lakhs & Recurring expenditure is estimated as Rs. 1 Lakh/year.	Chapter 10 Section 10.8 Subsection V
3.11	All the certificates viz. Involvement of Forest and, distance from the protected area, and list of flora & fauna should be duly	Certificate regarding the involvement of Forest Land, distance from the protected area and list of flora &	Annexure XVIII

	authenticated by the Forest Department. The Certificate should bear the name, designation, official seal of the person signing the certificate and dispatch number	fauna have been obtained from the concerned Forest Department and the same has been incorporated in Final EIA Report.	
4.	**Disaster Management**		
4.1	Disaster Management Plan shall be prepared and incorporated in EIA/EMP report.	Disaster Management Plan has been prepared and incorporated in EIA/EMP report.	Chapter 7 Section 7.3
Standard Terms of Reference for (Thermal Power Plants)			
1	**Statutory Compliance**		
1.1	The proposed project shall be given a unique name in consonance with the name submitted to other Government Departments etc. for its better identification and reference.	The project is being established as mandated by A. P. Reorganization Act 2014. The proposed project has been given the Unique name i.e. Telangana Super Thermal Power Project Phase-II (3x800MW).	--
1.2	Vision document specifying prospective long-term plan of the project shall be formulated and submitted.	Vision Document has been prepared and included in the report.	Annexure XIX
1.3	Latest compliance report duly certified by the Regional Office of MoEF&CC for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.	Certified compliance report has been obtained from Regional Office of MoEF&CC and submitted with Final EIA Report.	Annexure XVII
2.	**Details of The Project and Site**		
2.1	The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.	The main plant for Phase-II will be situated within the current land area allocated for the project, eliminating the need to seek alternative sites. However, an additional 246.858 hectares (610 acres) is proposed to be acquired near the existing Ash Dykes of the Ramagundam STPS. Details of	Chapter 5 Section 5.2 Figure 5.1

		alternative site analysis for the ash dykes have been given in the report.	
2.2	Executive summary of the project indicating relevant details along with recent photographs of the proposed site(s) shall be provided. Response to the issues rose during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.	Executive summary has been prepared with all the required details which incorporate time bound action plan to the issues raised during the Public Hearing.	Chapter 11
2.3	Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.	Solar PV of capacity 1253 MW has been installed under the Phase-I and 1125 MW capacity Solar PV is envisaged to be installed under the Phase-II also. Rooftop solar PV installations will be done on the roof of various buildings in the plant area such as Main powerhouse, ESP control building, Water system control building and Ash/Coal handling control buildings etc.	Chapter 10 Section 10.8 Subsection VI
2.4	The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with toposheet (1:50,000scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.	Geographical coordinates and Maps have been incorporated in the EIA/EMP report.	Chapter 2 Section 2.5 Figure 2.1
2.5	Lay out plan indicating break-up of plant area, ash pond, greenbelt, infrastructure, roads etc. shall be provided.	General Layout Plan and area break-up has been included in the report.	Chapter 2 Section 2.7 Figure 2.4& 2.5

2.6	Land requirement for the project shall be optimized and, in any case, not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.	The total requirement for the Telangana STPP (4000MW) is 738.55 Hectares. The main plant for Phase-II will be situated within the current land area allocated for the project. However, an additional 246.858 hectares (610 acres) of land is required for constructing Ash Dykes. This land is proposed to be acquired near the existing Ash Dykes of the Ramagundam STPS and it is in line with the norms of 0.1 hectares per MW for Ash Dyke as per the MoEF&CC notification dated. 30.12.2022.	Chapter 2 Section 2.8
2.7	Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.	The total land requirement for the Telangana STPP (4000MW) is 738.55 Hectares. The main plant for Phase-II will be situated within the current land area allocated for the project. However, an additional 246.858 hectares (610 acres) of land which is mostly private land is proposed to be acquired for constructing Ash Dykes. Land acquisition notification is given at Annexure-XX.	Chapter 2 Section 2.7 Annexure XX
2.8	If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.	No forest land is involved in the project. Certificate in this regard has been issued by State Forest Dept. and given as Annexure-XVIII.	--
2.9	The land acquisition and R&R scheme with a time bound action plan should be formulated and addressed in the EIA report.	The land proposed to be acquired is purely agricultural land and no human habitation is involved. The land acquisition process has been initiated by the State Government, but the State	--

		Revenue has not proposed any R&R Plan at this stage.	
2.10	Satellite imagery and authenticated toposheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.	Satellite Maps are incorporated in the EIA/EMP report in various sections. Maps of nearby rivers, forest areas, drainage pattern, contour map, List of Water Bodies in the study area are included in the EIA Report.	Chapter 1&2 Figure 1.1 & 2.1 Chapter 7 Section 7.8 Figure 7.12
2.11	Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large-scale map preferablyof1:25,000scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.	Topography map has been provided in the report.	Chapter 2 Figure 2.1
3	**Ecology Biodiversity And Environment**		
3.1	A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land is acquired and developed and detailed plan submitted.	Land use Pattern and LULC details have been incorporate in the Final EIA report. No common property resources are involved in the proposed land to be acquired which is mostly single crop private agricultural land.	Chapter 3 Section 3.5
3.2	Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized	No National Park, Sanctuary, Elephant/Tiger Reserve are present in the 10 km study area. Certificate in this regard has been issued by State Forest Dept. and given as Annexure-XVIII.	--

	by him.		
3.3	A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.	Mineralogical Map is incorporated in the EIA Report.	Chapter 3 Section 3.3 Figure 3.2
3.4	The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept to zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.	Provisions like Ultra Super Critical Technology, Air Cooled Condensers, HCSD and Dry Ash Handling systems, Ash Water Recirculation System, ETP & STP, and Zero Liquid Discharge Systems have been envisaged to ensure minimum water consumption as per the stipulated norms. Details of Water Consumption and Water Balance Diagram are given in the report.	Chapter 2 Section 2.10 Figure 2.6
3.5	Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah/drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.	There is no diversion of nallah/ water body in the main plant area.	--
3.6	It shall also be ensured that a minimum of 500m distance of plant boundary is kept from the HFL of river system/streams etc. and the boundary of site should also be located 500m away from railway track and National Highways.	It is being ensured that minimumof500m distance of plant boundary is kept from the HFL of river Godavari. As per the letter from Irrigation and CAD dept., the observed Maximum Flood Level/HFL is +139.056 M at Mancherial gauge station on 14.07.2022 and, observed flood discharge is 36000 cumecs in River Godavari. The approximate distance from HFL point	Annexure-XXIV

		to the NTPC, Telangana Super Thermal power projects Site is 4 KM and 14 KM from the Sripada Yellampally project dam site.	
3.7	Hydro-geological study of the area shall be carried out through an institute/organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted	Hydro-Geological study report with recommendations and time bound action plan has been incorporated in the EIA report.	Chapter 7Section 7.9 Annexure-XXVII
3.8	Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc. shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.	No significant impact on Ecology has been envisaged due to the project. The project is envisaged with Zero Liquid Discharge facility and there will be no discharge of wastewater outside the plant premises. Detailed impacts and mitigation measures has been incorporated in EIA report. Marine impact assessment is not applicable for the proposed project.	Chapter 4 Section 4.3
3.9	Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any).Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter/document stating firm allocation of water.	Source of the water is Sripada Yellampally Barrage on River Godavari. Allocation of the required water quantity from the competent authority has been granted and attached with the report. Details regarding the source of water are included in the report.	Annexure XXI Chapter 4 Section 4.3.7
3.10	Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished. In addition, wherever	No groundwater abstraction is envisaged in any activity of the project.	Chapter 10 Section 10.8

	groundwater is drawn, PP shall submitted tailed plan of Water charging activity to be undertaken.	Rainwater Harvesting details have been furnished in the report.	
3.11	Feasibilityofnearzerodischargeconceptshallbecriticallyexamine danditsdetailssubmitted.	Zero Liquid Discharge (ZLD) is envisaged in the project.	Chapter 2 Section 2.10 Figure 2.6
3.12	Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.	For the proposed expansion project (Phase-II) Air cooled condenser has been proposed to optimize the water requirement. Auxiliary Cooling Water system is envisaged with design COC of 5.0. AWRS has been provided under Phase-I and also proposed for Phase-II. Details of water systems and pollution control measures are given in the report.	Chapter 2 Section 2.10 Figure 2.6
3.13	Plan for recirculation of ash pond water and its implementation shall be submitted.	Ash water recirculation system has been envisaged to utilize the recovered water from the ash dyke. The recovered water shall be pumped to the ash water sump and will be reused in ash handling.	Chapter 2 Section 2.10, 2.16.3 Figure 2.6
3.14	Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface/ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA.	A detailed monitoring plan has been mentioned in the report. Long term monitoring plan for ground water, surface water, air and noise environment is incorporated in the EIA report.	Chapter 6 Section 6.3 Table 6.1
3.15	Hazards Characterization: Past incidents of hazard events within 10 km radius of project area with detailed analysis of	Details of hazards and risk assessment incorporated in the Final EIA Report.	Chapter 7 Section 7.2 Annexure XXII

	causes and probability of reoccurrence	List of Past Incidents of hazard with 10 km of project area is included.	
4	**Environmental Baseline Study And Mitigation Measures**		
4.1	One complete season(critical season) site specific meteorological and AAQ data (except monsoon season) as per latest MoEF&CC Notification shall be collected along with past three year's meteorological data for that particular season for wind speed analysis and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall includePM10, PM2.5, SO2, NOx, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration the upwind direction, pre-dominant down wind direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the up wind and in the pre-dominant downwind direction at allocation where maximum ground level concentration is likely to occur.	One complete season monitoring has been done for the period from March 2024 to May, 2024 and the reports are attached. Meteorological data for the same season over the past three years has also been included in the EIA report.	Chapter 3 Section 3.5-3.11 Annexure XIV
4.2	In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24hrs).	One season monitoring has been completed and reports included in the EIA report. The monitoring is continued for covering one year period. Annual average data of Ambient Air Quality shall be submitted.	Chapter 3 Section 3.6-3.11 Annexure XV
4.3	A list of industries existing and proposed in the study area shall be furnished.	**Under Operation** 1. NTPC Ramagundam Thermal Power Plant (2600MW)	Chapter 1 Section 1.2 Subsection VI Table 1.1

		2. Telangana STPP Phase-I (1600MW) 3. Ramagundam Fertilizers & Chemical Limited 4. TS Genco Thermal Power Plant (62.5 MW) 5. Singareni Thermal Power Plant (18 MW) 6. Singareni Collieries Company Ltd. OCP-IV 7. Singareni Collieries Company Ltd. OCP-III 8. Kesoram Cements Limited 9. Singareni Thermal Power Plant (1200 MW) (Existing) (Outside study area of 10km) **Under Construction/ Under Approval** 10. SCCL Thermal Power Plant (800 MW) (Outside study area of 10km)	
4.4	Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modeling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The wind rose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.	Wind rose has been prepared after collecting the data using the Meteorology monitoring instruments and is incorporated in the EIA report. Details of the air quality model (AERMOD) and input parameters have been incorporated in the Final EIA Report at Table 4.4. Isopleths have been prepared and included in the report. Details of cumulative impact assessment have been incorporated in the Final EIA Report.	Chapter 3 Section 3.5 Figure 3.9 Chapter 4 Section 4.3 Figure 4.1-4.8
4.5	Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.	Radioactivity and Heavy metal tests have been done, and reports are attached in the Final EIA Report.	Annexure X

4.6	Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.	Coal Analysis report provided as annexure in the Final EIA Report.	Annexure-XI
4.7	Quantity of fuel required its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted	Coal requirement for the project is estimated to be 11.7 MTPA at 90% PLF considering GCV of 3800 Kcal/Kg. As per the Minutes of Meeting dated 13.02.2024, SLC (LT) has confirmed that coal linkage shall be provided from Singareni Collieries Company limited (SCCL). NTPC is pursuing with SCCL for providing coal linkage from nearest mines.	Chapter 2 Section 2.13 Annexure-XXVIII
4.8	Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.	Entire coal shall be transported through MGR rail network. The railway siding network of the plant is connected to Indian Railway line. Layout of Railway network is attached as Annexure. Impact on Ambient Air Quality is mentioned is given in detail in the EIA report.	Annexure IX Chapter 4 Section 4.3
4.9	For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.	Not Applicable.	--
4.10	Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.	Rest Rooms, Medical facilities/ health centers are available in Project Areas under Phase-I. Further, rest rooms are included in the Main EPC package during the construction Phase. Restrooms with sanitation facilities are available at all Gates.	Annexure XXIX

5	Environmental Management Plan		
5.1	EMP to mitigate the adverse impacts due to the project along with item-wise cost of its implementation in a time bound manner shall be specified.	EMP with item-wise Cost provision for Environmental Measures has been prepared and given in the report.	Chapter 10 Section 10.13
5.2	A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be prepared. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Provision for mock drills shall be suitably incorporated to check the efficiency of the plans drawn.	A detailed DMP has been prepared by Telangana STPP for existing Phase-I. The same shall be updated for Phase-II facilities also.	Chapter 7 Section 7.3, 7.4
5.3	The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall been ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.	All the hazard related scenarios have been incorporated in the DMP. A brief DMP has been prepared in the local language which is included in the Final EIA Report.	Chapter 7 Section 7.3& 7.4
5.4	Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall	Fly Ash Utilization plan has been prepared as per Fly Ash Notification dated 31.12.2021 and incorporated in the Final EIA Report.	Chapter 10 Section 10.7 Annexure-XXX

	be submitted. The plan shall also include disposal method /mechanism of bottom ash along with monitoring mechanism.		
6	**Green Belt Development**		
6.1	Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least3-tiers around plant boundary not less than 2000 tree per ha with survival rate of more than 85% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. As shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO_2 and other gaseous pollutants and hence a stratified green belt should be developed.	Plantation and Greenbelt development has been carried out at various locations under Telangana STPP (Phase-I). Miyawaki method of plantation has also been adopted at project site for the first time in 2019-20. About 187.975 Ha land has been identified for development of plantation/Greenbelt covering Telangana Phase-I & Phase-II. Out of this, greenbelt/plantation development has been completed on 125.95 Ha. by plantation of approx. 3.10 lakh trees at various locations. Further, development of plantation/Greenbelt is proposed on 62 Ha. area as per detailed action plan. The detailed plan for development of greenbelt/plantation has been incorporated in the Final EIA report.	Chapter-10 Section-10.8
6.2	Over and above the green belt, as carbon sink, plan for additional plantation shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this , the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months	Telangana STPP has approached Divisional Forest Officer for identification of degraded forest land for development of greenbelt. Time-bound action plan has been prepared for development of plantation on 55 Ha of Degraded Forest Land.	Annexure XXIII

7	**Socio-economic Activities**		
7.1	Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.	A detailed socio-economic survey has been conducted in the 10km study area. Details of the study have been incorporated in the Final EIA Report.	Chapter 3 Section 3.12
7.2	Action Plan for identification of local employ able youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.	Skill development plan has been prepared to train local youth which will eventually increase the employability. Budget for Skill development programme has been earmarked and incorporated in the EIA Report.	Chapter 3 Section 3.12
7.3	If the area has tribal population, it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.	No tribal population is located near the project site.	--
7.4	A detailed CER plan along with activities wise breakup of financial commitment shall be prepared in terms of the provisions OM No. 22-65/2017-IA.IIIdated 30.09.2020.CER component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people, shall be identified.	Detailed CER plan has been mentioned in the EIA Report based on assessment of the needs and the issues identified in Socio-economic study. Further provisions for issues raised in Public Hearing have been incorporated.	Chapter 3 Section 3.12 Chapter 7 Section 7.1
7.5	While formulating CER schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from	The CER plan has been prepared and included in the EIA report. Social audit shall be undertaken after the execution of the CER activities under the proposed	Chapter 3 Section 3.12 Chapter-8 Table 8.2

	the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CER details done in the past should be clearly spelt out in case of expansion projects.	project. Details of activities carried out under Community Development for the existing project are included in the report.	
7.6	R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys that were depended on land falling in the project, as well as population who were dependent on land not owned by them.	The land proposed to be acquired is purely agricultural land and no human habitation is involved. The land acquisition process has been initiated by the State Government, but the State Revenue has not proposed any R&R Plan at this stage.	--
7.7	Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.	The inference drawn from the socio-economic survey study is that there is no endemic disease reported in the study area in the last 10 years. The overall health status of the study area is satisfactory. The common health problems that were reported during the field survey showed that the study area did not have any resemblance of any unusual health pattern. The health-related problems found during the field study was general health related problems, like malnutrition, high blood pressure, anemia, vision related problems, diabetes etc. These diseases are mainly caused due to lifestyle related factors. Action plan for improvement of facilities like	Chapter3 Section 3.12 Table 3.49

		Community Health, Sanitation, drinking water etc. has been prepared in consultation with local community.	
7.8	Occupational health and safety measures for the workers including identification of work-related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conducive environment shall be carried out and precautionary measures like use of personal equipment etc. shall be provided. Review of impact of various health measures under taken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.	The proposed plant consists of dedicated Health Centres having all First aid and OHC Facilities to plant workmen as well as neighbouring Villages. The details of Occupational Health Management are given in the report. 1. Medical Check-up is being done for Work related health hazards, Diabetes, Hypertension. 2. Qualified doctors who are trained in occupational health are available and assisted by team of GDMOs and paramedical staff. 3. Awareness programs conducted by Pulmonologist on Occupational Lung Disease and ENT Specialist on prevention of Hearing Loss. 4. Free of cost Blood pressure and Blood Sugar test facilities provided at both the first Aid centres in addition to complete medical checkups at NTPC Dhanwantari Hospital.	--
8	**Corporate Environment Policy**		
8.1	Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.	NTPC has a well-laid comprehensive Environmental Policy published in 2022. The intent of this policy is to meet environmental expectations and provide actionable guidance, as NTPC strives to foster a culture of excellence and challenges itself for	Chapter 10 Section 10.14

		continual improvement. The detailed policy has been incorporated in the Final EIA Report.	
8.2	Does the Environment Policy prescribe for standard operating process/procedures to bring into focus any infringement / deviation /violation of the environmental or forest norms/ conditions? If so, it may be detailed in the EIA.	Yes. Well-defined Standard Operating Procedures (SOPs) are in place as part of Environment policy. A Risk Management Committee comprises of members from senior functionaries of management as per provisions of Companies Act 2013 and subsequent amendments has been constituted to establish system for reporting environment related parameters, deviations and constraints to management. Environmental risks perceived shall be reviewed through risk management mechanism for appropriate action. Concerned group shall oversee compliance assurance of operating stations through reviews and appraisals.	Chapter 10 Subsection 10.14
8.3	What is the hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.	A well-established Environment Management system is available at Telangana STPP. Details of the organization structure for the Telangana Project and NTPC limited has been incorporated in the Final EIA report.	Chapter 6 Section-6.6, Figure 6.1 Chapter10 Subsection 10.14
8.4	Does the company has compliance management system in place wherein compliance status along with compliances/ violations of environmental norms is reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be	Yes. Further, as per listing arrangement with SEBI, a reporting system of Environment risks as well as non-compliance or violation of environment norms, if any, is in place under Enterprise Risk Management Committee as well as higher management. Details of	Chapter 6 Section-6.6, Figure 6.1 Chapter 10 Subsection 10.14

	detailed in the EIA report.	the organization structure for the Telangana Project and NTPC limited has been incorporated in the Final EIA report.	
9	**Miscellaneous**		
9.1	All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.	All the details have been adequately included in EIA report and same shall be presented to the committee.	--
9.2	Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.	All the details attached as Annexure.	Annexure XIII
9.3	In case any dismantling of old plants are envisaged, the planned land use &land reclamation of dismantled area to be furnished.	Not Applicable	--
10	**Additional Tor For Coastal Based Thermal Power Plants Projects (TPPs)**		
10.1	Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.	Not Applicable	--
10.2	If the site includes or is located close to marshy areas and back waters, these areas must be excluded from the site and the project boundary should be away from the CRZ line. Authenticated CRZ map from any of the authorized agencies shall be submitted.	Not Applicable	--
10.3	The soil levelling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into	Not Applicable	--

	creek. Major canals should not be altered but their embankments should be strengthened and desilted.		
10.4	Additional soil required for levelling of the sites should as far as possible be generated within the site itself in such a manner that the natural drainage system of the area is protected and improved.	Not Applicable	--
10.5	Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.	Not Applicable	--
10.6	No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. Wherever feasible, the outfall should be first treated in a Guard Pond and then only discharged into deep sea (10to15mdepth). Similarly, the Intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from Desalinization Plants (if any) should not be discharged into sea without adequate dilution.	Not Applicable	--
10.7	Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in Study Area.	Not Applicable	--
10.8	A common Green Endowment Fund should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.	Not Applicable	--
10.9	Impact on fisheries at various socioeconomic levels shall be assessed.	Not Applicable	--
10.10	An endowment Fishermen Welfare Fund should be created out of CER grants not only to enhance their quality of life by creation of	Not Applicable	--

	facilities for Fish Landing Platforms / Fishing Harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.		
10.11	Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.	Not Applicable	--
10.12	There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words, necessary preventive measures for spillage from pipelines, such as lining of Guard Pond used for the treatment of out fall before discharging into the sea and surface RCC channels along the pipelines of out fall and intake should be adopted. This is just because the areas around the projects boundaries could be fertile agricultural land used for paddy cultivation.	Not Applicable	--

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Environmental Impact Assessment (EIA) is the management tool to ensure the sustainable development, and it is a process, used to identify the environmental, social, and economic impacts of a project prior to decision-making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for any project. EIA systematically examines both beneficial and adverse consequences of the project and ensures that these impacts are taken into account during the project designing. It also reduces conflicts by promoting community participation, information, decision makers, and helps in developing the base for environmentally sound project. In order to assess the likely impacts arising out of the project, the Environmental Impact Assessment (EIA) study is undertaken which will be followed by preparation of an Environmental Management Plan (EMP) to minimize those adverse impacts. All the proposed project activities shall be commencing at site only after obtaining necessary approvals from concerned authorities i.e. MoEF&CC /SEIAA and SPCB.

Introduction of the Project

1. Proposed Telangana STPP Phase-II is envisaged as a base load station to meet the power demand of Telangana State as mandated in as per Schedule 13th A.P. Reorganization Act 2014 and being established to meet the power requirement of Telangana State and country as a whole.
2. The Act mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. Telangana Super Thermal Power Project (4000MW) is being established in two phases i.e., Phase-I (2x800MW) and Phase-II (3x800MW). Telangana STPP Phase-I (2x800MW) has been implemented and both the units are under commercial operation. The present proposal is for implementation of Telangana STPP Phase-II (3x800MW).

1.2 PURPOSE OF REPORT

As per Environmental Impact Assessment (EIA) Notification dated 14th September, 2006, commissioning or operation of thermal power plants (≥500 MW) falls under category 'A' under project type-1(d) and requires prior Environmental Clearance (EC) to be obtained from MoEF&CC before the commencement of ground activity.

In line with the aforesaid notification, TOR online application for Environmental Clearance (EC) was filed to MOEF&CC vide proposal no. IA/TG/THE/458070/2024 dated 14.02.2024. The TOR was accorded by MoEF&CC vide letter no. J-13012/112/2010-IA.II (T) dated 10.04.2024. Copy of TOR is enclosed as **Annexure – I.**

EIA Study for Telangana Super Thermal Power Project, Phase-II (3X800 MW) based on TOR letter issued by MoEF&CC vide letter no. J-13012/112/2010-IA.II (T) dated 10.04.2024 has been undertaken by M/s. Mantec Consultants Pvt. Ltd.

The Final EIA report has been prepared using baseline data collected from March 2024 to May 2024. Additionally, the data collection is ongoing and will continue to cover a period of one year.

1.3 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

I. IDENTIFICATION OF PROJECT

The existing Telangana Super Thermal Power Station owned by NTPC Limited (A Govt. of India Enterprise) has an installed capacity of 2x800 MW. Both the units of Phase-I are under commercial operation.

The present proposal is for Expansion of Telangana Super Thermal Power Project by installing 3x800 MW (Phase-II) project in existing premises of Telangana STPP at village Ramagundam, Kundanpalli, Ranapur etc. District Peddapalli, State- Telangana.

The additional units (3x800MW) of Phase-II are proposed to be established adjacent to Phase-I units, within the land already under possession of NTPC. However, for ash dyke of Phase-II, approx. 246.858 Ha of additional land is proposed to be acquired.

Telangana STPP Land Break-up (in Ha.)				
Land Use Description		**Area under Phase–I (Ha.)**	**Area under Phase–II (Ha.)**	**Total Area (Ha.)**
A	Main Plant & Associated Facilities	94.9000	127.8800	226.6230
B	Ash Pond Area	80.9370	246.8583	327.7950
C	Total Area considered for Greenbelt (A+B)	175.8370	374.7380	550.5750
D	Green Belt	81.1380	106.8370	187.9750
E	Total Area (C+D)	**256.9750**	**481.5753**	**738.5503**

II. IDENTIFICATION OF PROJECT PROPONENT

NTPC is India's largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India. Since then it has established itself as the dominant power major with presence in the entire value chain of the power generation business. From fossil fuels it has forayed into generating electricity via hydro, nuclear and renewable energy sources. This foray will play a major role in lowering its carbon footprint by reducing greenhouse gas emissions. To strengthen its core business, the corporation has diversified into the fields of consultancy, power trading, training of power professionals, rural electrification, ash utilization and coal mining as well. NTPC became a Maharatna company in May 2010. The total installed capacity of the company is 82,028 MW comprising of 53 NTPC owned stations including 27 coal based, 7 gas based, 1 Hydro, 17 Solar PV and 1 Small hydro project and 52 Joint Venture (JVs) and Subsidiaries (10 coal based, 4 gas based, 8 hydro, 1 small hydro, 23 solar PV and 5 wind, 1 Energy Storage). By 2032, non-fossil fuel-based generation capacity shall make up nearly 40% of NTPC's portfolio.

1.4 BRIEF DESCRIPTION OF PROJECT

I. Nature of the Project

Telangana STPP, Phase-II (2400 MW: 3x800 MW) will be coal based thermal power project. This is an expansion Unit (3x800 MW) of existing 1600 MW capacity Telangana STPP Phase-I (2x800 MW).

The main components of the proposed plant include:

- Steam Generator and its Auxiliaries
- Steam Turbine and its Auxiliaries
- Electrical Generators, Transformers and Switchyard
- Control and Instrumentation Systems
- Air Pollution Control Systems like Dust Suppression and Extraction Systems, Electrostatic Precipitators and NOx Control System
- Water Intake and Treatment Systems
- Air Cooled Condenser
- Fuel Oil Handling and Storage System
- Coal Handling and Storage System
- Ash Handling, utilization and disposal system including Ash Dyke
- Site Drainage, Effluent Treatment and Sewage Treatment Systems with facilities for Recycle and Reuse & Zero Liquid Discharge
- Green belt, Afforestation and landscaping.

II. Size of the Project

Proposed project is for expansion of Telangana Super Thermal Power Project by installing 3x800 MW (Phase-II) project in existing 1600 MW capacity Telangana STPP Phase-I (2x800 MW).

III. Location of the project

The project is located at village Ramagundam in Peddapalli District of Telangana. It is proposed to be established adjacent to Phase-I units within the MGR unloading bulb. The latitude and longitude of the project site are as given below:

Point	Existing Main Plant & Ash Dyke		Existing Township*		Proposed Ash Dyke	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
A	18°46'08" N	79°27'12" E	18°45'41" N	79°28'52" E	18°45'24.27" N	79°22'46.53" E
B	18°45'42" N	79°28'48" E	18°45'39" N	79°29'46" E	18°46'6.65" N	79°23'31.68" E

C	18°42'30" N	79°28'29" E	18°44'51" N	79°29'45" E	18°45'48.91" N	79°23'37.74" E
D	18°42'43" N	79°27'11" E	18°44'42" N	79°29'27" E	18°45'30.22" N	79°23'37.29" E
E	-	-	-		18°45'16.32" N	79°24'9.91" E
F	-	-	-		18°45'6.16" N	79°24'25.65" E
G	-	-	-		18°44'54.74" N	79°24'25.09" E
H	-	-	-		18°44'47.3" N	79°24'28.6" E
I	-	-	-		18°44'56.18" N	79°24'10.66" E
J	-	-	-		18°45'9.29" N	79°23'31.54" E

*** Established under Ramagundam Super Thermal Power Station.**

IV. Description of the Project Site

The site is located in Peddapalli district, Telangana. The topography of the project site is graded valley with red graded soil and isolated hills. The general surface elevation of the main plant area is 170 m and ash dyke is 215m.

The interstate boundary of Telangana-Maharashtra is at a distance of about 55 km (Aerial Distance) from the plant boundary in the ENE direction. Site is well connected through SH-01 and NH-63 through Hyderabad-Mancherial Road popularly known as Rajiv Rahadari. The nearest railway station is Ramagundam at a distance of 5 km.

V. Justification of the Project

A.P. Reorganisation Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. Telangana Super Thermal Power Project (4000MW) is being established in two phases i.e., Phase-I (2x800MW) and Phase-II (3x800MW). Telangana STPP Phase-I (2x800MW) has been implemented and both units are under commercial operation. The present proposal is for implementation of Telangana STPP Phase-II (3x800MW).

VI. Environmental Setting

The Environment Setting of the surrounding area of the proposed project is described in Table 1-1 below:

Table 1. 1 Environment setting

S. No.	Particulars	Details
A.	**Nature and Size of the Project**	Expansion of Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000MWby addition of Phase-II: 2400MW (3x800 MW)] in an area of 738.5503 Ha (256.97 existing Phase-I and 481.57 proposed Phase-II) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana by NTPC Limited.
B.	**Location**	

<table>
<tr><td></td><td>Village</td><td>Ramagundam, Kudndanpalli, Ranapur, Mogalpahad, Isala Takkallapalli, Yelkalpalli etc.</td></tr>
<tr><td></td><td>District</td><td>Peddapalli</td></tr>
<tr><td></td><td>State</td><td>Telangana</td></tr>
<tr><td></td><td>Geographical Coordinates</td><td>
<table>
<tr><th>Point</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td colspan="3">Existing Main Plant & Ash Dyke Area</td></tr>
<tr><td>A</td><td>18°46'08" N</td><td>79°27'12" E</td></tr>
<tr><td>B</td><td>18°45'42" N</td><td>79°28'48" E</td></tr>
<tr><td>C</td><td>18°42'30" N</td><td>79°28'29" E</td></tr>
<tr><td>D</td><td>18°42'43" N</td><td>79°27'11" E</td></tr>
<tr><td colspan="3">Proposed Ash Dyke</td></tr>
<tr><td>A</td><td>18°45'24.27" N</td><td>79°22'46.53" E</td></tr>
<tr><td>B</td><td>18°46'6.65" N</td><td>79°23'31.68" E</td></tr>
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<tr><td>J</td><td>18°45'9.29" N</td><td>79°23'31.54" E</td></tr>
</table>
</td></tr>
<tr><td rowspan="11">C.</td><td colspan="2">Environmental Settings of the area</td></tr>
<tr><td>Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, etc.) within 10 Km radius</td><td>No such area is located within 10km radius of the project site.</td></tr>
<tr><td>Inter-state boundary within 5 Km radius</td><td>None</td></tr>
<tr><td>Nearest Town</td><td>Godavarikhani, 5.7km</td></tr>
<tr><td>Nearest Railway Station</td><td>Ramagundam railway station at 5.0 km</td></tr>
<tr><td>Nearest State Highway/ National Highway</td><td>Rajiv Rahadari SH-1 (Hyderabad-Mancherial Road)- 0.5km, N
NH-63</td></tr>
<tr><td>Nearest Airport</td><td>Hyderabad, 210km, SSW</td></tr>
<tr><td>Medical Facilities</td><td>Government General Hospital, 2 km E</td></tr>
<tr><td>Seismic Zone</td><td>Zone II</td></tr>
<tr><td>Water Body</td><td>Godavari river (4.24 km) NE</td></tr>
<tr><td>Reserve Forests & Protected Forests</td><td>1. Ramagundam R.F. (0.7 km, NNW direction from project site)
2. Putnur R.F. (3.4 km, WSW direction from project site &adjoining to proposed Ash Dyke Phase-II)</td></tr>
</table>

		3. Raidandi R.F. (4.0 km, WNW direction from project site) 4. Indaram R.F. (4.0 km, WSW direction from project site) 5. Ramgir R.F. (8.99 km, S direction from Ash dyke Phase-I) 6. Khanam Palli R.F. (7.1 km in W direction from proposed Ash Dyke Phase-II)
	Archeological Monument of national importance and Defense installation	NA
D	**List of Industries in the study area**	**Under Operation** 1. NTPC Ramagundam Thermal Power Plant (2600MW) 2. Telangana STPP Phase-I (1600MW) 3. Ramagundam Fertilizers & Chemical Limited 4. TS Genco Thermal Power Plant (62.5 MW) 5. Singareni Thermal Power Plant (18 MW) 6. Singareni Collieries Company Ltd. OCP-IV 7. Singareni Collieries Company Ltd. OCP-III 8. Kesoram Cements Limited 9. SCCL Thermal Power Plant (1200 MW) (Existing) (Outside study area of 10km) **Under Construction/ Under Approval** 1. SCCL Thermal Power Plant (800 MW) (Outside study area of 10km)

**Note: All distances mentioned above are aerial distances from the proposed thermal power plant boundary.*

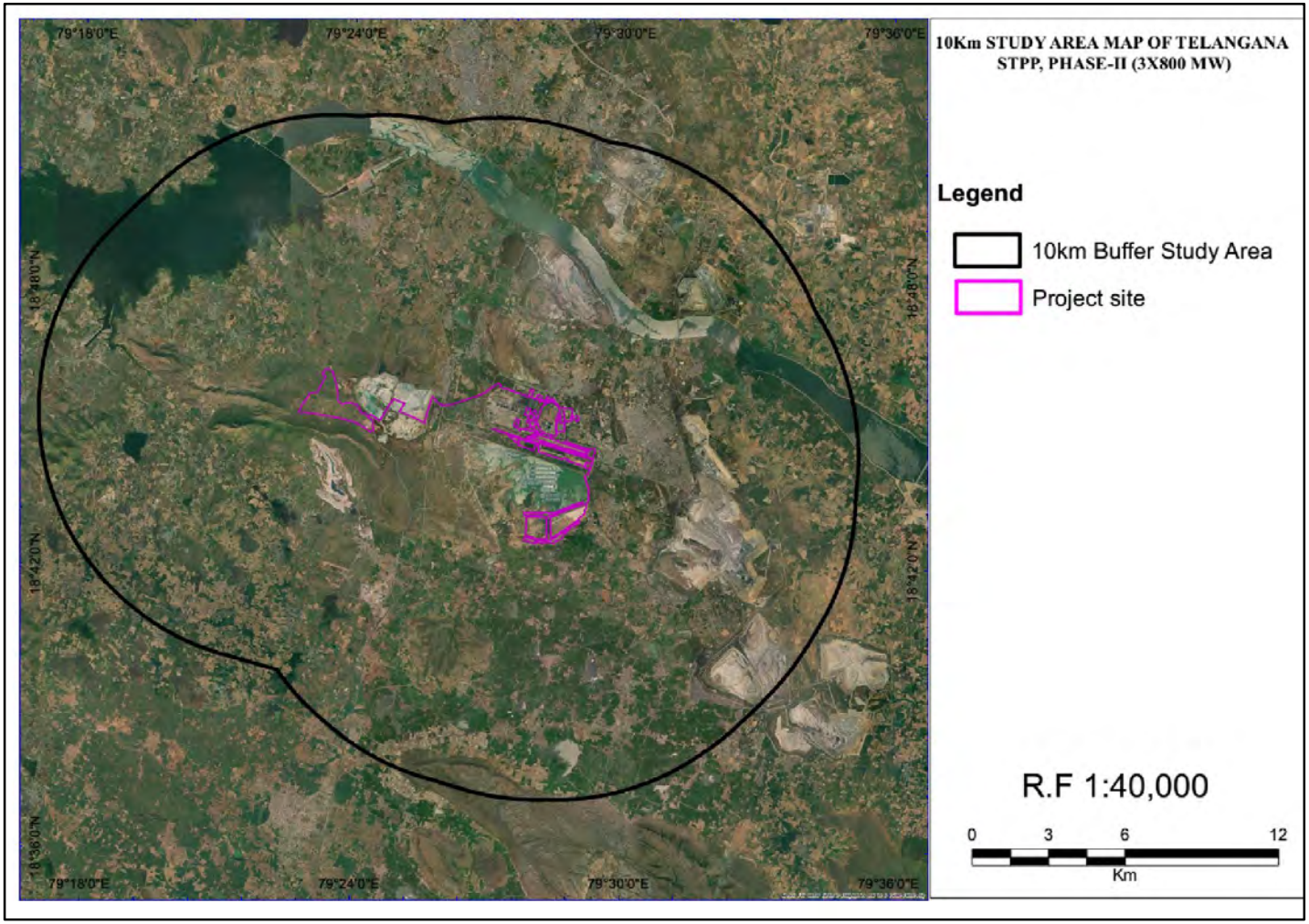


Figure 1-1: 10 km study area map

1.5 STATUTORY CLEARANCES

The list of statutory clearances is given in Table-1.2.

Table 1. 2: List of Statutory Clearances

Sr. No.	Statutory Clearance	Issuing Authority	Letter No.	Date of Issue	Reference
A	**Telangana STPP Phase - I (2 x 800 MW Coal based STPP)**				
1	Environmental clearance for 2 x 800 MW Coal based super thermal power project (STPP Phase- I)	MoEF&CC	J-13012/112/2010. IA.II (T)	20.01.2016	Annexure - II
2	Amendment in EC for 2 x 800 MW Coal based super thermal power project (STPP Phase- I)	MoEF&CC	J-13012/112/2010. IA.II (T)	06.03.2017	Annexure - III
3	Amendment in EC for 2 x 800 MW Coal based super thermal power project (STPP Phase- I)	MoEF&CC	J-13012/112/2010. IA.II (T)	21.10.2020	Annexure – IV
4	Amendment in EC for 2 x 800 MW Coal based super thermal power project (STPP Phase- I)	MoEF&CC	J-13012/112/2010. IA.II (T)	08.08.2022	Annexure - V
B	**CTE-CTO of Telangana STPP Phase-I (2 x 800 MW Coal based STPP)**				
1	Consent to Establish	TGPCB	Order no. 80/TSPCB/CFE/RO-RGM/HO/ 2016-128	20.04.2016	Annexure-VI
			Extended vide order no.01/TSPCB/CFE/ Auto Renewal/KRM/RO-RGM/HO/2021	20.05.2023	
2	Consent to Operate and Hazardous Waste Authorization	TGPCB	20234665654	16.08.2023 Valid up to 31.12.2028	Annexure-VII
C	**TOR for Telangana STPP Phase-II (3 x 800 MW Coal based STPP)**				
1	TOR for Expansion of Telangana Coal Based Super Thermal Power project by installing 3x800 MW	MoEF&CC	J-13012/112/2010.IA.	10.04.2024	Annexure - I

	(Phase-II) project in existing project (2x800 MW)		II (T)		

1.6 SCOPE OF THE STUDY

As per EIA notification 2006, the proposed project is covered under category A of item 1(d) Thermal Power project. TOR for the project has been granted by MOEF&CC vide letter no. F. No. J-13012/112/2010-IA.II (T) dated 10.04.2024. The Final EIA report has been prepared based on TOR granted by MoEF&CC.

TOR Compliance has been attached in the Volume II of the Final EIA Report.

1.7 METHODOLOGY OF THE STUDY

Final EIA report has been prepared based on Baseline monitoring period from March 2024 to May 2024 as outlined in Table-1.3.

Table 1-3: Environmental Attributes and Frequency of Monitoring

Sr. No.	Attributes	Parameters	Frequency
1	Meteorology	Wind speed, wind direction, temperature relative humidity, Rainfall, Atmospheric Pressure, Solar Radiation and Storm	Continuous (Averaging time of 1 hour)
2	Ambient Air Quality	SO_2, NO_x, PM_{10}, $PM_{2.5}$	Twice a week
		SO_2, NO_x, PM_{10}, $PM_{2.5}$, CO, O_3, Hg and other AAQ parameters as per NAAQS Standard	Once a month
3	Water Quality	Physical, Chemical and Bacteriological parameters	Grab samples from Surface Water (SW) and Ground Water (GW) sources have been collected. Sampling and analysis are carried out monthly during study period.
4	Soil Quality	Soil profile with chemical constituents	Once in season
5	Land Use	Trend of land use change for different categories	Based on secondary data and satellite imagery
6	Ecology	Terrestrial and aquatic flora and fauna in the study area	Once in season
7	Noise levels	L_{day}, L_{night}, L_{eq}	Hourly readings for 24 hours

			at ten locations, once in season
8	Socio-economic aspects	Socio-economic characteristics	Based on data published in district census handbooks and field study
9	Need-assessment	Measurable indicators were developed for air quality water quality, biodiversity, soil quality, noise quality. Land use pattern and traffic study to ascertain impacts of the project.	Periodical monitoring and evaluation of implementation of EMP.
10	Hydrogeology	Ground water occurrence and movement, ground water yield and ground water levels for Pre and Post Monsoon Season. Identification of Water bodies in the study area, their types and their used.	Based on site visit and CGWB report published by Regional Office of CGWB.
11	Risk Assessment	Risk & Hazard Identification, Consequences analysis & Disaster Management Plan	Risk has been assessed based on the field visit, identification of nearby industries and population, and review of the existing Disaster Management Plan (DMP)

1.8 CONTENTS OF THE REPORT

The EIA report has been divided into twelve chapters as described below:

Chapter 1 – Introduction

This chapter provides the purpose of the report, background information of the proposed thermal power plant, brief description of nature, size and location of project, environmental settings of project, scope of the study and methodology of the study.

Chapter 2 – Project Description

This chapter highlights the features of the technical details of the proposed thermal power plant, its layout and design, project raw material requirement, process description, resource requirement, utilities and services, infrastructural facilities, sources of pollution and its mitigation measures.

Chapter 3– Description of the Baseline Environment

This chapter deals with the methodology and findings of field studies undertaken with respect to ambient air, meteorology, water, soils, noise levels, ecology and Socio economic to define the various existing environmental status in the study area of the project.

Chapter 4 – Anticipated Environmental Impacts and Mitigation Measures

In this chapter, the potential impacts of the proposed coal based thermal power plant, which could cause significant environmental concerns during construction & operation phase of project are identified and discussed. This discussion forms the basis for environmental management activities.

Chapter 5 – Analysis of Alternatives (Technology and Site)

This chapter includes a comparison of alternatives to determine the best method for achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost-effective options.

Chapter 6 – Environmental Monitoring Program

This chapter includes Environmental Monitoring program for various attributes of environment during construction and operation phases.

Chapter 7 – Additional Studies

This chapter includes outcomes of public consultation, risk assessment, social impact assessment, R&R action plan, biodiversity conservation plan, watershed management etc.

Chapter 8 – Project Benefits

This chapter deals with improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits due to proposed project.

Chapter 9 – Environmental Cost Benefit Analysis

This chapter includes environmental value enhancement (biodiversity, crop productivity, eco-tourism etc.).

Chapter 10 – Environmental Management Plan

This chapter includes the description of various pollution control systems and other mitigation measures including administrative aspects of ensuring that the mitigation measures suggested are implemented and their effectiveness is monitored.

Chapter 11 – Summary

This chapter constitutes the summary and conclusion of EIA Report.

Chapter 12 – Disclosure of Consultant

This chapter includes the names of the consultants engaged in preparation of EIA and nature of consultancy rendered.

CHAPTER 2 : PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION

This chapter highlights the features of the proposed expansion of thermal power plant, fuel/raw material requirement, details of the process, infrastructural facilities and sources of pollution and pollution control measures.

2.2 TYPE OF THE PROJECT

Telangana STPP, Phase-II (3x800 MW) Power Project shall be a pulverized coal fired thermal power project based on Ultra-Super Critical Boiler Parameter. It is being implemented in two phases., Phase-I (2x800MW) and Phase-II (3x800MW). Both the units of Phase-I Telangana STPP (2x800 MW) have been commissioned and are under commercial operation. It is proposed to expand the capacity of project by adding 3x800 MW under Phase-II. Proposed unit under Phase-II (3x800 MW) is planned to be located within the existing plant premises while the land for the proposed ash dyke is proposed to be acquired.

2.3 NEED FOR THE PROJECT

Power is one of the key infrastructural elements for the economic growth of a country. The proposed Telangana STPP Phase-II, as mandated under the A.P. Reorganization Act, 2014, is crucial to meet the increasing base load power demand of Telangana and support the national energy security. Rapid urbanization, industrialization, and agricultural needs have led to a rising energy deficit in the state. The project ensures reliable, affordable, and uninterrupted power supply, enabling sustained economic progress, job creation and improved quality of life. Additionally, the project strengthens the state's energy infrastructure and reduces dependence on external power sources.

2.4 DEMAND-SUPPLY SCENARIO

All India Installed Capacity (Fuel-Wise) as on 31.05.2025 is given in Table-2.1.

Table 2-1 Installed Capacity (Fuel-Wise)

Category		**Installed Generation Capacity (MW)**
Fossil Fuel (A)	Coal	2,12,718
	Lignite	6,620
	Gas	20,132
	Diesel	589
	Total	2,40,059
Non-Fossil Fuel	**Hydro (B)**	**47,928**
	Wind, Solar & Other RE	

	Wind	51,292
	Solar	1,10,834
	Bio-Mass power/Cogen.	10,743
	Waste to Energy	850
	Small Hydro Power	5102
	Total Wind, Solar & Other RE (C)	1,78,822
	RES (incl. Hydro) (B+C) = D	**2,26,750**
	Nuclear (E)	**8,780**
	Total Non-Fossil Fuel: (D+E)	**2,35,530**
	Total Installed Capacity (A+D+E)	**4,75,590**

The electricity generation target (Including RE) for the year 2025-26 has been fixed as 2000.4 Billion Unit (BU) i.e. growth of around 9.3% over actual generation of 1829.698 BU for the previous year (2024-25). The generation during 2024-25 was 1829.698 BU as compared to 1739.091 BU generated during 2023-24, representing a growth of about 5.21%.

All India Power Generation over previous five years is given in Table-2.2.

Table 2-2: All India Power Generation over previous five years

Year	Power Generation from all sources		Coal Based Power Generation	
	Billion Units	% Growth	Billion Units	% Growth
2020-21	1381	-0.52	1032	-1.0
2021-22	1491	7.96	1114	7.96
2022-23	1624	8.89	1206	8.21
2023-24	1739	7.06	1326	9.93
2024-25	1,829	5.21	1363	2.8

** Source: CEA*

Peak Demand and Energy Requirement forecast for 2029-30

The 20th Electric Power Survey (EPS) projections for peak electricity demand and electrical energy requirement for the country have been considered for the studies. The projected region-wise and all India peak electricity demand (GW) and electrical energy generation (BU) by the year 2029-30 are given as following:

Region	Peak Demand (GW)	Electrical Energy Requirement
Northern	116.7	707.55
Western	107	713.08
Southern	97.4	547.4
Eastern	45.7	282.26
North-Eastern	5.8	29.35
All-India	334.8*	2279.68

*Summation of all regional peaks to All India peak may differ due to diversity factor.

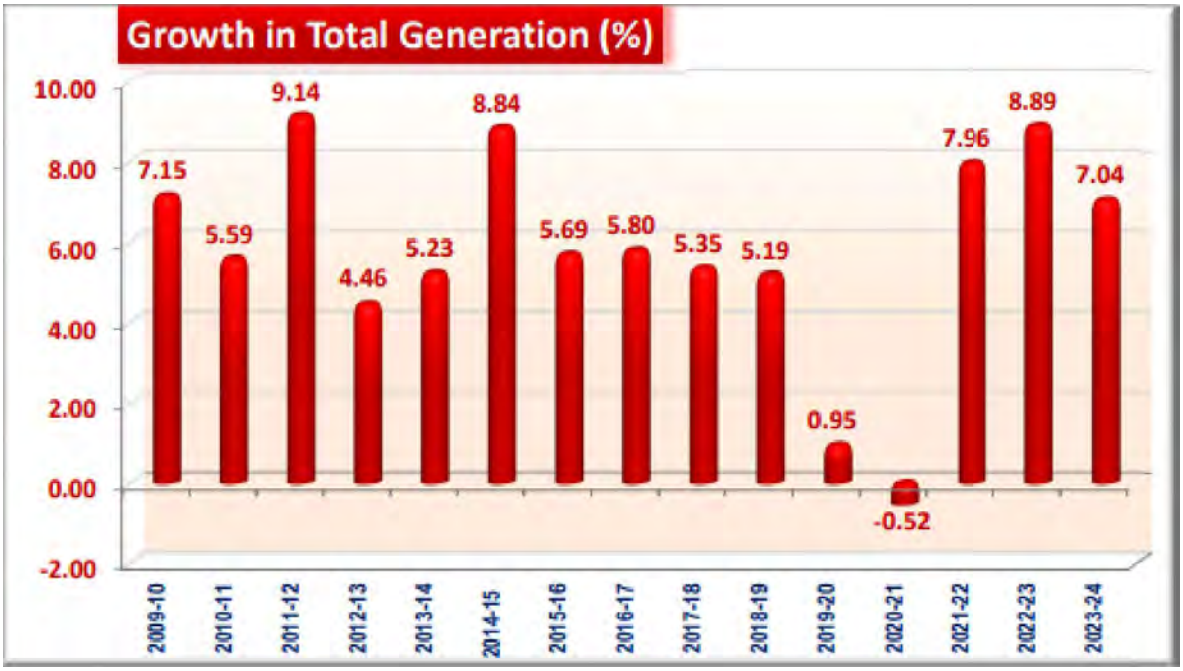
As per the recent study carried by Central Electricity Authority (CEA) on Optimal Generation Capacity mix for 2029-30, the likely All India installed capacity in 2029-30 is estimated to be 8,17,254 MW as given in Table-2.3.

Table 2-3: All India Likely Installed Capacity by the end of the Year 2029-30

Fuel Type	Capacity (MW) by 2029-30
Hydro	60,977
PSP	10,151
Small Hydro	5,000
Coal + Lignite	2,66,911
Gas	25,080
Nuclear	18,980
Solar	2,80,155
Wind	1,40,000
Biomass	10,000
Total	**8,17,254**

As per CEA, likely installed capacity for Coal & Lignite based power generation is estimated to be 266.9 GW by end of year 2029-30, which was about 214 GW by Dec. 2023. For such generation, about 53 GW of Coal Based projects need to be added.

Growth; Growth of power generation as per Central Electricity Authority (CEA) given in below



graph:

From the above demand supply scenario, it is observed that the power demand is projected to experience peak and energy shortage by end 20th plan without addition of the proposed project.

2.4.1 Saubhagya' Scheme

Government of India (GOI) launched the Pradhan Mantri Sahaj Bijli Har Ghar Yojana– Saubhagya in October, 2017 with the objective to achieve universal household electrification for providing electricity connections to all willing un-electrified households in rural areas and all willing poor households in urban areas in the country. A total of 2.86 Crore households have been electrified since the launch of Saubhagya.

2.4.2 Conclusions

During the recent period, coal-based power generation has increased by 7.96%, 8.89%, 7.04% & 5% over the previous years. As per CEA, the likely installed capacity for Coal & Lignite based power generation is estimated to be 266.9 GW by end of year 2029-30 to meet the power demand, which necessitates additional capacities of Coal based projects.

The proposal for setting up three units of 800 MW (ultra-super-critical), which would help in reducing the generation of greenhouse gases by adopting relatively high efficiency technologies is justified.

However, it will be prudent to reassess the demand supply position and financial viability at the time of Investment Approval of the project.

2.5 LOCATION OF THE PROJECT

The project is located in Peddapalli district of Telangana State. The project is located at about 20km from district headquarter Peddapalli and at about 1 km distance from Ramagundam village.

The latitude and longitude of the project site are as follows:

Table 2-4: Latitude and Longitude of the Project site

Point	Existing Main Plant & Ash Dyke		Existing Township*		Proposed Ash Dyke	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
A	18°46'08" N	79°27'12" E	18°45'41" N	79°28'52" E	18°45'24.27" N	79°22'46.53" E
B	18°45'42" N	79°28'48" E	18°45'39" N	79°29'46" E	18°46'6.65" N	79°23'31.68" E
C	18°42'30" N	79°28'29" E	18°44'51" N	79°29'45" E	18°45'48.91" N	79°23'37.74" E
D	18°42'43" N	79°27'11" E	18°44'42" N	79°29'27" E	18°45'30.22" N	79°23'37.29" E
E	-	-	-	-	18°45'16.32" N	79°24'9.91" E
F	-	-	-	-	18°45'6.16" N	79°24'25.65" E
G	-	-	-	-	18°44'54.74" N	79°24'25.09" E
H	-	-	-	-	18°44'47.3" N	79°24'28.6" E
I	-	-	-	-	18°44'56.18" N	79°24'10.66" E
J	-	-	-	-	18°45'9.29" N	79°23'31.54" E
***Existing township developed under Ramagundam Super Thermal Power Station**						

2.5.1 Airport

The nearest Commercial Airport is Hyderabad, located at a distance of approximately 210 km (Aerial distance) from the project site.

2.5.2 Railway Station

The nearest Railway Station is Ramagundam railway station at 5 km from the plant which lies on the main Kazipet-Balarshah Broad Gauge line of South-Central Railway.

2.5.3 Highway -

Site is well connected through SH-01 and NH-63 through Hyderabad-Mancherial Road popularly known as Rajiv Rahadari.

Location of the project and their environment sensitivity is showing in figure 2.1 & 2.2.

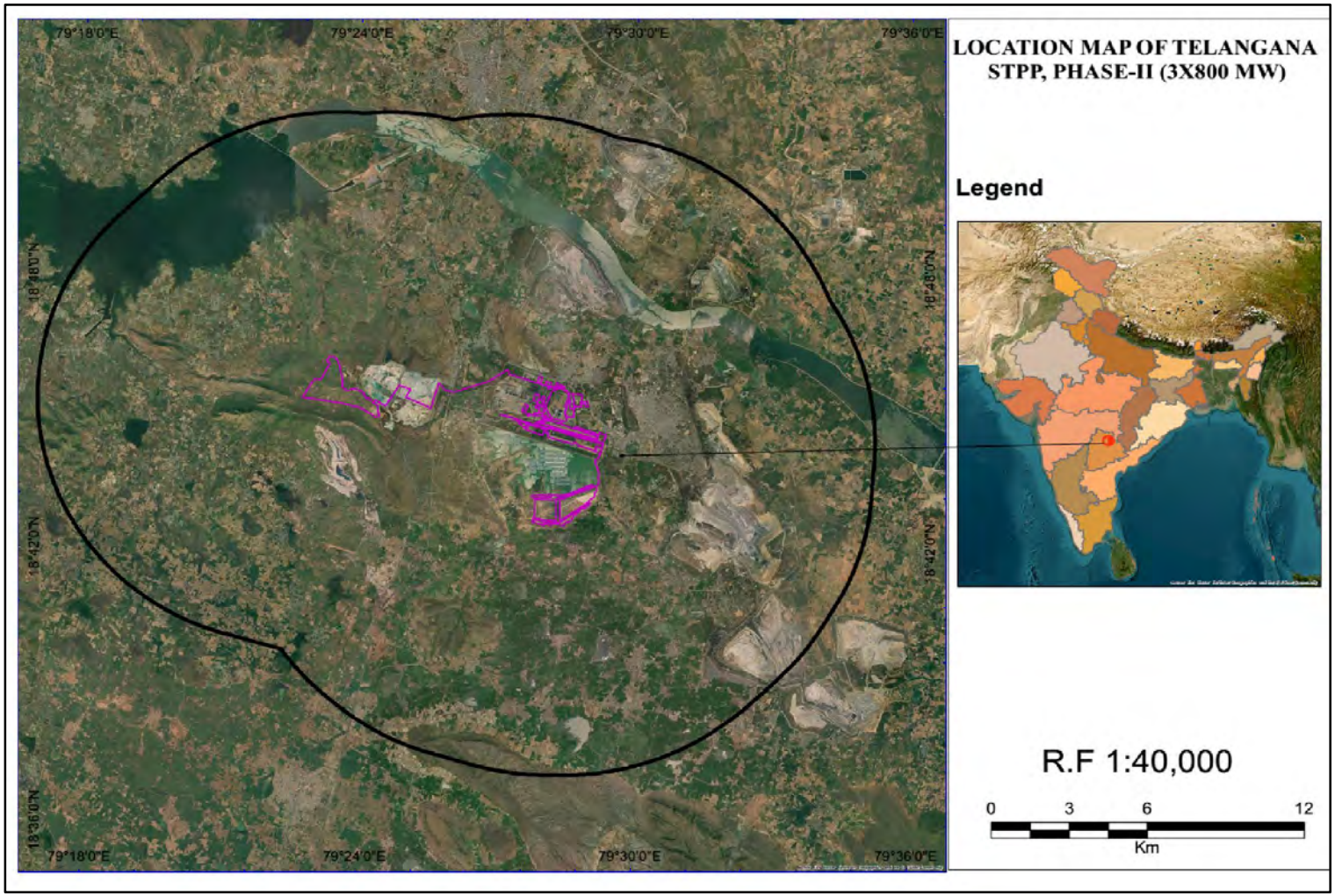


Figure 2-1: Map showing project Location

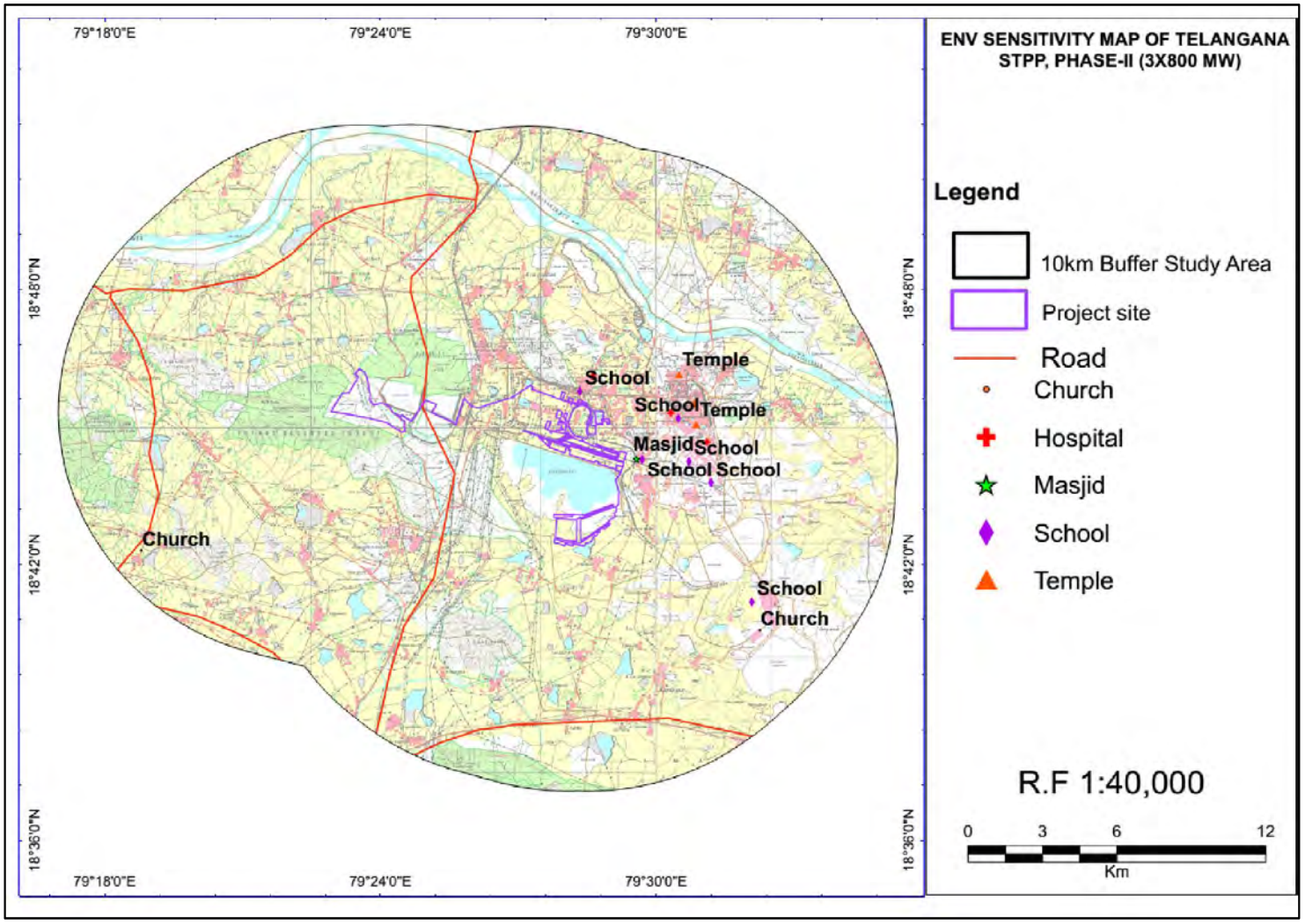


Figure 2-2: Map Showing the Environmental Sensitivity of the Area

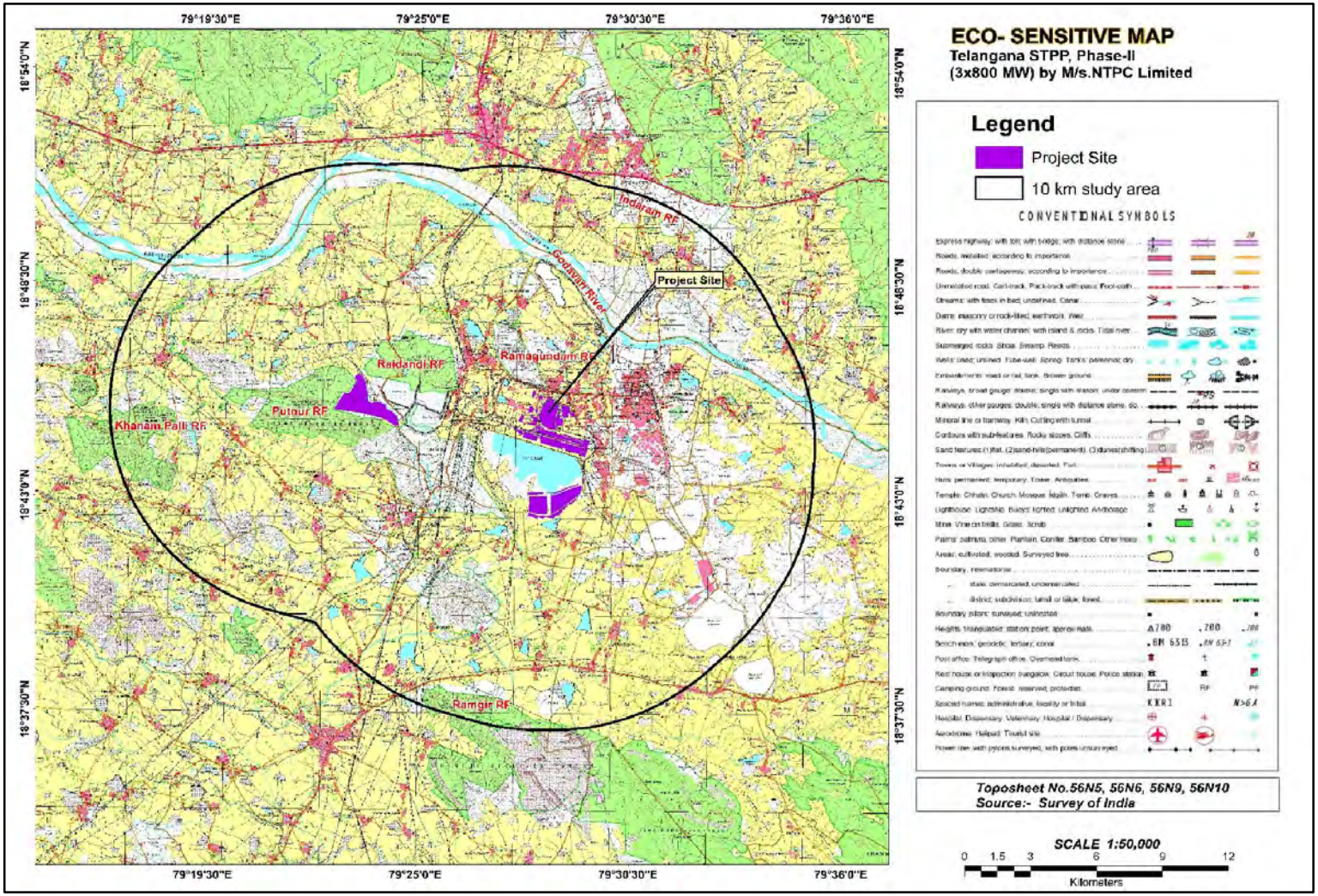


Figure 2-3: Map Showing the Eco-Sensitivity of the Area

2.6 SALIENT FEATURES

The salient features of the proposed expansion of Telangana STPP are given in Table-2-4. The Layout plan of the project is given as Figure 2.4 and 2.5.

Table 2-5: Salient Features of Proposed Expansion of STPP

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Phase - I

Phase- II</td><td>2 x 800 MW (Commissioned)

3 x 800 MW (Present proposal)</td></tr>
<tr><td>2.</td><td>Technology</td><td>Ultra Super Critical</td></tr>
<tr><td>3.</td><td>Total Area of project</td><td><table>
<tr><td>Non-Forest land already acquired (In Ha.)</td><td>491.6923</td></tr>
<tr><td>Non-Forest land to be acquired (In Ha.)</td><td>246.8580</td></tr>
<tr><td>Forest Area (In Ha.)</td><td>0</td></tr>
<tr><td>Total</td><td>738.5503</td></tr>
</table></td></tr>
<tr><td>4.</td><td>Fuel Requirement & Its characteristics</td><td>Coal requirement for the project is estimated to be 11.7 MTPA at 90% PLF considering GCV of 3800 Kcal/Kg.<table>
<tr><td>Sulphur in coal (maximum)</td><td>% wt/wt</td><td>0.4-0.6</td></tr>
<tr><td>GCV of Coal</td><td>Kcal/kg</td><td>3300 - 3800</td></tr>
<tr><td>Ash Content</td><td>%</td><td>38% - 43%</td></tr>
</table></td></tr>
<tr><td>5.</td><td>Source of Fuel</td><td>The coal requirements of Phase-I is 8 Million TPA which is being met through Tapering Coal linkage of with Singareni Collieries Company Limited (SCCL). As per the Minutes of Meeting dated 13.02.2024, SLC (LT) has confirmed that coal linkage shall be provided from Singareni Collieries Company limited (SCCL).</td></tr>
<tr><td>6.</td><td>Fuel Transportation</td><td>Transportation of Coal from Coal Mines to the project is proposed by MGR/Indian Railway.</td></tr>
<tr><td>7.</td><td>Water Requirement</td><td>Existing (Phase–I): 1,15,200 KLD

Proposed (Phase–II): 56,520 KLD</td></tr>
<tr><td>8.</td><td>Source of Water</td><td>Sreepada Yellampali Barrage on Godavari River</td></tr>
<tr><td>9.</td><td>Cooling System</td><td>Air-cooled condenser and Aux. Cooling Towers</td></tr>
</table>

10.	Power evacuation	The Phase-II generation switchyard shall be interconnected to Phase-I through 400kV line for drawl of start-up power and additional flexibility in power evacuation through Phase-I lines. Power generated from proposed stage-II shall be stepped up to 400kV level. Considering the allocation of power from this project, Dual connectivity with both ISTS and STU network is proposed for the project as significant share of power from the project is proposed to be availed by beneficiaries outside the home state of Telangana.
11.	Effluent Discharge	Zero Liquid Discharge
12.	Fire Fighting System	Adequate firefighting systems as per Tariff Advisory Committee (TAC) and OISD guidelines will be provided.

Source: NTPC FR

2.7 DETAILS OF PROPOSED ASH POND FOR TELANGANA STPP PHASE-II (3X800MW):

The ash dyke area for Telangana-II STPP (3X800MW) is located about 5km from the plant boundary and is adjacent to NTPC Ramagundam dykes. The total available area of ash disposal for HCSD& Bottom Ash is about 246.858 hectare.

Fly ash (FA) from Telangana-II STPP (3X800MW) is proposed to be disposed off through high concentration slurry disposal (HCSD) system and bottom ash (BA) in the form of lean slurry. Considering the availability of land, it is envisaged to utilize about 111.858 hectare area for FA disposal and about 125 hectare for BA disposal and 10 hectare for OFL, (including space required for dyke, toe drains, peripheral road and pipe corridor).

In this project, (assumed to be operating at an average PLF of 90 percent), about 132.45 million cum of ash is expected to be produced in 25 years. However, as per latest notification of MoEF&CC, every coal or lignite based thermal power plant shall be responsible to utilize 100 per cent ash (fly ash and bottom ash) generated during that year, however, in no case shall utilization fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilization of 100 per cent in a three years cycle. In the design life period of 25 years about 0.636 million cum of bottom ash and about 2.544 million cum of fly ash will have to be disposed off during initial periods. Balance quantity of 129.27 million cum of fly ash will have to be utilized subsequently.

Accordingly, the design capacity of ash dyke shall be for at least about 3.18 million cum for bottom ash storage lagoons and about 12.72 million cum for fly ash storage lagoon.

For developing 15.90 million cum (12.72 million cum FA & 3.18 million cum BA) of storage capacity, one storage lagoons for Fly Ash disposal by High Concentration Slurry Disposal (HCSD)

system & two storage lagoons for disposal of bottom ash by wet slurry disposal system with one overflow lagoon for storing decanted water from above storage lagoons are envisaged. For developing 12.72 million cum capacity of HCSD, average 9.0m high embankment is envisaged to be constructed. For developing 3.18 million cum capacity of BA, average 12.0m high embankment is envisaged to be constructed. For HCSD disposal, 1 raising of 3m height and for BA disposal, 2 raisings of 3m height each with upstream method is also envisaged for future exigency.

Suitable impervious lining as per actual site conditions, meeting the imperviousness requirements as per standard "Guidelines for Design, Construction, O&M and Annual certification of Coal Ash Ponds-June 2023". HDPE lining system is envisaged in OFL and Bentonite blended lining in all ash storage lagoons.

To avoid fugitive ash dust emission and for promoting vegetation cover, the final ash surface will be covered with min. 300 mm thick earth cover.

Table 2-6: Details of Proposed Ash Pond

S. N.	Ash Pond Particulars	Details
1.	Area	246.858 Ha (including space required for ash disposal, decanted area, overflow lagoon, dyke embankment, toe drains, peripheral roads, ash pipe corridor, AWRS pump house and its facilities etc.).
2.	Dyke height	HCSD Lagoon: 9.0 M Starter dyke with 1 Raising of 3.0 M height BA Lagoon: 12.0 M Starter dyke with 2 Raisings of 3.0 M height each
3.	Volume	20.4 million m^3 (Ash disposition)
4.	Quantity of ash to be disposed	20.4 million Metric Tons (Considering density as 1.0 T/cum)
5.	Expected life of ash pond (number of years and months)	03 years and 06 months (considering nil ash utilization)
6.	Type of lining	Suitable impervious lining as per actual site conditions meeting the imperviousness requirements as per standard "Guidelines for Design, Construction, O&M and Annual certification of Coal Ash Ponds-June 2023". HDPE lining system is envisaged in OFL and Bentonite blended lining in all ash storage lagoons.
7.	Mode of disposal:	Wet Slurry Disposal for Bottom Ash (LCSD) & High Concentration Slurry Disposal (HCSD) system for Fly Ash.
8.	Ratio of ash: water in slurry mix	Maximum 25% ash on dry ash basis, rest is water for LCSD Slurry,

		55% to 65% (Average-60%) of ash on dry ash basis, rest is water for HCSD slurry.
9.	Ash water recycling system (AWRS)	Ash water recycling system has been envisaged for the proposed project.
10.	Quantity of wastewater from ash pond to be discharged into land or water body (m^3)	Zero Liquid Discharge system envisaged for the proposed expansion project. No wastewater discharge is envisaged.
11.	Details regarding dyke stability study and name of the organization who conducted the study.	As already done in all past ash dyke stability design, this will also be done by NTPC, (in-house design) in line with "CEA and CPCB Guidelines for Design, Construction, O&M and Annual certification of Coal Ash Ponds".

Calculation basis: Expected life of ash pond is approximately 3 years and 6 months (considering yearly ash generation of approx. 5 million Metric tons).

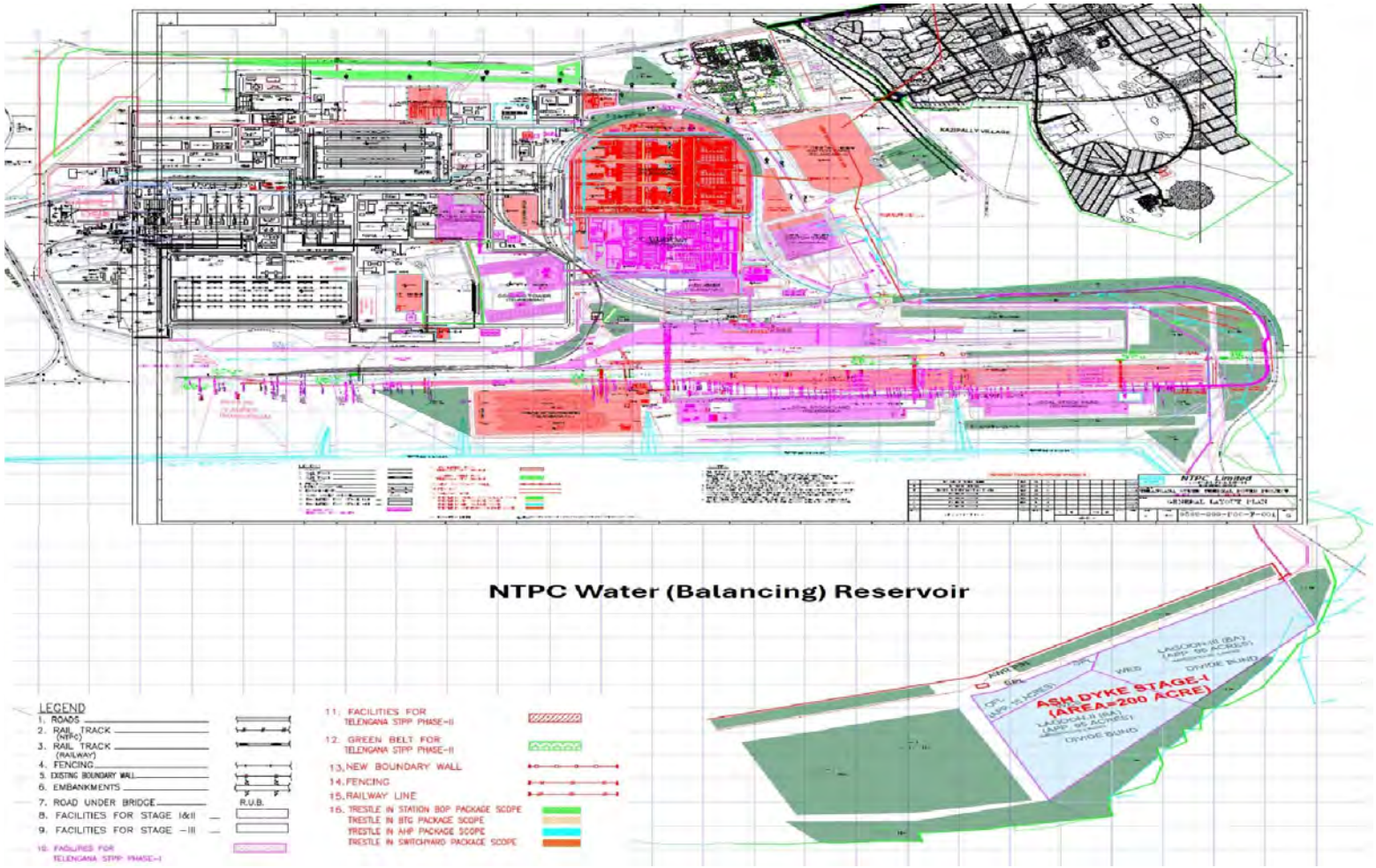


Figure 2-4: Layout Plan of the Proposed Expansion of Power Plant



Greenbelt Telangana STPP

Sl. No.	DESCRIPTION	Area in Ha.	Location
1	GB-1	4.36	Oxidation pond area Mlyawaki Plantation
2	GB-2	7.13	Area Between Ash pipe corridor and North side Road
3	GB-3	7.51	North side Railway track both sides
4	GB-4	8.78	East side of Coal Stock Yard
5	GB-5	2.00	South side of Coal stock yard
6	GB-6	5.1	South side of Coal stock yard
7	GB-7	2.7	East side of Ash Dyke
8	GB-8	1.5	Beside east side of Bund road
9	GB-9	3.40	South side of Ash Dyke
10	GB-10	17.21	South side of Ash Dyke
11	GB-11	7.28	Area between Ash Dyke and Reservoir- Miyawaki
12	GB-12	7.74	East side of Track Hopper
13	GB-13	4.20	West side of Coal Crusher house
14	GB-14	5.93	West side of Coal Stock Yard
15	GB-15	2.37	Telangana plant gate -A right side
16	GB-16	8.78	Telangana plant gate -A left side
17	GB-17	36.25	Area in Lagoon-1
18	P-1	8.80	Area between Balancing Reservoir and Phase 1 Ash Pond
19	P-2	4.01	Railway siding Phase-1
20	P-3	9.31	Area between Phase 1 Ash Pond and South Plant Boundary.
21	P-4	29.42	Inside Lagoon-1
22	P-5	8.01	Area between Ash pipe and Track Hopper
	P-6	2.48	North side of project near highway
TOTAL =		187.98	

NOTE:
GB - GREEN BELT
P -PROPOSED GREEN BELT

Figure 2-5: Layout Plan of the Proposed Ash Dyke of Power Plant

2.8 PROPOSED SCHEDULE AND APPROVAL FOR IMPLEMENTATION

2.8.1 Proposed Schedule for Implementation

The Commercial Operation Date (COD) for the first 800 MW unit of Telangana STPP Phase-II will be in 60 months from the Investment approval and subsequent units after an interval of 9 months thereafter.

2.8.2 Approval for Implementation

The establishment of proposed expansion activities will be commenced after obtaining Environmental Clearance from MoEF&CC, New Delhi and Consent to Establish (CTE) from Telangana SPCB.

2.9 LAND REQUIREMENT

The Telangana STPP Phase-II (3x800MW) is proposed to be located near the Telangana STPP Phase-I (2x800MW) within MGR unloading bulb area within existing premises of NTPC's Ramagundam Super Thermal Power Station.

Both the units of Phase-I have been commissioned. Main Plant of the Phase-II (3x800MW) is proposed to be accommodated within the available land. The available land shall be used for the main plant and all the associated facilities including, Switchyard MGR, Air cooled condenser and water/wastewater treatment plants etc.

For ash disposal approx. 246.858 hectares of land is identified nearby ash pond land of RSTPS on the south-western side.

Land details break-up for existing Phase-I & proposed Phase-II is as follows:

Table 2.7: Land Use of Existing and Proposed Project

Telangana STPP Land Break-up (in Ha.)				
Description		**Area for Phase-I (in Ha.)**	**Area for Phase-II (in Ha.)**	**Total Area (Phase-I & II)(in Ha.)**
A	**Main plant and associated facilities**	94.9000	127.8800	222.7800
B	**Ash Dyke Area**	80.9370	246.8580	327.7950
C	**Total area considered for Greenbelt calculation (A+B)**	**175.8370**	**374.7380**	**550.5750**
D	**Greenbelt**	81.1380	106.8373	187.9753
E	**Total Area (C+D)**	**256.9750**	**481.5753**	**738.5503**

Details regarding type of land is as follows:

Land Category		Area in Ha.
Non-Forest land (in Ha.)	Existing	256.9750
	Proposed	481.5753
Forest Land (in Ha.)		0
Total (in Ha.)		**738.5503**

2.10 RESOURCE REQUIREMENT

2.10.1 Water Requirement & its Source

Water for the Telangana STPP Phase-I is presently being drawn from Sreepada Yellampalli Barrage on Godavari River. Irrigation and CAD Dept. Govt of Telangana vide order dated 09.10.2015 accorded permission for drawl of 2.73 TCM water from Sreepada Yellampalli Barrage. Telangana STPP Phase-II (3x800) is proposed to be based on Air-Cooled condenser (ACC) system. Water requirement for Telangana STPP Phase-II (3x800 MW) project would be about 2,355 m^3/hr i.e., 56,520 KLD.

The total water requirement for Phase-I is 1, 15,200 KLD.

The water requirement of the proposed project and existing units are given below in Table 2.6

Table 2-8 Wastewater details

Description	Existing (KLD)	Proposed for Expansion (KLD)	Total (KLD)
Total water requirement	4800 m^3/hr – 1,15,200 KLD	2,355 m^3/hr – 56,520KLD	7155 m^3/hr – 1,71,720 KLD
Wastewater Generation	62,400 KLD	32,040 KLD	94,440 KLD
Reuse/Recycle of treated wastewater	62,400 KLD	31,800 KLD	94,240 KLD
Wastewater Disposal	NIL (ZLD)	NIL (ZLD)	NIL (ZLD)
STP capacity	3,500 KLD	75 KLD	3,575 KLD
STP Technology	MBBR	Decentralized Packaged type	-
ETP Capacity	62,400 KLD	29,250 KLD	91,650 KLD
ETP Technology	Settling + RO	Settling + RO	--

The Water Balance Diagram of the project is given as Figure 2-6

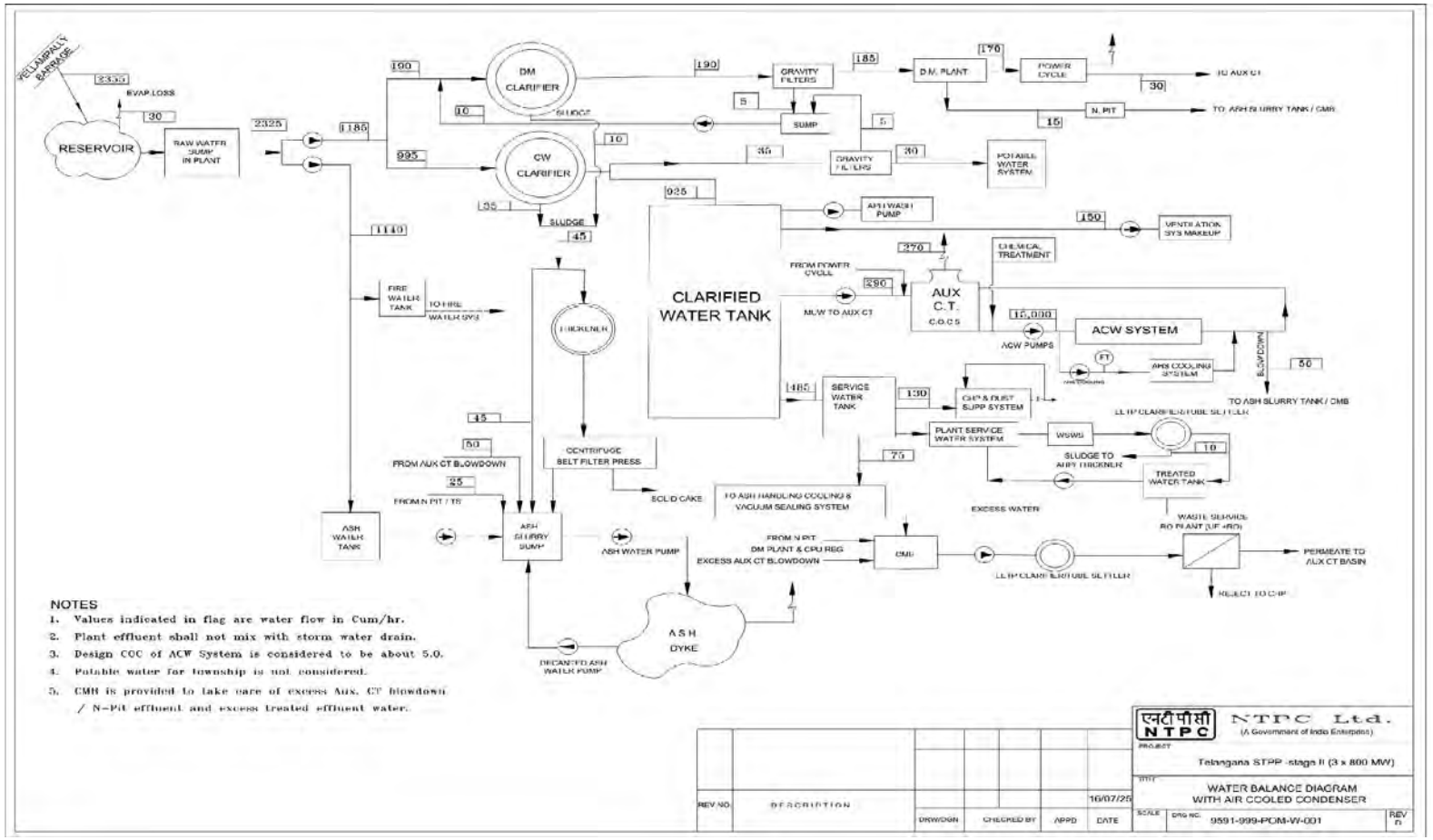


Figure 2-6: Water Balance Diagram

2.10.2 Construction Water

Water required for construction purposes shall be drawn from water network of existing Telangana STPP Phase-I facilities.

2.11 MANPOWER DETAILS

Tentative manpower and employment numbers are as given below.

Table 2.9: Manpower Requirement for the existing plant and proposed project

Existing Telangana Phase-I		Proposed Expansion Telangana Phase-II			
Operation Phase		Construction Phase		Operation Phase	
Contractual	Permanent	Contractual	Permanent	Contractual	Permanent
2000	179	3500-4000	96	1000-1500	216

The numbers of contractual and permanent employment are tentative, and actual numbers may vary as per requirement during execution.

2.12 POWER EVACUATION SYSTEM

Power from the existing Phase-I of Telangana STPP is being evacuated at 400kV level through the STU network. Presently, there are 2 nos. 400kV D/C Quad lines from Telangana-I Generation switchyard to Narsapur S/s and Ramadugu S/s of TSTRANSCO.

Power generated from proposed stage-II shall be stepped up to 400kV level. Considering the allocation of power from this project, Dual connectivity with both ISTS and STU network is proposed for the project as significant share of power from the project is proposed to be availed by beneficiaries outside the home state of Telangana. For the purpose of ISTS drawal, One 400kV D/C transmission line from TLSTPP Phase-II to Warangal S/S of ISTS has been considered as dedicated transmission line of the project. Interconnection of stage-II generation switchyard with the existing Stage-I switchyard has also been considered to facilitate power flow to the STU network and drawl of startup power. The issue of power evacuation of the proposed project is being taken up with appropriate Transmission utility (STU & CTU) as per regulatory provisions.

Construction power

The requirements of the construction power supply for the project would be met by feeders from the existing 11 KV Switchgear of Phase-I. Necessary 11 kV ring main/LT sub-stations shall be provided for the required power plant area. The start-up power requirement shall be derived from 400 kV Telangana STPP Phase-I switchyard.

2.13 RESIDENTIAL AREA

NTPC has already developed a full-fledged township consisting of various residential and non-residential buildings for staff of NTPC, CISF, support staff & staff of Associated Agencies, Trainees Hostel (Rooms), Guest Houses, Field Hostel etc. Additional residential buildings shall be constructed as per requirement. Non-residential Buildings shall include Training Centre (Including Workshop), Hospital (General hospital with support facilities), Administrative Office, Pre-Nursery/Nursery School, Higher Secondary School, Bank, Post Office, Telephone Exchange, Shopping Centre, Transport Centre, Petrol Pump, Community Centre/ Club/ Welfare Association, Bal Bhawan, Sports Complex, Auditorium, CISF Armory etc.

2.14 RAW MATERIAL REQUIREMENT, SOURCE & ITS MODE OF TRANSPORTATION COAL

Coal requirement for the project is estimated to be 11.7 MTPA at corresponding 90% PLF considering GCV of 3800 Kcal/Kg. As per the Minutes of Meeting dated 13.02.2024, SLC (LT) has confirmed that coal linkage shall be provided from Singareni Collieries Company limited (SCCL).

Table 2.10: Coal Source & Transportation details for Telangana STPP

Parameters	Phase-I (2x800MW)	Phase-II (3x800MW)
Coal source	SCCL*	SCCL@
Distance (source to power plant), km	15 - 300 KMs *	15 - 300 KMs *
Mode of Transportation	Rail	Rail

* Phase-I: Source input above as SCCL is the linkage/FSA source. However, in practical, coal supplies are supplemented from other sources also as per requirement.

@ Phase-II: Presently coal linkage allocation has been granted by SLC (LT), MoC from SCCL, however, NTPC have recently taken up with Ministry of Power & Ministry of Coal for change of source to CIL(SECL) to optimize the variable cost of power.

Fuel Transportation

The envisaged mode of coal transportation from the coal mines to the power plant is by Indian Railways rakes in BOBR/BOX-N wagons.

Railway Siding

Coal from the mines will be transported to the power plant using MGR and Indian Railway BOBR/BOX-N wagons, utilizing the existing railway siding and necessary up-gradation for the upcoming Telangana Phase-II project.

Coal Quality

The approx. coal quality is given below:

Table 2-11: Coal Characteristics

Parameter	Design Coal Characteristics
Ash (%)	38% - 43%
GCV (kcal/kg)	3300 - 3800
Sulphur (%)	0.4 - 0.6

2.15 AUXILIARY FUEL

Light Diesel Oil (LDO) will be utilized for initial start-up, low-load operation, and as a secondary fuel for stabilizing the pulverized coal flame during start-ups and low-load operations. The necessary oil supply system, including pumps, filters, and valves, will be provided. Each burner and air register will be equipped with independent pneumatic drives, enabling automatic operation for purging, insertion, and fuel and air sequencing. Ignition of the oil will be carried out directly by igniters. The LDO will be transported through road tankers or rail wagons.

Specific Diesel (LDO) consumption has shown a reduction over the years and is well within the CERC norms. However, continuous efforts are being made to optimize LDO consumption during unit startups in order to further reduce its usage. The proposed units are envisaged to have ultra super technology which shall further reduce specific diesel oil consumption.

Year-wise reduction in the specific diesel consumption (LDO)		
Description	**FY 2023-24**	**FY 2024-25**
Specific Diesel Oil consumption (ml/KWH)	Q3-2.88 * Q4-0.82*	0.48
* Unit-1 & 2 commissioned in Sept -2023 & Mar-2024 respectively due to which the oil consumption was on higher side.		

NTPC Telangana STPP has deployed battery operated/ e-vehicles in various O&M functions and shall further explore use of E-vehicles/battery operated vehicles for the proposed expansion project. Coal is being supplied by Electric locos of Indian Railway. Ash is being transported through pipelines to the ash dyke. Further, rail loading facility is being developed for ash transportation through Indian railways.

All the above efforts shall further reduce the oil consumption in operations as well as material handling like coal, ash, other goods etc.

2.16 PROCESS AND TECHNICAL FEATURES OF THE PLANT

2.16.1 ULTRA SUPER CRITICAL TECHNOLOGY

The Steam Generators (SG) shall be ultra-supercritical once through type, water tube, direct pulverized coal fired, top supported balanced draft furnace, single reheat, and radiant, dry bottom type, suitable for outdoor installation. The gas path arrangement shall be single pass (tower type) or two pass type. The steam pressure at SH outlet shall be 278 kg/cm^2 and the Steam Temperature at Super Heater Outlet shall be 603°C.

The boilers will have provision to co-fire 20% biomass along with coal in the steam generator. The process flow diagram is given as Figure 2.7 below:

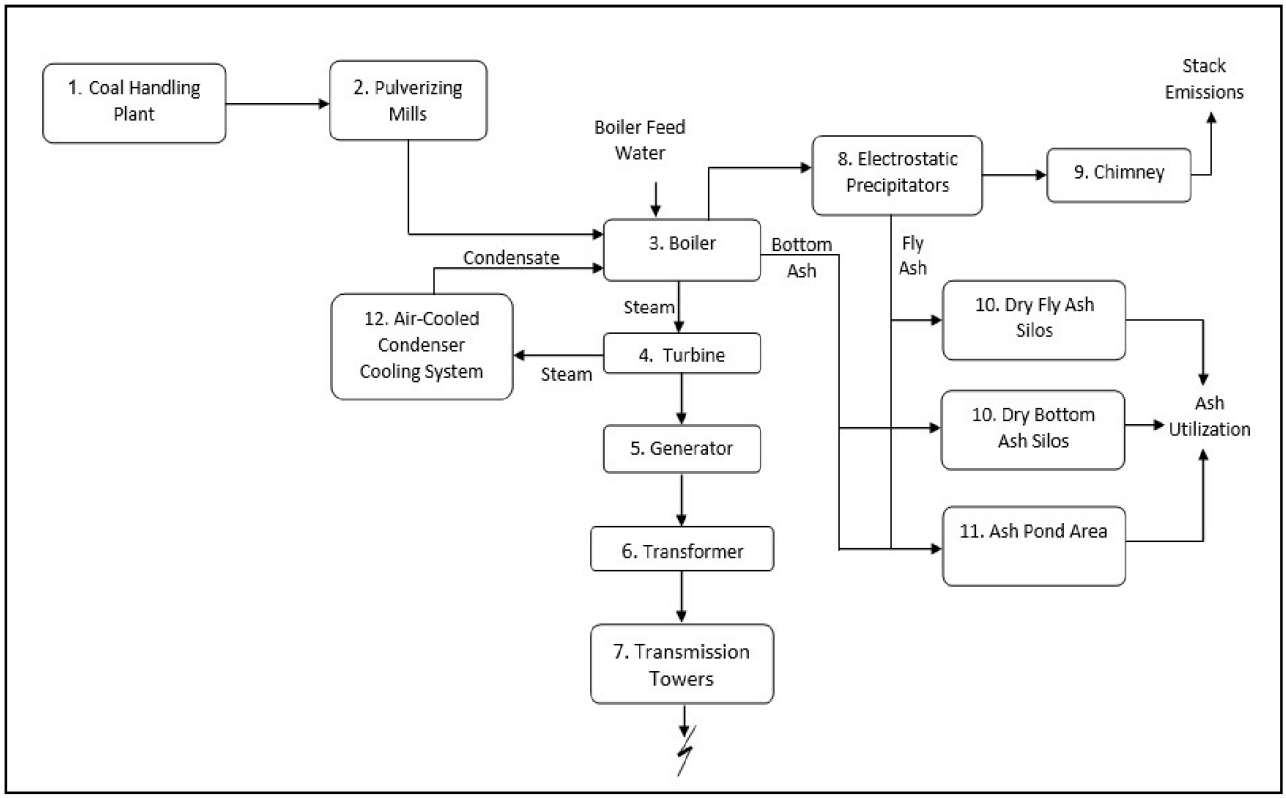


Figure 2-7: Process diagram for coal based Super Thermal Power Station

2.17 PROPOSED INFRASTRUCTURE

2.17.1 STEAM GENERATOR AND AUXILIARIES

The Steam generators (SG) shall be Ultra Supercritical, once through, Water tube, direct pulverized coal fired, Top supported, balanced draft furnace, Single reheat, Radiant furnace, Dry bottom type,

suitable for outdoor installation. The gas path configuration shall be single pass (tower type) or two pass type.

Higher steam parameters with supercritical technology are proposed for the project to have the advantage of higher efficiency / reduced heat rate and reduced environmental emissions. Supercritical units are more efficient than the conventional sub-critical units as these operate on higher steam parameters. This results in lowering of coal consumption and corresponding reduction in emissions. The plant efficiency is expected to be around 41.5- 42% as compared to Subcritical which has efficiency of around 37%.

The steam Generator and its auxiliaries shall be designed for firing Indian coal identified for this project. Steam Generator design shall be suitable for variable pressure operation from 30% to 100% BMCR.

Table 2-12: Details of Steam Generators

S. No.	Parameters	Value
1.	Main Steam Flow at Super-heater Outlet	2705 T/Hr
2.	MS Pressure at Super-heater Outlet	278 kg/cm^2
3.	MS Temperature at Super-heater Outlet	603°C
4.	Steam Flow to Re-heater	2118.71 T/hr
5.	Steam Temperature at Re-heater Outlet	603°C
6.	Feed Water Temperature at Economizer Inlet	309°C

- Furnace and Convection Zone
- Steam Generator Circulation System
- Air and Flue Gas System
- Fuel Oil System
- Coal Preparation & Firing System
- Soot Blowing System
- Auxiliary Steam System
- Steam Generator Elevators
- Electrostatic Precipitator
- NOx Control System

2.17.2 TURBINE AND ITS AUXILIARIES

The scope of TG unit of 3x800 MW shall broadly cover the Steam Turbine along with its integral systems and auxiliaries like lube oil system, control fluid system, condensers, condenser air evacuation system, COLTCS, HP & LP Bypass system, complete regenerative feed heating system, condensate pumps along with their drives, boiler feed water pumps along with their drives, automatic turbine run-up system, instrumentation and control devices, turbine supervisory instruments, turbine protection and interlock system, automatic turbine testing system and turbine hall EOT cranes.

- Steam Turbine
- Condenser
- Air Extraction System
- Lube Oil System
- Turbine Control Fluid System
- Gland Steam Sealing System
- Governing /Regulation System
- HP/LP Bypass
- Regenerative Feed Heating Cycle
- HP & LP Heaters
- Deaerator
- Boiler Feed Pump
- Condensate Extraction Pumps
- Turbine Hall EOT Cranes
- EOT Crane for Boiler Feed Pump
- On-Line integrated blade vibration monitoring system
- Deaerator Level Control Station

2.17.3 COAL TRANSPORTATION AND HANDLING SYSTEM

- **Coal Transportation**

The envisaged mode of coal transportation from the coal mines to the power plant is by Indian Railways rakes (BOBR/BOX-N Wagons). The rakes shall be unloaded at the wagon tippler and track hopper terminal.

- **Coal Handling System**

It is proposed to have one coal handling plant of 3300 MTPH rated capacity with parallel double stream (one working and one standby) of belt conveyors along with facilities for receiving, unloading, crushing and conveying the crushed coal to boiler bunkers and stacking/ reclaiming the coal to/ from crushed coal stockyard.

Coal received in Indian Railways wagons will be unloaded in underground RCC hoppers by rota side wagon tipplers, twin tippler and track hopper. Coal received at power plant shall be conveyed to the crusher house for sizing of coal to (-) 20mm. From the crusher house, the crushed coal can either be conveyed directly to the coal bunkers through a series of conveyors or stacked on to the crushed coal stockpiles by means of stacker reclaimers. Motorized travelling trippers shall be provided to feed crushed coal into the raw coal bunkers of the boilers.

Dust extraction system & Service Water are provided for Coal Handling.

2.17.4 ASH HANDLING SYSTEM

The bottom ash and economizer ash shall be extracted and disposed of in dry form for subsequent utilization. From the bottom ash hopper of boiler, the sole mode of ash extraction shall be in the form of dry bottom ash. In case of non-utilization of bottom ash and coarse ash, it shall be disposed of from bottom ash IM silos in lean slurry form to new ash dyke.
The fly ash shall be conveyed in dry form from electrostatic precipitator hoppers. This dry ash is taken to buffer hoppers or intermediate silos for its onward transportation in dry form to storage silos near plant boundary for utilization. Facility of fine ash collection and classifier & bagging of ash is also envisaged.

In case of non-utilization of fly ash, fly ash is conveyed to HCSD silos for onward disposal through HCSD (High Concentration Slurry Disposal). The HCSD slurry further disposed off to new ash dyke.

Ash collected from Air pre-heater, Economizer; Air pre-heater & Economizer Duct Hopper shall be conveyed in dry form pneumatically up to BA IM silo for further transportation to Bottom Ash silo. In case of non-utilization of ash in dry form, it shall be further disposed in lean slurry into ash dyke.

Bottom Ash Handling System

Bottom ash is collected in dry bottom ash hoppers. Economizer and air preheater ash (including duct hopper ash if applicable) are conveyed in dry form to an intermediate bottom ash silo, through mechanical conveying systems (for bottom ash) and pneumatic conveying system (for other coarse ash). The collected ash in the intermediate silo is then transported to main bottom ash silos for dry ash utilization near the plant boundary. A dry bottom ash conveyor system, utilizing troughed conveyors, is used to transport ash from the intermediate silo to the main silo. In case of non-utilization, it is converted to lean slurry and disposed to the ash dyke in wet form.

Fly Ash Handling System

Fly ash collected from ESP hoppers shall be handled in dry form. The system will be designed to handle entire fly ash collected in ESP hoppers.

Pneumatic conveying system (either vacuum or pressure system) shall be employed for conveying of fly ash from the electrostatic precipitator hoppers. This dry ash shall be taken to buffer hoppers in vacuum conveying systems. The dry ash buffer hoppers shall be located adjacent to the ESP.

Dry fly ash from above buffer hoppers shall be transported to the HCSD silos or fine and coarse ash silos through the pressure conveying system. From HCSD silo, the fly ash conveyed to the new ash dyke in slurry mode. From coarse and fine ash silos, it is transported to terminal silo by second stage pressure conveying system. Hence, staged pneumatic systems shall be envisaged for conveying Fly Ash from ESP hoppers to the main storage silos via Buffer Hoppers.

Alternatively, Dry fly ash from ESP hoppers shall be transported to the HCSD silos or fine and coarse ash silos through the first stage pressure conveying system. From HCSD silo, the fly ash conveyed to new ash dyke in HCSD slurry mode. From coarse and fine ash silos, it is transported to terminal silo by second stage pressure conveying system. Hence, two stage pneumatic systems (for extraction & transportation) shall be envisaged for conveying Fly Ash from ESP hoppers to the main storage silos.

The user industries shall take the dry fly ash from the main storage silos either in closed tankers or in covered tankers by Road. The silos shall also have a rail loading facility.

Ash classification (coarse ash & fine ash) and Bagging system is also envisaged to enhance the utilization potential.

Ash Slurry Disposal System

The ash pond area is proposed to be located on the southern side of existing ash dyke of Ramagundam STPP.

In case of bottom ash slurry handling required if bottom ash not utilized in dry form, there shall be three (3) working stream and two (2) standby streams for slurry disposal. All the pumping streams shall be provided with its individual disposal pipes.

In case of fly Ash slurry handling, fly ash shall be disposed off in HCSD mode. All the pumping streams shall be provided with its individual disposal pipes.

Table 2-13: Details of Existing Ash Ponds

S.No.	Details of Ash Pond	Lagoon 2	Lagoon 3	Remarks
1.	Status of ash pond	Under Charging	Under Ash Utilization	
2.	Area (Ha)	38.46	38.46	4.05 is for OFL
3.	Dyke height (m)	6 - 12 mtrs	2 - 13 mtrs	The dyke height varies as per Topo
4.	Volume (m^3)	24.50	20.50	
5.	Quantity of ash disposed (Lakh Metric Tons)	6.20	20.50	4.65 LMT/20.50 LMT lifted from dyke
6.	Available volume in percentage and quantity of ash can be further disposed (Metric Tons)	74.6% (18.30MT)	22.68% (4.65MT)	In ash utilization pits
7.	Expected life of ash pond (number of years & months)	9 Months	2 Months	-
8.	Type of lining	HDPE	HDPE	
9.	Mode of disposal	Wet (HCSD)	Wet (HCSD)	Bottom ash and HCSD are discharging in two separate places in same lagoon
10.	Ratio of ash: water in slurry mix	65%:35%	65%:35%	
11.	Ash water recycling system (AWRS)	Yes	Yes	AWRS available and functioning
12.	Quantity of wastewater from ash pond discharged into land or water body (m^3)	NA	NA	Seepage water in toe drains pumped back to OFL through 2 No's seepage water pump houses
13.	Last date when the dyke stability study was conducted and name of organization who conducted the study:	21.11.2024 by NIT Warangal	21.11.2024 by NIT Warangal	Safe & Stable
14.	Last date when the audit was conducted and name of the organization who conducted the audit	17–19 Oct' 2024 through NIT Warangal	17–19 Oct' 2024 through NIT Warangal	No abnormality found

Note: Lagoon 1 (200 acres ash pond) not in use to comply with the EC condition.

Details of Proposed Ash Ponds

The proposed ash dyke area for Telangana-II STPP (3X800MW) is located about 5km from the plant boundary and is adjacent to NTPC balancing reservoir. The total envisaged area of ash disposal for HCSD& Bottom Ash is about 246.858 hectare.

Fly ash (FA) from Telangana-II STPP (3X800MW) is proposed to be disposed off through high concentration slurry disposal (HCSD) system and bottom ash (BA) in the form of lean slurry. Considering the availability of land, it is envisaged to utilize about 111.858 hectare area for FA disposal and about 125 hectare for BA disposal and 10 hectare for OFL, (including space required for dyke, toe drains, peripheral road, pipe corridor).

In this project, (assumed to be operating at an average PLF of 90 percent), about 132.45 million cum of ash is expected to be produced in 25 years. However, as per MOEF latest notification every coal or lignite based thermal power plant shall be responsible to utilize 100 per cent ash (fly ash and bottom ash) generated during that year, however, in no case shall utilization fall below 80 per cent in any year, and the thermal power plant shall achieve average ash utilization of 100 per cent in a three years cycle. In the design life period of 25 years about 0.636 million cum of bottom ash and about 2.544 million cum of fly ash will have to be disposed off during initial periods. Balance quantity of 129.27 million cum of fly ash will have to be utilized subsequently.

Accordingly, the design capacity of ash dyke shall be for at least about 3.18 million cum for bottom ash storage lagoons and about 12.72 million cum for fly ash storage lagoon.

For developing 15.90 million cum (12.72 million cum FA & 3.18 million cum BA) of storage capacity, one storage lagoons for Fly Ash disposal by High Concentration Slurry Disposal (HCSD) system & two storage lagoons for disposal of bottom ash by wet slurry disposal system with one overflow lagoon for storing decanted water from above storage lagoons are envisaged. For developing 12.72 million cum capacity of HCSD, average 9.0m high embankment is envisaged to be constructed. For developing 3.18 million cum capacity of BA, average 12.0m high embankment is envisaged to be constructed. For HCSD disposal 1 raising of 3m height and BA disposal, 2 raisings of 3m height each with upstream method is also envisaged for future exigency.

Suitable impervious lining as per actual site conditions meeting the imperviousness requirements as per standard "Guidelines for Design, Construction, O&M and Annual certification of Coal Ash Ponds-June 2023". HDPE lining system is envisaged in OFL and Bentonite blended lining in all ash storage lagoons.

To avoid fugitive ash dust emission and for promoting vegetation cover, the final ash surface will be covered with min. 300 mm thick earth cover.

Table 2.14: Details of Proposed Ash Ponds

S. N.	Ash Pond Particulars	Details
1.	Area (Ha)	246.858 (including space required for ash disposal, decanted area, overflow lagoon, dyke embankment, toe drains, peripheral roads, ash pipe corridor, AWRS pump house and its facilities etc.).
2.	Dyke height (m)	HCSD Lagoon: 9.0 M Starter dyke with 1 Raising of 3.0 M height BA Lagoon: 12.0 M Starter dyke with 2 Raisings of 3.0 M height each
3.	Volume (m^3)	20.4 million m^3 (Ash disposition)
4.	Quantity of ash to be disposed (Metric Tons)	20.4 million Metric Tons (Considering density as 1.0 T/cum)
5.	Expected life of ash pond (number of years and months)	03 years and 06 months (considering nil ash utilization) Calculation: Expected life of ash pond is approximately 3 years and 6 months (considering yearly ash generation of approx. 5 million Metric tons).
6.	Type of lining	Suitable impervious lining as per actual site conditions meeting the imperviousness requirements as per standard "Guidelines for Design, Construction, O&M and Annual certification of Coal Ash Ponds-June 2023". HDPE lining system is envisaged in OFL and Bentonite blended lining in all ash storage lagoons.
7.	Mode of disposal	As per specification · Wet Slurry Disposal for Bottom Ash (LCSD). · Wet Slurry Disposal System (HCSD) for Fly Ash.
8.	Ratio of ash: water in slurry mix	As per specification · Maximum 25% ash on dry ash basis, rest is water for LCSD Slurry· 55% to 65% (Average_60%) of ash on dry ash basis, rest is water for HCSD slurry.
9.	Ash water recycling system (AWRS)	Yes
10.	Quantity of wastewater from ash pond to be discharged	Zero Liquid Discharge system envisaged for the proposed expansion project. No wastewater discharge is envisaged.
11.	Details regarding dyke stability study and name of the organization who conducted the study.	As already done in all past ash dyke stability design, this will also be done by NTPC, (in-house design) in line with "CEA and CPCB Guidelines for Design, Construction, O&M and Annual certification of Coal Ash Ponds".

Ash Water System

All the water pumps, namely BALP, FAHP, Flushing water pumps etc., shall be provided.

Ash Water Recirculation System

A proposed ash water re-circulation system is designed to comply with environmental regulations. Decanted water from the ash pond will be pumped using proposed 2 x 50% capacity pumps to the plant area through a dedicated pipeline from the new ash dyke. This water will then be utilized in the ash handling system. Regular blow down of the ash water will be conducted to prevent scaling. Makeup water for the ash water system will primarily come from raw water reservoir, DM Plant wastewater and Aux. Cooling water blow down. However, provisions will be made to operate the system in "Once Through" mode when recirculation is not feasible, with additional makeup water sourced from the plant's raw water supply. Additionally, a fugitive dust suppression facility is proposed for the ash dyke area to control airborne dust particles.

Ash Classification and Bagging System

The fine ash shall be assumed as coming from the 4th field onwards and coarse ash shall be assumed as coming from first three fields (Considering all fields in service). The classified fine ash shall have a size of (-) 45 microns (95%).

The fly ash coming from ESP hoppers or buffer hoppers of all the units shall be led to a classifier silo of capacity 250 tons. From this silo the ash shall be further fed to the classifier. The fine ash and coarse ash after classification shall be stored in separate Silos. From fine ash intermediate silo, fine ash is further conveyed to the terminal silo where one silo is dedicated to separately cater the storage requirement of fine ash. A suitable number of outlets shall be provided for feeding the fine ash to bagging plant.

These silos shall have one outlet provided with a telescopic chute and rotary feeder for loading the ash into closed tankers. The silo shall be provided with Target box and bag filters assembly along with pulse jetting arrangement, fan units etc.

Suitable arrangement of aeration blowers, along with Suitable arrangement for avoiding dust nuisance shall be provided at the hoppers and silos.

The bagging plant shall be sized for 50% of the fine ash (Classified fine ash+ direct fine ash from 4th field onwards). The bagging plant shall have provision for mechanized bagging of this fine ash. Equal quantities of fine ash shall be bagged in 50 kg bags.

The bags shall be stored in a suitable closed storage area having a provision to store both types of bags produced in one day.

2.17.5 FUEL OIL UNLOADING AND STORAGE SYSTEM

New LDO unloading & storage facilities through the existing railway facility of Ramagundam Stage-I have been proposed for Stage-II. Two (2) nos of LDO tanks of 3000KL capacity have been envisaged.

Oil-water separator pits shall be provided near oil unloading pump house area.

2.17.6 WATER SYSTEM & PLANT UTILITY

- **Source of Water**

The water requirement for the project will be met from Sreepada Yellampalli Barrage.

The project shall be provided with Air Cooled Condensers and the makeup water requirement for this project would be about 2,355 M^3/hr. with ash water recirculation system.

- **Raw Water System**

An open raw water pump house shall be provided near the sump in the plant to supply water to Water PT plant and Ash handling System.

- **Circulating Water (CW) System**

Air Cooled Condenser (ACC) is envisaged for Phase-II of 3x800 MW Units. As such condenser cooling water (CW) system comprising of CW Pumps & Cooling Tower for CW system are not envisaged. Auxiliary Cooling Tower has been envisaged for cooling of the auxiliary cooling water for the project.

- **Equipment Cooling Water (ECW) System**

Closed circuit type ECW system shall be provided with demineralized (DM) water in the primary circuit. The recirculating type ACW system with Auxiliary Cooling Tower (Aux. CT) shall be provided in the secondary circuit for cooling of primary (DM) water. ECW system shall cater to the cooling water requirements of TG, SG & its auxiliaries including station auxiliaries. TG and SG primary cooling circuits shall be independent. The secondary cooling water circuit shall, however, be common for both the primary cooling systems.

The blowdown from ACW system for maintain proper concentration in the closed system shall be led to Ash handling system, CHP dust suppression, ACW chemical treatment with the provision of discharge (excess water) to CMB for further treatment in Wastewater treatment plant.

- **Auxiliary Water Systems**

A pipe network for distribution of potable water for plant shall be provided from the overhead storage tanks. Required number of potable water pumps for plant area shall be provided.

A pipe network spread over the entire plant area would be provided for cleaning of main plant area and other buildings. Required number of service water pumps shall be provided which shall draw water from the service water tank with provision of inlet from Liquid effluent treatment plant (LETP)/Clarified Water Storage Tank.

- **Water Treatment System**

The water treatment system of the project comprises of Water Pre-treatment Plant, Demineralizing Plant, Chlorine dioxide Plant, Condensate Polishing Plant, ACW Treatment Plant and Liquid Effluent Treatment Plant.

- **Water Pre-Treatment Plan**

The pre-treatment plant would be designed to remove suspended/colloidal matter in the raw water. Separate pre-treatment plant shall be provided for meeting requirements of the ACW system and Demineralization (DM) plant. A common chemical house shall be provided to store chemicals such as acid, alkali, lime, alum, coagulant aid, etc. and respective lime, alum, coagulant, etc., dosing equipment such as tanks, pumps etc., for all the PT systems. Independent chemical preparation tanks and chemical dosing pumps shall be provided for PT system.

Clarifier system shall be provided with a stilling chamber cum aerator and provision for dosing of alum, lime, coagulant aid and chlorine dioxide dosing. Potable water shall be supplied through pressure sand filters by pumping.

- **Water Demineralization Plant**

The DM plant shall be provided to meet the make-up water requirement of the steam cycle, make up to closed circuit auxiliary system, and stator water cooling system.

DM plant shall consist of two streams each of 105 Cum/hr capacity and shall comprise of Activated carbon filter, Cation exchangers, degasser system (comprising of degasser tower, degassed water tank, degassed water pumps and degasser blowers etc), anion exchangers and mixed bed exchangers and polishing UF. The cation resins shall be regenerated with hydrochloric acid and the anion resins with sodium hydroxide. The regeneration facilities shall consist of acid & alkali storage, measuring tanks and dosing ejectors etc.

- **Chlorine Di-oxide Plant**

Chlorine dioxide generators for ACW system (ACW-ClO_2) and pre-treatment plant (PT-ClO_2) shall be provided separately.

- **Condensate Polishing Plant**

For maintaining the feed water purity, condensate polishing plant shall be provided in the feed water cycle at the downstream of condensate extraction pumps as per the existing practice. Acid, Alkali &

DM Water Storage for regeneration, and Wastewater Neutralization facilities with one additional mixed resin storage vessel shall be provided separately for the external regeneration facility.

- **ACW Treatment System**

It is proposed to provide suitable Chemical treatment program of acid dosing and scale cum corrosion inhibitor, etc., for the Auxiliary Cooling Water system for control of ACW System water chemistry. It is proposed to provide acid & chemical storage tanks and respective dosing pump as a part of ACW treatment system. The plant shall be provided with neutralization pits, disposal pumps with required corrosion measurement rack, instrumentation for interlocks and controls, control panels etc., to facilitate safe & reliable operation.

- **Liquid Effluent Treatment Plant (LETP)**

The liquid effluents shall be collected and treated /recycled generally as per the following design philosophy.

a) The filter backwash water of Pre-treatment (PT) Plant shall be collected and recycled back to the respective system clarifier.
b) The sludge from clarifiers of Water pre-treatment plants shall be collected in a sump/pit.
c) The waste effluents from neutralization pits of DM plant and Condensate Polishing Plant shall be collected in the respective neutralization pits and neutralized before pumping to the ash handling system. In case of non-utilization in ash handling system, provision of excess effluent shall also be kept for discharging into CMB for further treatment in wastewater treatment plant & reutilization.
d) ACW system blow-down would be used in Ash handling Plant, ClO2 plant and ACW treatment system. Excess ACW blow down if any shall bleed to Central Monitoring Basin for further treatment & reuse.
e) Coal Slurry settling ponds shall be provided to remove coal particles from coal handling plant waste. Decanted water shall be recycled back for use in the coal dust suppression system.
f) Service water effluent drains from various areas shall be separately routed to a sump. From the sump the service water shall be pumped up to lamella clarifier /tube settler for treatment of suspended solids. Treated service water shall be sent back to service water tank for reuse through central monitoring basin (CMB) cum treated water tank.
g) Wastewater treatment plant comprising of pre-treatment (lamella clarifier/ thickener), filter belt press, UF system, RO system and associated system shall be provided for reusing the treated wastewater in DM plant or Aux CT basin.

2.17.7 FIRE PROTECTION SYSTEM

A comprehensive fire detection and protection system is envisaged for the project. This system shall generally be as per the recommendations of TAC (India)/ IS: 3034 & NFPA- 850/equivalent standard.

A comprehensive fire detection and protection system is envisaged for the project. This system shall generally be as per the recommendations of TAC (India)/ IS: 3034 & NFPA- 850/equivalent standard.

The following protection systems are envisaged:

i. Fire water system of Phase-I (existing) shall be further extended for fire water requirement of Phase-II also. The system shall cater to the both Hydrant & Spray water requirement of Phase-II. However, hydrant booster pumps & drives, spray booster pumps & drives, Batteries and Battery Chargers for the diesel engines drives, required instruments, controls and panels are envisaged. The water for foam system shall be tapped off from the hydrant system network.

ii. Hydrant system for complete power plant covering main plant building, boiler area, turbine and its auxiliaries, air cooled condenser, coal handling plant, biomass handling plant, all pump houses and miscellaneous buildings of the plant. The system shall be complete with piping, valves, instrumentation, hoses, nozzles, hose boxes/stations etc.

iii. Automatic high velocity water spray system for all transformers located in transformer yard and transformers having oil capacity of 10 MVA/MVAR and above located within the boundary limits of plant, Main and unit turbine oil tanks and purifier, oil canal, generator seal oil system, lube oil system for turbine driven boiler feed pumps/lube oil console, boiler burner fronts, fuel oil station rack in boiler, etc. This system shall consist of QB detectors, deluge valves, projectors, valves, piping & instrumentation. Automatic Nitrogen injection system for all transformers located outside plant boundary where water-based fire protection system not envisaged (of rating 10 MVA and above)

iv. Automatic medium velocity water spray system for cable vaults and cable galleries of main plant, switchyard control room and ESP control room, building consisting of smoke detectors, linear heat sensing cable detectors, deluge valves, isolation valves, piping, instrumentation etc.

v. Automatic medium velocity water spray system for coal conveyors, crusher house, transfer points, biomass conveyors and TPs, Stacker reclaimer consisting of QB detectors, linear heat sensing cables, deluge valves, nozzles, piping, instrumentation, etc.,

vi. Automatic medium velocity water spray system for un-insulated fuel oil tanks storing fuel oil having flash point 65˚C and below consisting of QB detectors, deluge valves, nozzles, piping, instrumentation, etc.

vii. For protection of Central control room, Control equipment room, Programmer room, UPS room, etc. Inert Gas extinguishing system as per NFPA-2001 would be opted.

viii. One (1) No. common gaseous based fire protection system (Nitrogen/Inert Gas) shall be provided for all biomass storage silos.

ix. Fire detection and alarm system-microprocessor based analogue, addressable type fire detection and alarm system shall be provided to cover the complete power plant.

Following types of fire detection shall be employed.

1. Multi-sensor type smoke detection system
2. Linear heat sensing cable detector
3. Quartzoid bulb heat detection system
4. Infra-red type heat detectors

x. Portable and mobile extinguishers, such as pressurized water type, carbon-dioxide type, foam type, dry chemical powder type, shall be provided at strategic locations throughout the plant.

xi. Complete instrumentation and control system for the entire fire detection and protection system shall be provided for safe operation of the complete system.

2.17.8 PLANT & INSTRUMENT AIR SYSTEM

For meeting the Instrument Air and Service Air requirement of Main Plant and Auxiliaries, required numbers of Air Compressors & Air-Drying Plants (ADP) shall be provided.

2.17.9 AIR CONDITIONING SYSTEM

Air conditioning covers the following areas:

a) Control tower areas including Control Rooms, Control Equipment Rooms, Computer and Programmers Rooms, UPS /Battery Charger Rooms, Conference Room, Shift Charge Engineer's Room, Steam & Water Analysis Rooms (SWAS), Static excitation control room (if applicable) etc.

b) ESP control rooms

c) Ash Handling Control Room

d) HCSD VFD Control Room

e) Air-Cooled Condenser (ACC) VFD Rooms, Control Room, etc.

f) Water System Control Rooms

g) Switchyard Control Room

h) Any other area which contains control and instrumentation equipment requiring air conditioning or otherwise requires to be air conditioned.

2.17.10 VENTILATION SYSTEM

Ventilation system shall be designed to supply fresh outdoor air and shall be selected for maintaining inside conditions for those areas where close control of temperature is not required, but nevertheless have a stipulated maximum temperature. Basically, two types of ventilation systems, namely Evaporative Cooling System (i.e. air washer system) and dry mechanical system, shall be employed in various areas of the plant for the purpose of ventilation.

2.18 SOURCES OF POLLUTION

The various types of pollution from the proposed expansion project may be categorized under the following types:

- Air Pollution
- Water Pollution
- Solid Waste
- Noise Pollution

The major air pollution from the power plant is stack emissions. In addition, wastewater and solid waste will also be generated. The quantities and the composition of the gaseous, liquid and solid waste that are likely to be generated in the plant will be managed and treated in such a way that their final disposal into the environment meets all the statutory requirements to ensure minimal impact on the environment.

Emissions

The major pollutants emitted from the power plant stack are SO_2, NO_x, Particulate Matter & Mercury Emission. Proper control measures as described below will be installed to minimize the stack emissions within the stipulated/permissible limits prescribed by MOEF&CC vide notification dated 07.12.2015 and 28.06.2018 and subsequent amendments as applicable.

Electrostatic Precipitators:

High efficiency Electrostatic precipitators (ESP) would be installed to control the emission of ash particles. The precipitators would be designed to limit the particulate emission to 30 mg/Nm^3. To facilitate wider dispersion of emissions, two chimneys of 275m height as per MoEF&CC notification dated 28.06.2018 will be constructed. The chimney would be provided with personal access for regular monitoring of stack emissions.

Fugitive dust control:

For the control of fugitive dust emission within and around the coal handling plant, coal dust extraction and suppression systems would be provided. Dust suppression system would be installed at all requisite points in CHP and coal stack yard.



Dry Fog Dust Suppression, Water Sprinkling nozzles Fog cannons at Telangana STPP Phase-I



Water sprinklers at coal stock yard at Telangana STPP Phase-I



Water sprinklers at Ash Dyke at Telangana STPP Phase-I

Flue Gas Desulphurization System (FGD):

Wet limestone-based flue gas desulphurization (FGD) system shall be installed at the tail end of the steam generator downstream of the ESP, in which SO_2 gas shall be captured in limestone slurry to produce gypsum. The FGD System shall be provided with bypass system. Necessary auxiliary equipment and systems like cyclones, vacuum filters, belt conveyors, pumps, storage vessels for different liquids, piping and fittings, zero liquid discharge (ZLD) etc. shall complete the FGD plant.

Wet flue gas desulphurization (FGD) system has been installed for both the units of Telangana STPP Phase-I.



Flue Gas Desulphurization at Telangana STPP Phase-I

NO_X Control System:

NOx emission from the steam generator shall be controlled by employing low NOx burners (LNB), combustion staging and reducing NOx in the tail flue gas. Suitable technology, taking into consideration the boiler furnace conditions and high ash Indian coals.

Online flue gas monitors as well as flue gas flow rates and temperature measurement shall be provided for monitoring of stack emissions.

Chimney:

To facilitate wider dispersal of emissions, two chimneys of 275m height with one single flue and one twin-flue are envisaged. Chimney would be provided with personal access for regular monitoring of stack emissions. Environmental monitoring instruments such as Opacity, SO_2, NOx shall be provided at Chimney.

Liquid Waste Generation

Water requirement for this expansion project would be about 2,355 M^3/hr& wastewater generation is estimated to be 1,335 m^3/hr. An effluent management scheme would be implemented with the

objective of optimization of various water systems so as to reduce intake water requirement which would result in zero waste water (ZLD) discharge. The effluent management scheme would essentially involve collection, treatment, reuse/recycle and Zero Liquid Discharge (ZLD). Adequate treatment facilities would be provided to all the waste streams emanating from the power plant to control water pollution.

Noise Pollution

The major noise generating sources are turbines, generators, compressors, pumps, fans, coal handling plant etc. Acoustic enclosures shall be provided to control the noise level below 90 dB(A). Personal protective equipment's shall be provided to the persons working in high noise area.

Solid Waste

Solid waste generated during construction will be managed as per Construction and Demolition Waste Management Rules, 2016.

Ash shall be the major solid waste to be generated from Telangana STPP, Phase-II.

The ash management scheme involves dry collection of fly ash and bottom ash collection through ash handling system, supply of ash to end users for utilization, promoting ash utilization and safe disposal of unused ash (if any). NTPC shall make maximum efforts to utilize the ash for various purposes. Unused fly ash and bottom ash shall be disposed-off through combined High Concentration Slurry Disposal System (HCSD) in the ash pond, in case of emergency. A blanket of water shall be maintained over the entire ash pond to control fugitive dust emission.

It is estimated that about 5.04 Million TPA of ash shall be generated annually and shall be utilized in the form of Dry Fly Ash as well as Pond Ash.

2.19 INFRASTRUCTURE FOR LABOURS/DRIVERS

The basic amenities for the labour force during construction and operation phase are proposed. The facilities comprise of the following:

- Separate shelters will be provided for male and female labours/drivers for resting
- Separate washrooms (sanitary facilities) will be provided for male and female labours
- The first aid facilities will be made available
- Drinking water will be provided.
- The contractor will be directed to provide the fuel to labors for cooking.
- Canteen & Common Kitchen will be provided.

Besides the above provisions, measures and facilities will be provided for labour force as per Factory Act.

2.20 SUSTAINABLE DEVELOPMENT MECHANISM (SDM)

Kyoto Protocol of United Nations Framework Convention on Climate Change (UNFCCC) has come into force from February 2005. Clean Development Mechanism (CDM) contained in Article 12 of the protocol allows governments or private entities in the industrialized countries to implement and / or purchase emission reduction from projects in developing countries and receive credit in the form of "Certified Emission Reductions" (CERs). With the completion of tenure for the second commitment period on 31st December 2020, Kyoto Protocol/CDM is no more valid at present.

Sustainable Development Mechanism (SDM) under article 6.4 or Bilateral/ Multilateral crediting mechanisms under article 6.2 provides an opportunity to earn revenue through the reduction of greenhouse gas emissions (GHG). The revenue will play an important role as it will further ameliorate the project IRR.

2.20.1 Linkage of Sustainable Development(SDGs) Goals with activities of NTPC Telangana STPP, Phase-II (3x800MW)

NTPC is operating Telangana STPP Phase-I (2x800MW) and expansion by Telangana STPP Phase-II (3x800MW) is proposed. Various activities of existing station are already having significant positive impact on the surrounding area. Proposed NTPC Telangana STPP Phase-II (3x800 MW) and allied activities shall further enhance the positive impact on the achievement of Sustainable Development Goals.

Sr. No.	Proposed Activities under Telangana STPP, Phase-II (3x800MW)	SDG Coverage
1	Adoption of Ultra Super Critical Technology generating higher energy efficiency resulting into lesser coal & water consumption and lower GHG emissions.	7,8,9, 12, 13
2	Utilization of existing land for main plant components. Land acquisition is only proposed for ash ponds.	15
3	Provision of state-of-the-art technologies for air pollution control (ESP, Low NOx Burner, Over Fire Air, Dust Extraction and Dust Suppression etc.)	9, 13
4	Provision of Closed Cycle Cooling System with higher COC of 5.0.	12, 13, 14
5	Provision of Effluent & Sewage Treatment Plant, Reuse/Recycling and compliance to Zero Liquid Discharge norms.	6,7
6	Provisions for Sustainable Waste Management Practices (Reuse/Recycling, Re-processing, Co-processing etc.)	7, 9, 12, 13,14, 15
7	Plantation inside Plant premises and Afforestation in outside Areas.	3, 13, 15, 17
8	Corporate Social Responsibility (CSR) and Community Development (CD) works for the surrounding areas.	3, 4,5, 6, 10, 17
9	Employment Generation and Economic Activities (Direct & Indirect) in the region.	5, 8,10, 17

SDG Goal no.1, 2, 11 & 16 are directly not influenced by the activities of proposed NTPC Telangana STPP Phase-II. However, there will be positive impact on these goals indirectly due to overall development of the area.



2.21 PROJECT COST

The approved cost of Phase-I is Rs. 13, 70,800 lakhs. The estimated cost of Phase-II is Rs. 27, 68,329 lakhs thereby making total cost of the project Rs. 41, 39,129 lakhs.

CHAPTER: 3 DESCRIPTION OF THE ENVIRONMENT

3.1 INTRODUCTION

This chapter illustrates the existing environmental status of the study area with reference to the prominent environmental attributes. The study area covers 10 km radius around the project boundary. The existing environmental setting is considered to adjudge the baseline environmental conditions which are described with respect to climate, hydro geological aspects, atmospheric conditions, water quality, soil quality, vegetation pattern, ecology, land use and socio-economic profiles of people. The project area has been considered as core zone and 10 km study area around core zone as buffer zone for baseline studies.

Baseline data has been collected by M/s Mantec Consultants Pvt. Ltd. and its NABL approved laboratory. The Final EIA Report has been prepared based on baseline data generated from March 2024 to May 2024.

3.2 GEOMORPHOLOGY/TOPOGRAPHY

Telangana state is occupied by western pediplains except a fringe of Eastern Ghats in the northeastern part of Khammam district. The pediplains depict rolling topography with flat to undulating tracts. The state extends largely between elevations of 150 to 600 m amsl except at places where it is overlain by basaltic lava flows, the elevation of which ranges from 600 to 900 m amsl. The study area has elevation of 140 to 376 mASL.

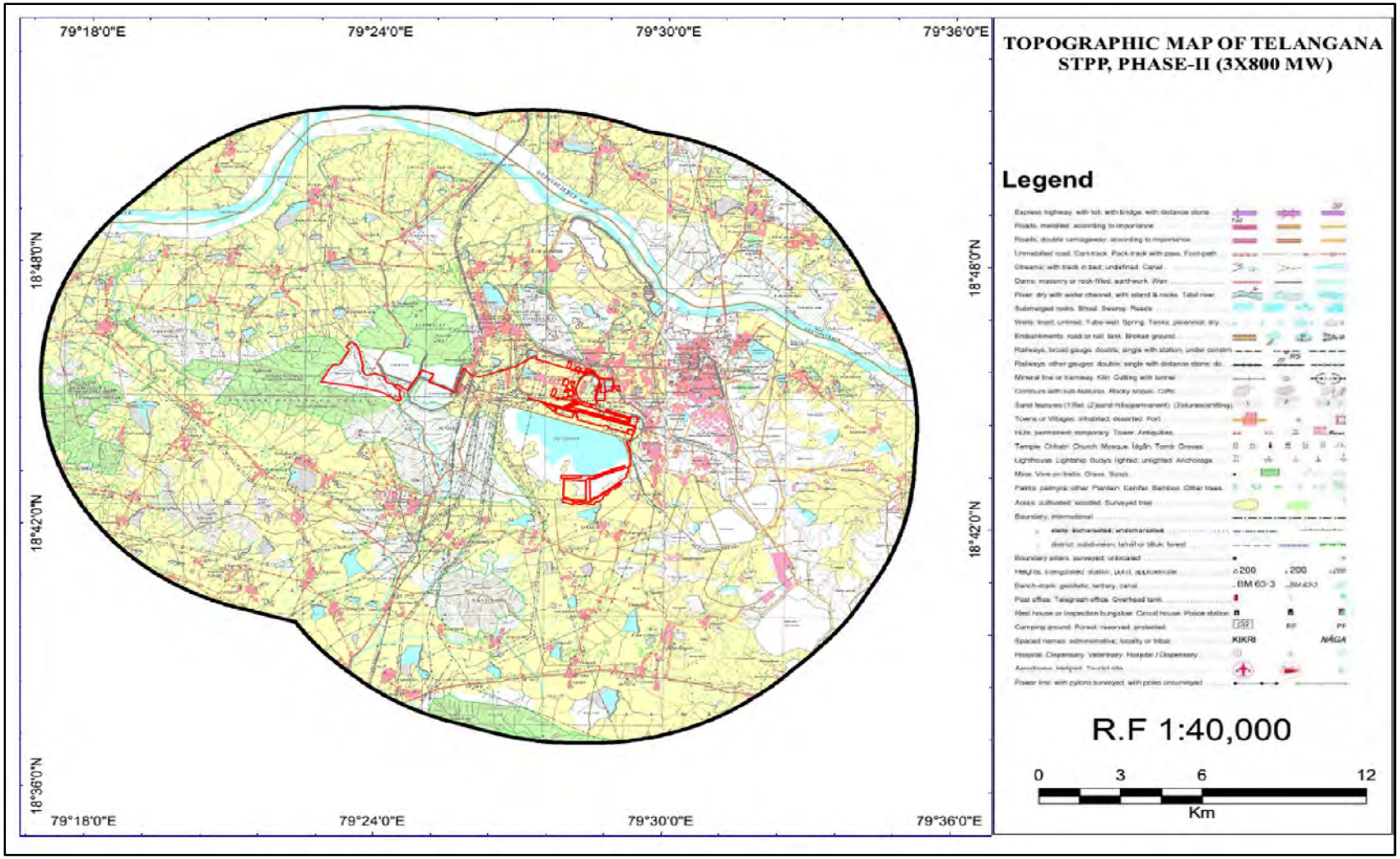


Figure 3-1: Topographic map

3.3 GEOLOGY AND HYDROGEOLOGY

A wide variety of geological formations occur in Telangana state, ranging from the oldest Archaean crystalline formations to recent alluvium. A major part of the area is underlain by gneissic complex with a structural fill of sedimentary formations and basin-fill of meta-sedimentary formations. The gneissic complex is overlain by basaltic lava flows in the northwestern part and is intruded by several younger rocks namely granites, dolerites, pegmatites and quartzites etc.

3.3.1 Archaean and Lower Protorozoic

Peninsular gneisses of Archaean age are dominant rock types in Telangana state. These are intruded by closepet granite and dolerite dykes. Dharwars, comprising amphibolites, gneisses, schists, and quartzites occur as narrow isolated bands within granites in Mahabubnagar, Nalgonda, Khammam, Warangal, Karimnagar and Adilabad districts.

3.3.2 Middle to Upper protorozoic

The group includes Cuddapahs, Pakhals, Pengangas, Kurnools and Sullavais comprising shales, limestones, dolomites, sandstones and conglomerates. The Cuddapah Super Group of rocks and Kurnool group of rocks occur in parts of Nalgonda and Mahabubnagar districts. The Pengangas, which are considered as equivalent of Pakhals, are exposed in Adilabad district. Bheema group of rocks consisting of flaggy massive and argillaceous limestones occur along western border of Rangareddy district. Sullavais sandstones overlie Pakhals and Penganga rocks consisting shales, limestones, sandstones and conglomerates occur in Adilabad, Karimnagar and Warangal districts.

3.3.3 Gondwana Super Group

Fresh water fluvial sediments of Gondwana Super group rocks (Upper Carboniferous to Lower Cretaceous), comprising lower group of rocks occur along NW-SE trending Pranhita- Godavari valley extending in Adilabad, Karimnagar and Warangal districts. Lower Gondwanas are well developed in Godavari valley and sub-divided into Talchirs, Barakars, Barren measures and Kamthis consisting mainly conglomerates, sandstones, shales occasionally clays in parts of Khammam district. The upper Gondwana is sub-divided into Maleru, Kota, Gangapur and Chikiala formations consisting of sandstones, conglomerates and clays.

3.3.4 Deccan Traps (Basalt)

Horizontal to sub-horizontal disposed lava flows of the Deccan traps covering ~8210 Km2 occur in parts of Adilabad (4187 Km2), Nizamabad (701 Km2), Medak (1513 Km2), Ranga Reddy (1680 Km2) and Mahbubnagar districts (128 Km2). The thickness of individual flow varies between a few metres to as much as 30 m with total thickness to more than 200 m at places. They overlie Archaean group of rocks except in Rangareddy district where they overlie Bhima Group of rocks. Inter-trappean beds comprising limestone, chert and sandstone occur between trap flows near Vikarabad and Adilabad.

3.3.5 Quaternary Deposits

Sub-recent deposits represented by laterite capping occur in Medak and Rangareddy districts at places with thickness up to 30 m. They cover about 916 Km^2 area in the state (Medak: 609 Km^2 and Rangareddy 307 Km^2).

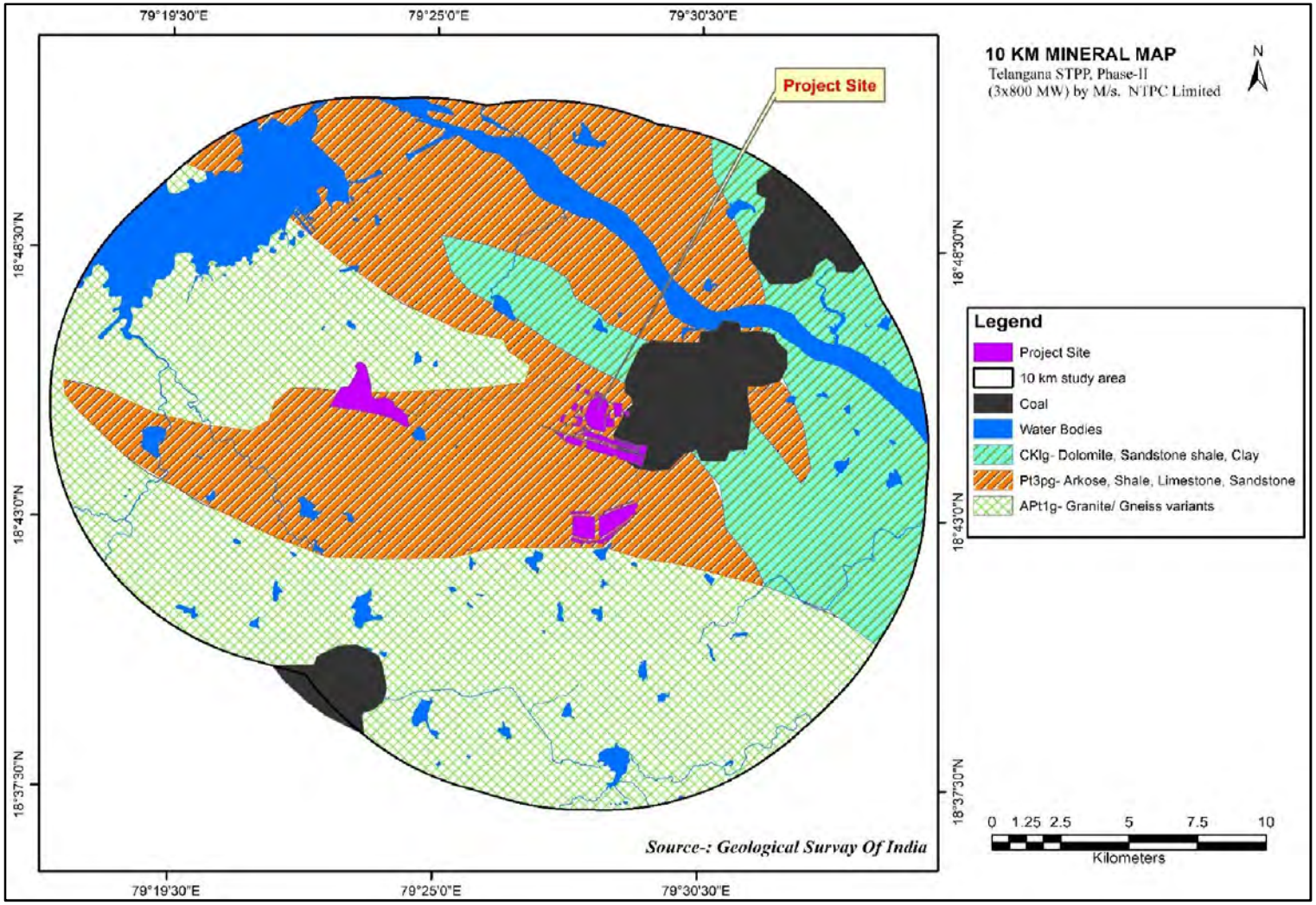


Figure 3.2: Mineral Map

3.4 GEO-HYDROLOGY

Ground water occurs in all the geological formations in the district. The major rock types occurring in the district are granites, gneisses, sandstone, limestone, shale, quartzite's etc. The occurrence and movement of the ground water is a consequence of a finite combination of topographical, climatological, hydrological, geological, and structural and pedagogical factors, which together form integrated dynamic system.

Water level depth

As per the map (given below) prepared from India Water Resources Information System (WRIS), the groundwater level in Peddapalli district, within the Godavari basin and the Pranhita and other sub-basins, ranges from 2 meters below ground level (mBGL) to 20 meters below ground level (mBGL). Groundwater level in the 10 km study area ranges from 2 mBGL to 10 mBGL.

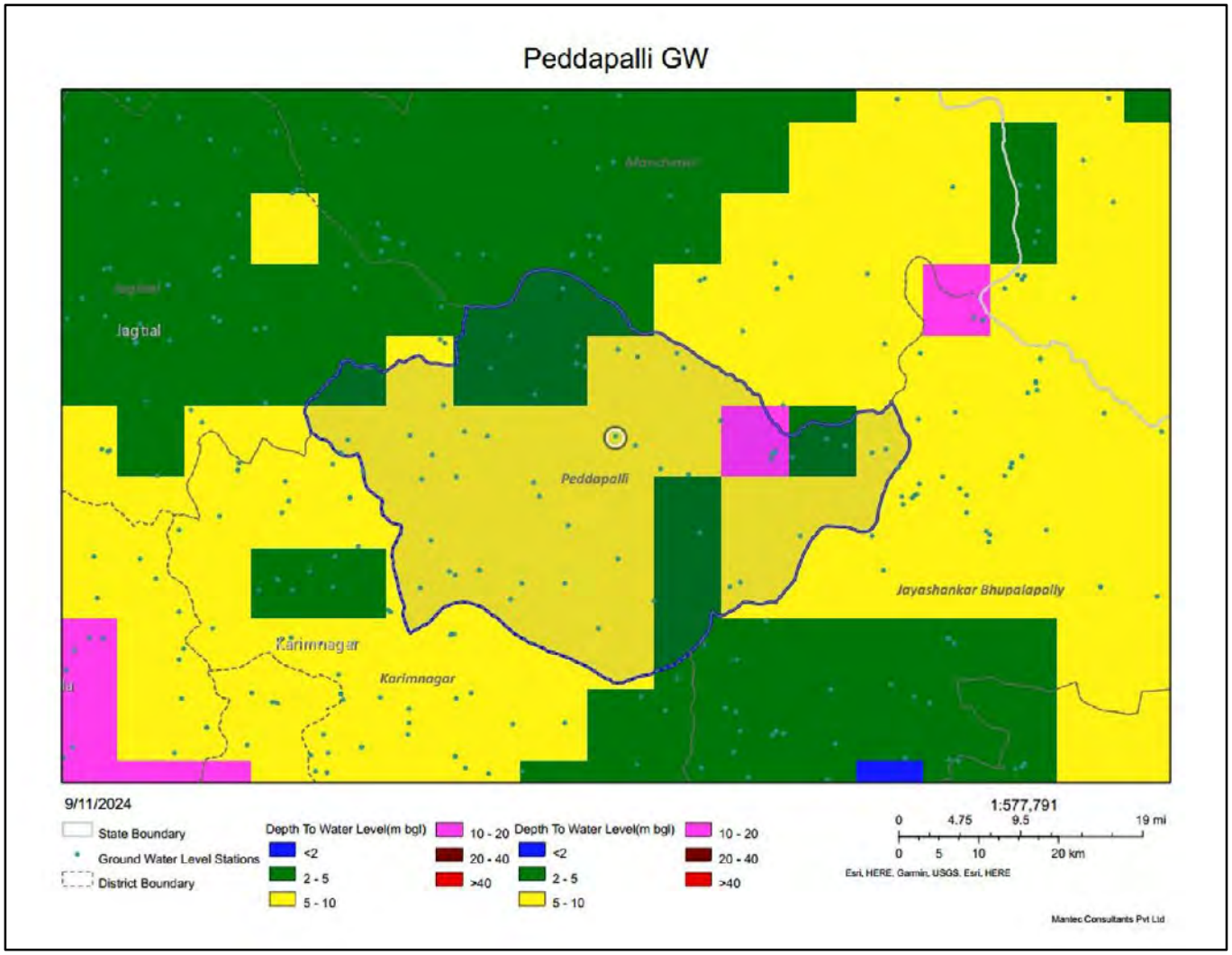


Figure 3.3 Ground water level of Peddapalli district

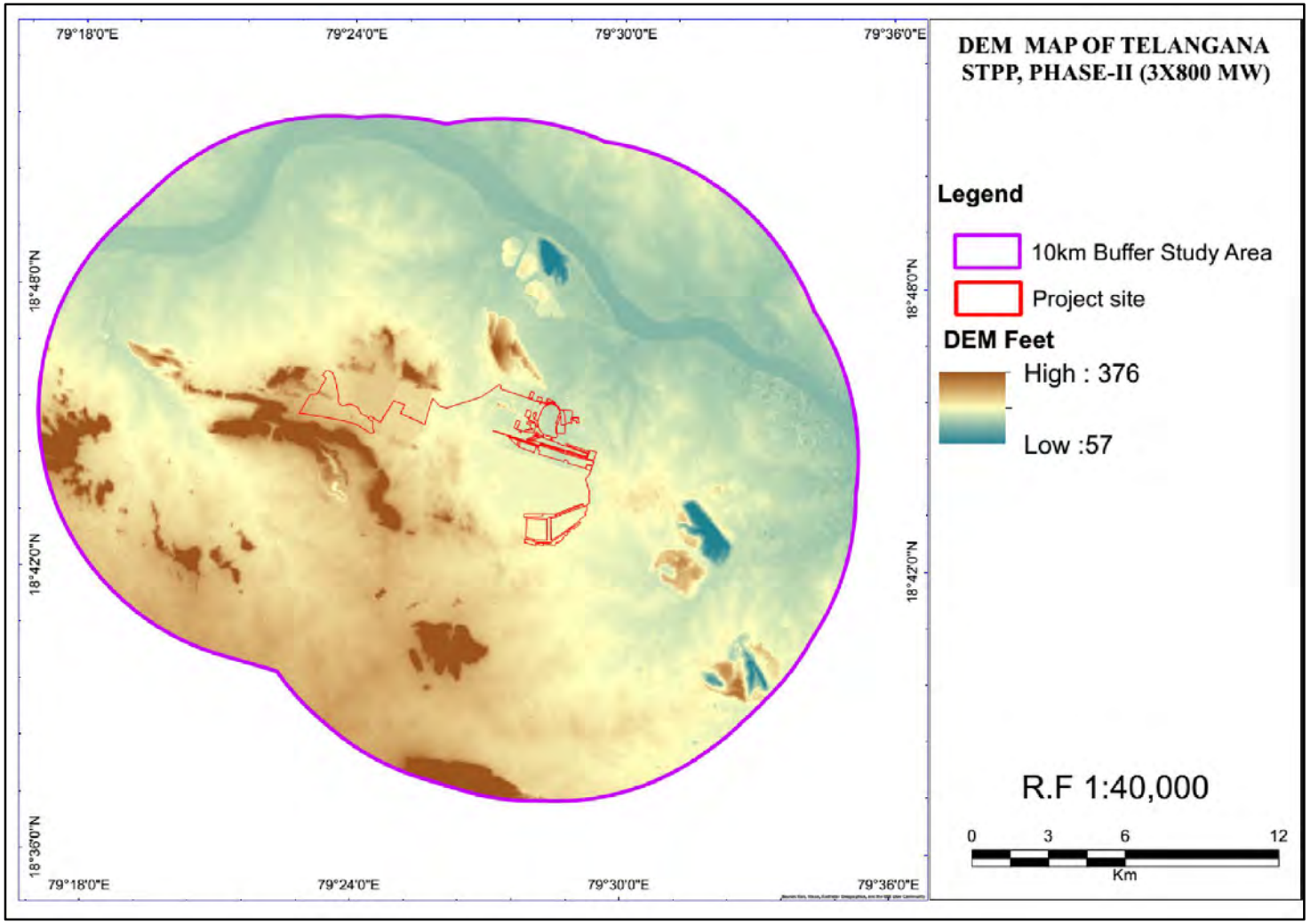


Figure 3-4: Digital Elevation of the study area

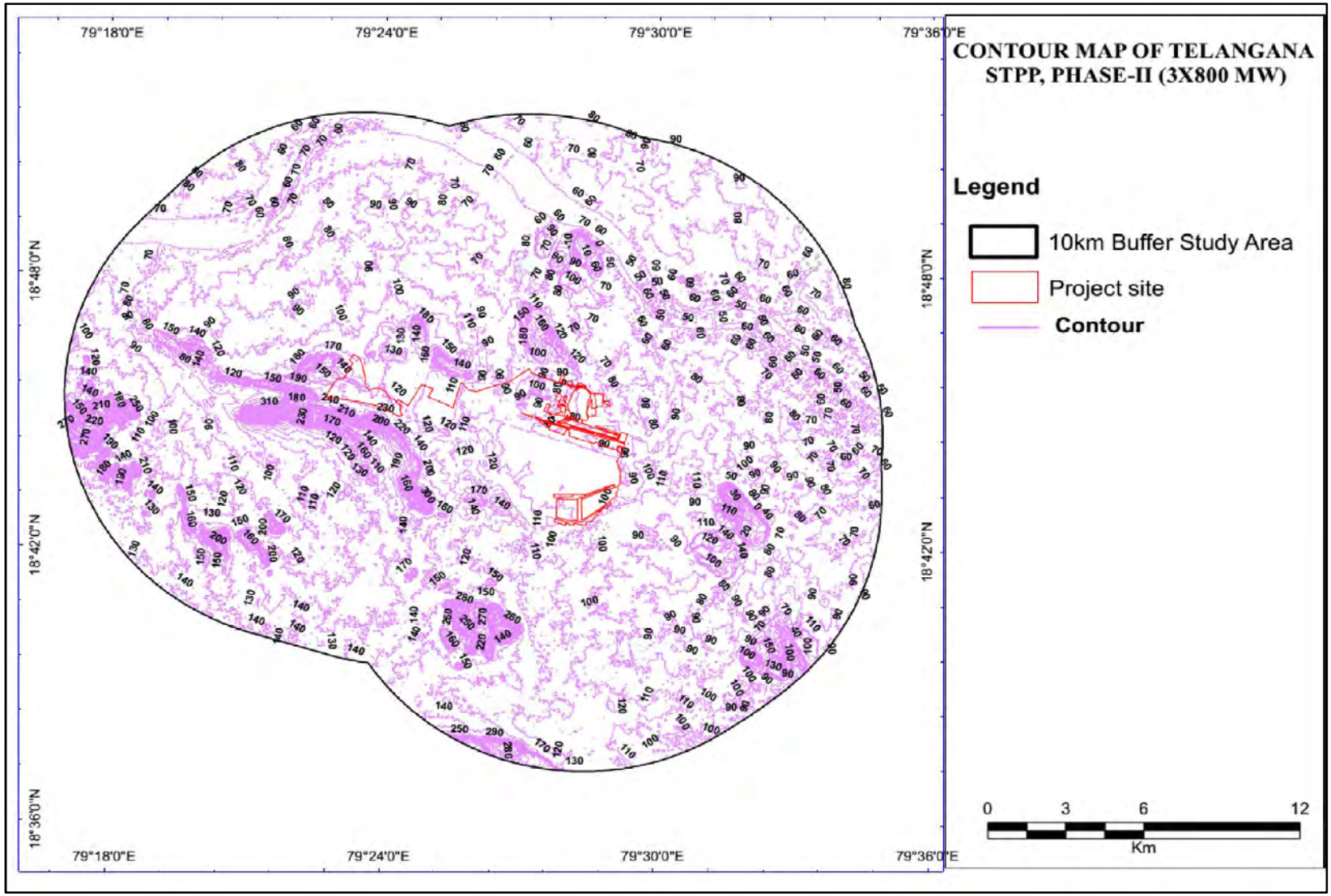


Figure 3-5: Contour Map of Study Area

I. Natural Drainage Pattern in the Study Area

The Godavari River, a major interstate river, flows northwest-southeast and is situated 3.90 km north-northeast of the proposed project area. It enters Telangana at Basar, originating near Triambakeshwar in the Sahyadri range near Nasik, Maharashtra, at an altitude of 1070 m above mean sea level. The river basin covers a vast area of 3,12,800 sq. km.

Numerous feeder streams join the Godavari River within the study area, contributing to a dendritic to sub-dendritic drainage pattern with a dense network, averaging 1.65 km/sq km in density. Quarrying and mining activities for stone and coal in the region disrupt the natural drainage, leading to localized waterlogging issues.

Throughout the study area, there are several small to medium-sized ponds, one of which serves as a major water body. Water from the Yellampalli Barrage, located 14 km away, is pumped to this reservoir, which functions as a balancing reservoir for NTPC's water needs.

The drainage network of the study area is depicted in Figure 3.6.

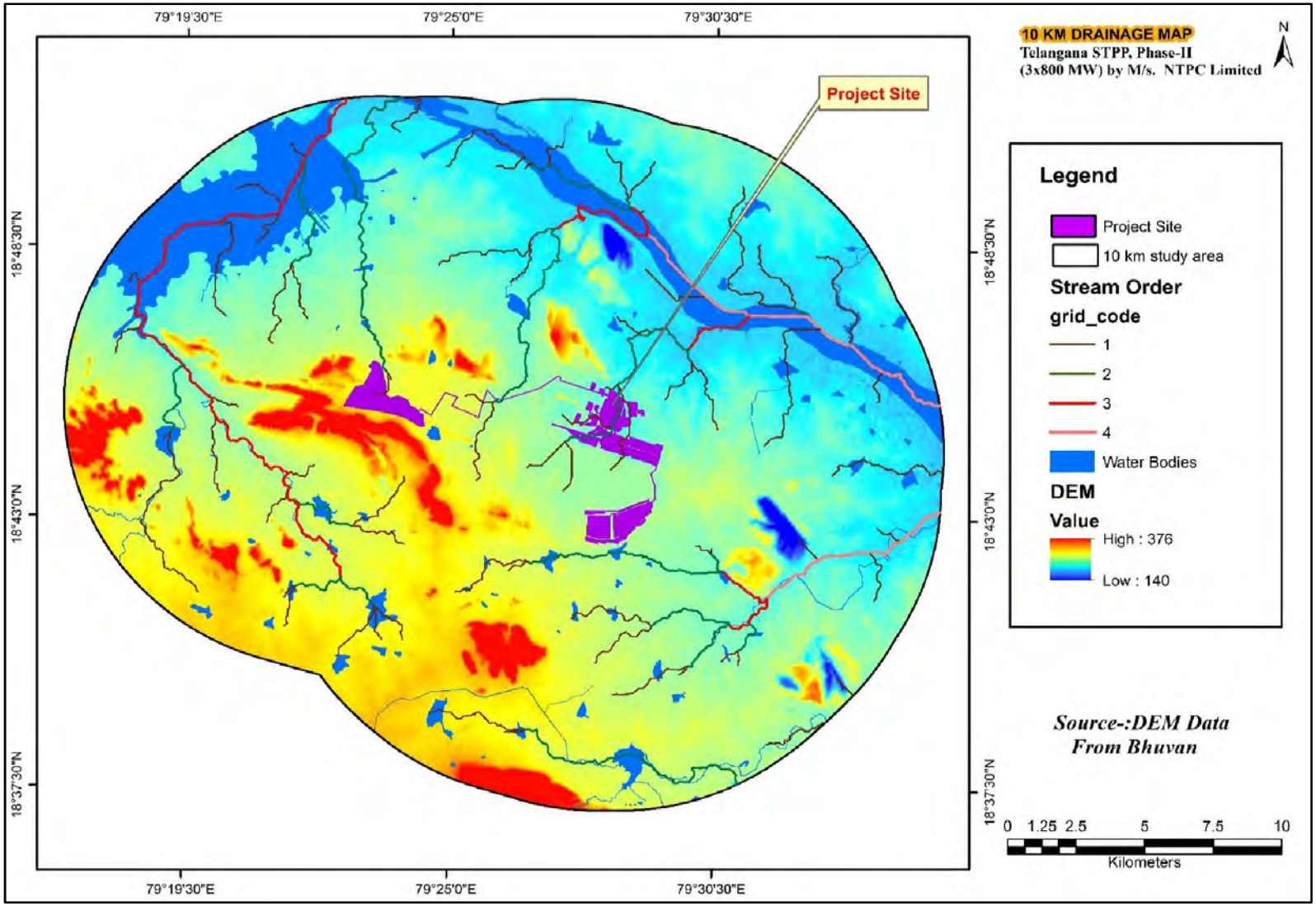


Figure 3-6: Drainage map of the Study Area

3.5 LAND USE STUDIES

Studies on land use aspects of eco-system play important roles for identifying sensitive issues, if any, and taking appropriate actions for maintaining the ecological balance in the development of the region.

3.5.1 Objectives:

The objectives of land use studies are:

- To determine the present land use pattern;
- To analyze the impacts on land-use due to proposed expansion activities in the study area; and (Discussed in chapter-4 in section 4.2)
- To give recommendations for optimizing the future land use pattern vis-a-vis growth of Super Thermal Power Plant (STPP) activities in the study area and its associated impacts. (Discussed in chapter-4 in section 4.2 and sub section-I)

3.5.2 Methodology:

For the study of land use, literature review of various secondary sources such as District Census Handbooks, regional maps regarding topography, zoning settlement, industry, forest etc., was done. The data was collected from various sources like satellite imagery, revenue records, state and central government offices publications and Survey of India (SOI) topo-sheets and also through primary field surveys.

3.5.3 Land use Based on Remote Sensing Data:

Remote sensing satellite imageries were collected and interpreted for the 10km radius study area for analyzing the land use pattern of the study area. Based on the satellite data, land use/land cover maps have been prepared.

3.5.4 Land Use/Land Cover Classification System

The present land use/land cover maps were prepared based on the classification system of national standards. For explanation for each of the land use category, the details as given in Table-3.1 were considered.

Table 3-1: Land Use/Land Cover Classification System

Sr. No.	Level - 1	Level - 2
1	Built-up Land	Town/cities
		Village
		Institution/Industry/godown etc.
		Plotted area/layout
2	Agriculture Land	Crop Land
		Plantation

		Fallow
3	Forest	Evergreen/Semi evergreen
		Deciduous
		Forest plantation
4	Wasteland	Rocky/stony waste
		Land with/without scrubs
		Saline/sandy & marshy/swampy
5	Water bodies	River/Stream
		Lake/reservoir/tanks
6	Others	Orchard/Other plantation
		Shifting cultivation
		Salt pans, snow covered/glacial
		Barren/vacant land

3.5.5 Data Requirement:

IRS RS-2 LISS IV FX data was used for the mapping and interpretation. Besides, other collateral data as available in the form of maps, charts, census records, other reports and especially topographical survey of India maps are used. In addition to this, ground truth survey was also conducted to verify and confirm the ground features. (LULC Data source: RESOURCESAT-2 LISS III&Bhuvan Portal, NRS & year 2023)

3.5.5.1Methodology

The methodology adopted for preparation of land use/land cover thematic map is monoscopic visual interpretation of geo-coded scenes of IRS RS-2 LISS IV FX data and field observations are taken. The various steps involved in the study are preparatory field work, field survey and post field work.

3.5.5.2 Pre-field Interpretation of Satellite Data

The False Colour Composite (FCC) of IRS Resources at 2 LISS IV FX satellite data used for pre-field interpretation work. Taking the help of topo-sheets, geology and geomorphology and by using the image elements, the features are identified and delineated the boundaries roughly. Each feature is identified on image by their image elements like tone, texture, colour, shape, size, pattern and association. A tentative legend in terms of land cover and land use, physiography and erosion were formulated. The sample areas for field check are selected covering all the physiographic, land use/land cover feature cum image characteristics.

3.5.5.3 Ground Truth Collection

Topo-sheets and imagery were taken for field verification, and a transverse plan using existing road network was made to cover as many representative sample areas as possible to observe the broad land use features and to adjust the sample areas according to field conditions. Detailed field observations and investigations were carried out and noted the land use features on the imagery.

3.5.5.4 Post Field Work

The base maps of the study area were prepared with the help of topo-sheets generated by the Survey of India. The interpretation of land use and land cover features of the study area was done using satellite imagery and Google Earth. The final interpreted and classified thematic map was created. The cartographic map was colored with standard color coding and detailed description of feature with standard symbols. All the classes noted and marked by the standard legend on the map.

3.5.5.5 Final Output

The final output of the land use/land cover map would show numerals assigned different color codes for each category, as shown in the map. The area estimation of all features in the land use/land cover categories was noted.

3.5.5.6 Observation

The following are the main interpreted land use/land cover classes of the study area and their respective areas are given in hectares in Table-3.2.

Table 3-2: LULC Breakup (2023)

S. No.	CLASS	Area (Ha)	Percentage (%)
1.	Agriculture	47361.120	73.355
2.	Barren Land	2931.218	4.540
3.	Natural Vegetation	2534.148	3.925
4.	Water Bodies	5681.656	8.800
5.	Settlement	2666.504	4.130
6.	Built-up Mining	3389.624	5.250
	Total	**64564.270**	**100**

As per satellite imagery, the settlement area is 4.13%, Natural Vegetation land occupies 3.9%, agricultural land is about 73.35%, water body is 8.8%, and Barren land is 4.54% and remaining land is built-up for mining.

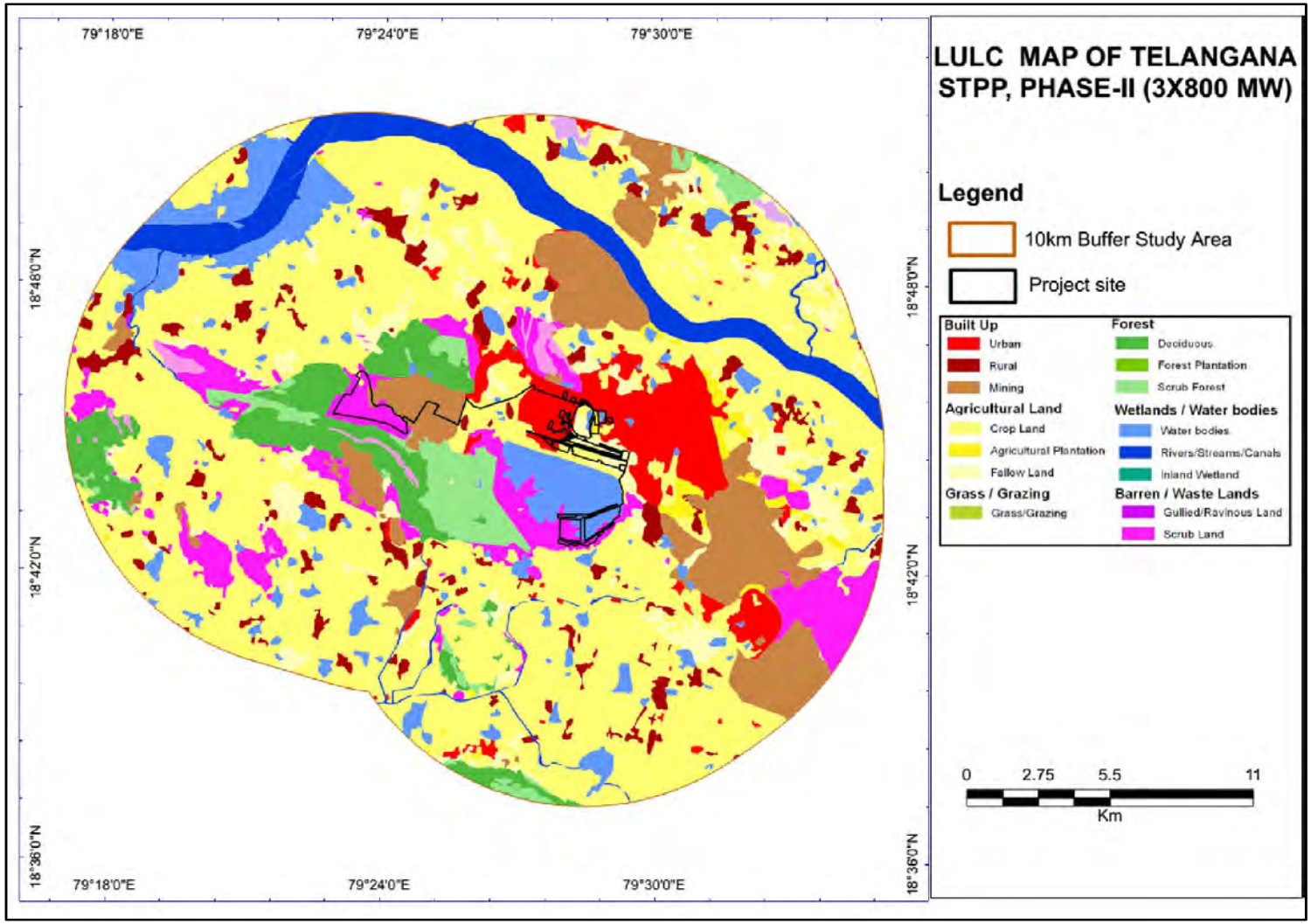


Figure 3-7: LULC Map

3.6 METEOROLOGY

The meteorological data recorded during the study period is very useful for proper interpretation of the baseline information regarding proposed capacity expansion of thermal power plant and surrounding area for air quality dispersion. Historical data on meteorological parameters also play an important role in identifying the general Climatological regime of the region.

The methodology adopted for monitoring surface observations is as per the standard norms laid down by Bureau of Indian Standards (IS:8829) and India Meteorological Department (IMD). On-site monitoring was undertaken for various meteorological variables in order to generate the site-specific data. Data was collected every hour continuously from March,2024 -May 2024 for the report preparation.

The meteorological station is placed on a building at NTPC Telangana. The photograph of meteorological station is shown in Figure-3-8.



Figure 3-8: Meteorological Station

3.6.1 Meteorological Data Generated at Site

The meteorological parameters were recorded on hourly basis during the study period and comprises of wind speed, wind direction (from 0 to 360 degrees), temperature, relative humidity, atmospheric pressure, rainfall. The meteorological parameters have been recorded and are presented in Table-3-3.

Table 3-3: Summary of the Meteorological Data Generated at Site (March, 2024- May, 2024)

Month	Temperature (^{0}C)	Relative Humidity (%)	Wind Speed (m/s)	Wind Direction
Maximum	43.63	99.0	12.10	From South to North
Minimum	14.45	10.56	0.11	
Average	28.53	47.94	3.85	

Source: Weather station installed at project site.

Month	Rainy Days	Rainfall (mm)
March-2024	4	0.6
April-2024	4	0.9
May-2024	7	23.9
Total	15	25.4 mm

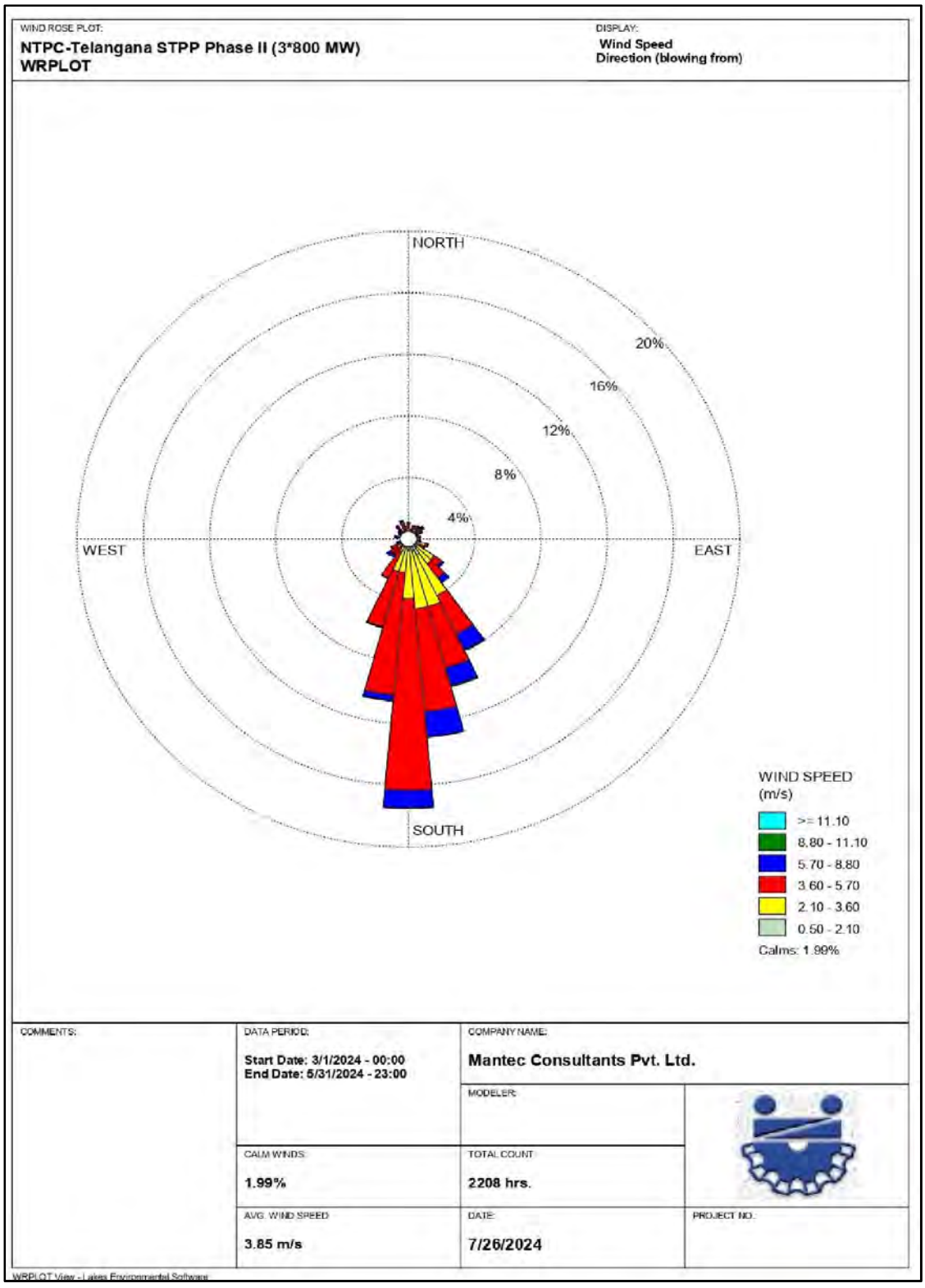


Figure 3-9: Summary of Site-Specific Wind Pattern

3.6.2 Secondary Data from IMD Book

The nearby India Meteorological Department station generating meteorological data is IMD Ramagundam. Hence, secondary information on meteorological conditions has been collected from IMD station at Ramagundam.

Secondary meteorological data from IMD- Ramagundam has been collected for temperature, relative humidity, atmospheric pressure, rainfall, wind speed and wind direction. The data at IMD is usually recorded twice a day viz. at 08:30hr and 17:30 hr.

India meteorological department has been monitoring surface observations at IMD-Ramagundam. Temperature, relative humidity, rainfall, wind speed and direction are measured twice a day viz., at 0830 and 1730 hr. The wind speed and direction data of IMD, Ramagundam has been obtained for the past available 30 years (1991-2020). The monthly data for all the parameters is presented in Table.

The climatological data of Ramagundam IMD are presented in Table 3-4.

Table 3-4: Climatological Data Station: IMD, Ramagundam

Month	Atmospheric Pressure (hPa)		Temperature (^{0}C)		Relative Humidity (%)		Monthly Rainfall (mm)	Average Wind Speed
	0830 Hrs	1730 Hrs	Max	Min	0830 Hrs	1730 Hrs	Total	Kmph
January	998.2	994.4	33.3	10.0	80	45	10.2	2.6
February	996.6	992..6	36.5	13.1	74	38	8.6	3.7
March	994.4	989.7	40.3	16.7	66	34	10.4	4.2
April	991.9	986.8	43.1	21.2	63	34	16.5	5.0
May	988.2	983.3	45.4	23.0	53	31	20.8	4.9
June	985.7	981.8	43.7	23.2	66	51	156.6	4.8
July	985.6	982.6	36.7	22.9	79	68	276.9	3.7
August	987.0	984.0	35.0	22.7	82	73	263.2	3.1
September	989.5	986.0	35.3	22.2	81	70	182.8	2.3
October	993.4	989.9	35.4	18.0	79	64	84.0	1.9
November	996.6	993.0	34.0	13.7	77	55	13.6	1.7
December	998.5	994.7	32.6	10.3	80	49	3.9	1.8

Source: IMD Climatological Normals (1991-2020)

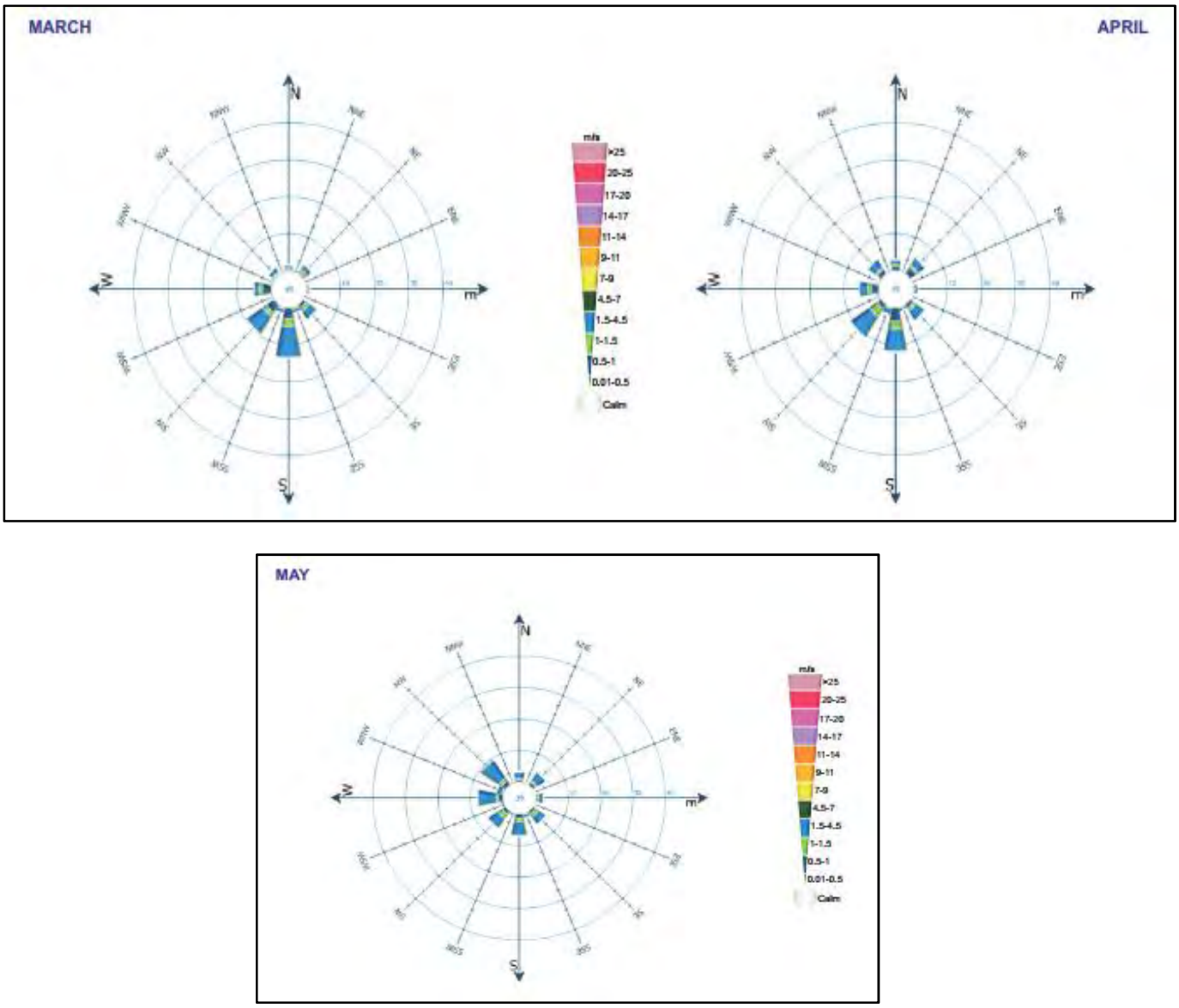


Figure 3-10: Wind Rose of Pre-Monsoon (IMD Ramagundam)

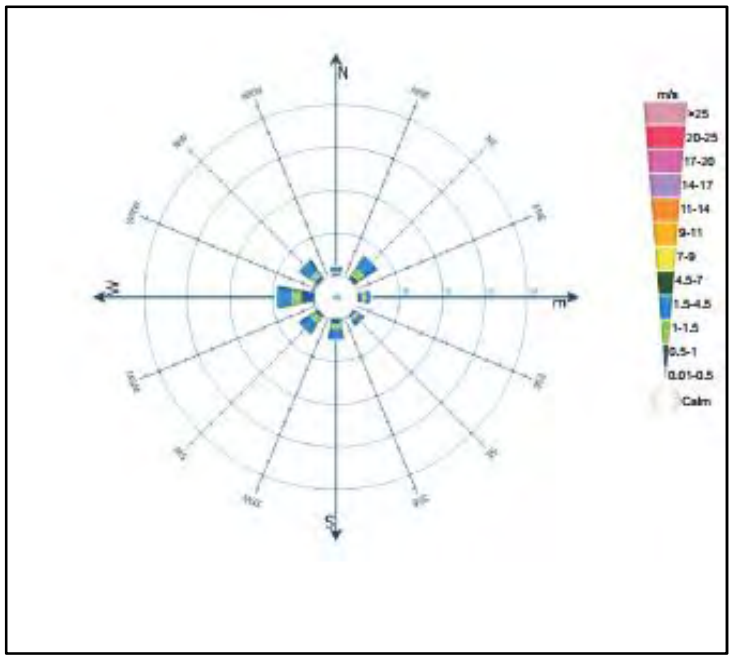


Figure 3-11: Annual Wind Rose of Ramagundam (IMD Ramagundam)

Table 3-5: Summary of the Meteorological Data forpast three years of critical season (March to May)

Years	Data	Temperature (⁰C)	Relative Humidity (%)	Monthly Rainfall (mm)	Wind Speed (m/s)	Wind Direction
2021	**Max.**	40.37	90.46	10.32	8.73	From South to North
	Min.	18.42	10.32	0	0.01	
	Avg.	28.53	47.94	0.01	3.61	
2022	**Max.**	42.55	88.98	6.86	10.52	
	Min.	18.54	10.65	0.0	0.0	
	Avg.	32.64	41.51	0.03	2.95	
2023	**Max.**	42.44	96.36	13.44	8.18	
	Min.	19.30	9.45	0.0	0.0	
	Avg.	30.87	49.21	0.15	2.66	

3.7 AMBIENT AIR QUALITY

The ambient air quality with respect to the study zone of 10 km radius around the proposed project forms the baseline information. The various sources of air pollution in the region are industrial, traffic, urban and rural activities. This section describes the selection of sampling locations, methodology adopted for sampling, analytical techniques and frequency of sampling. The results of monitoring carried out for study period covering pre-monsoon season are presented in Annexure-XV.

3.7.1 Methodology Adopted for Air Quality Survey:

Selection of Sampling Locations:

The baseline status of the ambient air quality has been assessed through a scientifically designed ambient air quality monitoring network. The design of monitoring network in the air quality surveillance program have been based on the following considerations**:**

- Meteorological conditions on synoptic basis
- Topography of the study area
- Representatives of regional background air quality for obtaining baseline status
- Representatives of likely impact areas

Ambient air quality monitoring (AAQM) stations were set up at ten locations. Table-3.6 gives the details of environmental setting around each monitoring station. The location of the selected stations with reference to the plant area boundary shown in Figure-3.12.

Table 3-6: Details of Ambient Air Quality Monitoring Locations

Station Code	Stations	Distance w.r.t. Project Site (km)	Category of Area	Direction w.r.t Project Site	Direction w.r.t Windrose	Longitude Latitude
AAQ1	Govt. Hospital Godavarikhani	2.08 km	Sensitive Area	NE	Downwind	18° 45' 33.142" N 79° 30' 8.877" E
AAQ2	Hanuman Temple Vittal Nagar	3.38 km	Sensitive Area	E	Crosswind	18° 43' 57.832" N 79° 31' 13.834" E
AAQ3	Gram Panchayat Basanth Nagar	4.70 km	Residential Area	WSW	Upwind	18° 42' 32.176" N 79° 24' 12.493" E
AAQ4	Lingapur Village	4.07 km	Residential Area	N	Downwind	18° 48' 03.24" N 79° 27' 36.39" E
AAQ5	Janagam Village	4.94 km	Residential Area	NE	Downwind	18° 46' 17.66" N 79° 31' 33.41" E
AAQ6	Eklaspur village	4.10 km	Residential Area	WNW	Downwind	18° 46' 54.536" N 79° 21' 16.582" E
AAQ7	Near Existing Ash Dyke	0.20 km	Industrial area	W	Crosswind	18° 45' 8.855" N 79° 25' 44.541" E
AAQ8	Kasturbha Vidyalaya Santhosh Nagar	6.42 km	Sensitive Area	SE	Crosswind	18° 40' 47.409" N 79° 31' 58.971" E
AAQ9	Repalle Wada Village	1.89 km	Residential Area	S	Upwind	18° 41' 28.602" N 79° 27' 52.556" E
AAQ10	Near Indiramma Colony Park	1.79 km	Residential Area	NNE	Downwind	18° 46' 38.373" N 79° 28' 34.014" E

I. Justification for Selection of Sampling Locations

A brief description of the sampling locations is presented hereunder:

Govt. Hospital Godavarikhani (AAQ1): This sampling station is located at distance on 2.08 in NE direction. The objective for selection of this location is to assess the concentration of pollutants in downwind direction. This location falls in sensitive area like Hospital.

Near Hanuman Temple, Vittal Nagar (AAQ2): This sampling station is located at a distance of about 3.38 km in East direction of the project site. The objective for selection of this location is to assess the concentration of pollutants in crosswind direction. The location represents project site condition at nearest Sensitive location like Temple.

Gram Panchayat Basanth Nagar (AAQ3): This sampling station is located at a distance of about 4.70 km in WSW direction of the proposed expansion of thermal power plant. The objective for selection of this location is to assess the concentration of pollutants in the upwind direction.

Lingapur Village (AAQ4): This sampling station is located at a distance of about 4.07 km in North direction of the proposed expansion of thermal power plant. This location represents downwind direction.

Janagam village (AAQ5): This sampling station is located at a distance of about 4.94 km in North - east direction from the project site. The objective for selection of this location is to assess the concentration of pollutants in downwind direction. This location falls in the residential area.

Eklaspur Village (AAQ6): This sampling station is located at a distance of about 4.10 km in WNW direction of the project site. The objective for selection of this location is to assess the concentration of pollutants in the downwind direction. The location represents rural and residential conditions.

Near Existing Ash Dyke (AAQ7): This sampling station is located at a distance of about 0.20 km in W direction from the project site. The objective for selection of this location is to assess the concentration of pollutants in crosswind direction.

Kasturba Vidyalaya Santhosh Nagar (AAQ8): This sampling station is located at a distance of about 6.42 km in South East direction from the project site. The objective for selection of this location is to assess the concentration of pollutants in cross wind direction. This represents a Sensitive area such as School.

Repalle Wada Village (AAQ9): This sampling station is located in South direction at a distance of about 1.89 km from the project site. The main objective of selecting this location is to assess the concentration of pollutants in upwind direction in residential area.

Near Indiramma Colony Park (AAQ10): This sampling station is located in NNE direction at a distance of about 1.79 km from the project site. The main objective of selecting this location is to assess the concentration of pollutants in downwind conditions of the residential area.

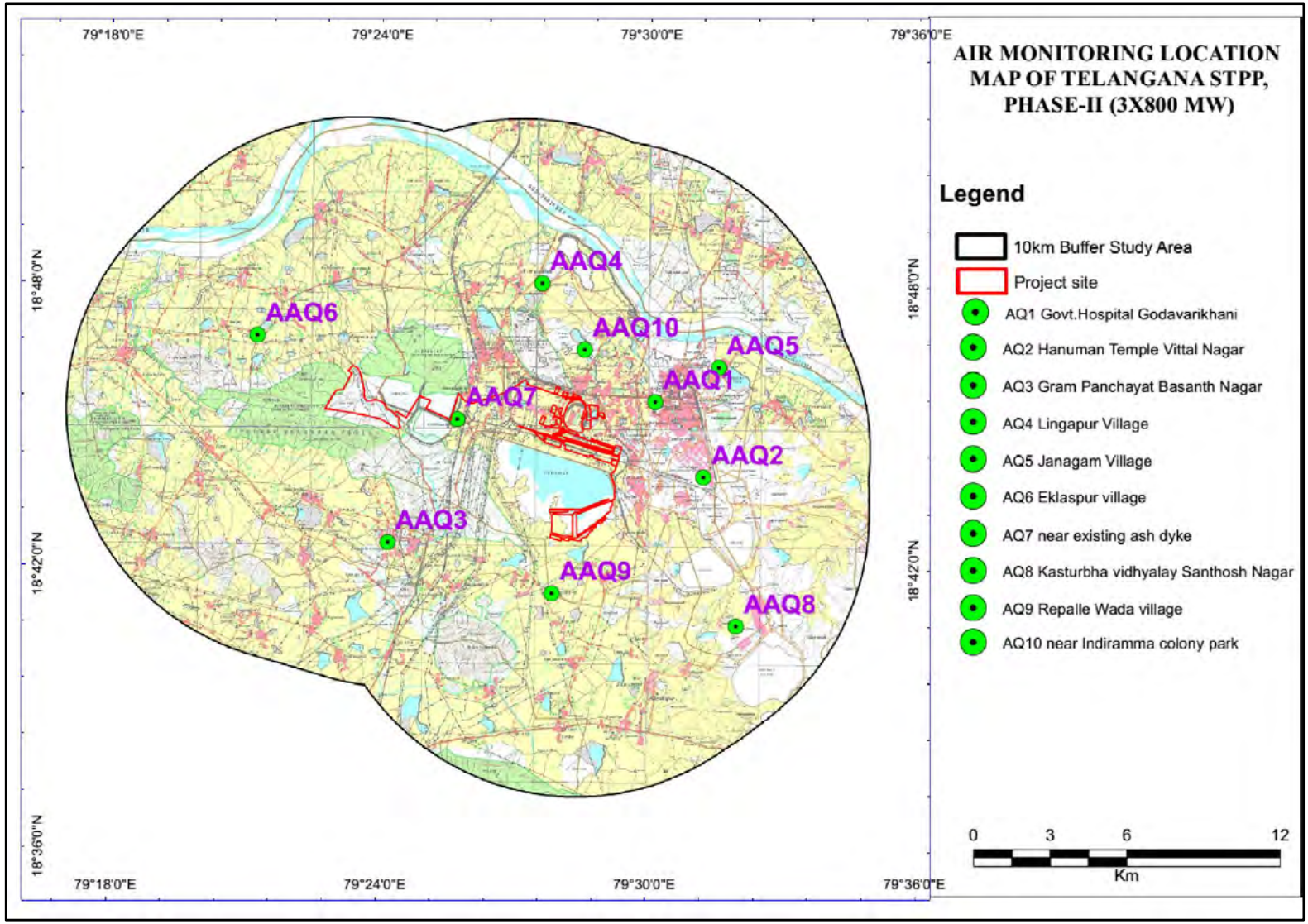


Figure 3-12: Ambient Air Quality Monitoring Locations

II. Frequency and Parameters for Sampling

Ambient Air Quality Samples were collected and analyzed for Pollutants parameters like PM_{10}, $PM_{2.5}$, SO_2, NO_2, O_3, NH_3, Benzene, B(a)P, C_6H_6, CO, Pb, Ni, As and Hg were collected. The methodology of sampling and analysis are given in the following tables.

Table 3-7: Sampling duration of various parameters

Attribute	Parameter	Frequency of Monitoring
AAQ	PM_{10}, $PM_{2.5}$, SO_2, NO_2	Twice a week 24 hr sampling for PM_{10}, $PM_{2.5}$, SO_2, NO_2. Sampling height varies between 3-10 m above ground level as per CPCB guidelines.
	CO, O_3	Once in a month 8 hr sampling for CO & O_3. Sampling height varies between 3-10 m above ground level as per CPCB guidelines.
	NH_3, Pb, Ni, As, Hg, Benzene, B(a)P	Once in a month 24 hr sampling for NH_3, Pb, Ni, As, Hg, C_6H_6, B(a)P. Sampling height varies between 3-10 m above ground level as per CPCB guidelines.

Table 3-8: Ambient Air Quality - Methodology

	Parameters	Units of Measurements	Prescribed Limits	Protocol
1.	Sulphur Dioxide, SO_2	µg/ m^3	80 (24 Hours)	IS: 5182 Part-II, 2023
2.	Nitrogen Dioxide, NO_2	µg/ m^3	80 (24 Hours)	IS: 5182 Part-VI, 2022
3.	Particulate Matter, PM_{10}	µg/ m^3	100 (24 Hours)	IS: 5182 Part-XXIII, 2022
4.	Particulate Matter, $PM_{2.5}$	µg/ m^3	60 (24 Hours)	CPCB Guidelines, 2011 Vol. II
5.	Ozone, O_3	µg/ m^3	100 (08 Hours)	IS: 5182 Part-IX, Chemical Method, 2019
6.	Ammonia, NH_3	µg/ m^3	400 (24 Hours)	IS: 5182 Part-XXV, 2018
7.	Carbon Monoxide, CO	mg/ m^3	2 (08 Hours)	IS: 5182 Part-X, 2019 NDIR spectroscopy
8.	Lead, Pb	µg/ m^3	01 (24 Hours)	IS:5182 (P-XXII) 2019
9.	Nickel, Ni	ng/ m^3	20 (Annual)	IS: 5182 Part-XXVI, 2020
10.	Arsenic, As	ng/ m^3	06 (Annual)	ICP Method after sampling

				on EPM 2000 or Equivalent filter paper (CPCB Guidelines, 2011 Volume-I
11.	Benzene, C_6H_6	µg / m^3	05 (Annual)	IS:5182 (P-11) 2022 (Gas Chromatograph)
12.	Benzo(a)Pyrene (BaP)	ng/ m^3	01 (Annual)	IS:5182 (P-12) 2019 (Gas Chromatograph)
13.	Mercury, Hg	µg / m^3	-	ICP Method after sampling on EPM 2000 or Equivalent filter paper (CPCB Guidelines, 2011 Volume-I)

Installation Considerations and Analytical Techniques:

- Installed at a place where representative results anticipated of the area and away from local activities.
- At least 15 m distance from local sources
- Sampling height: 3-10 m (free from obstructions).

Respirable Dust Sampler: For PM_{10}, SO_2, NO_2, O_3, NH_3, Pb, Ni, As, Hg

Rota meter flow: 0.2 LPM

Impinger: Capacity 35 ml, 22 cm in length and 2.6 cm wide, impinging end of the tube 1 mm bore size.

Manometer: Average >1.1 cum/minute

Fine Particulate Sampler:$PM_{2.5}$

Flow Rate: 16.67 LPM

Presentation of AAQ Data:

Various statistical parameters like 98 percentile, average, maximum and minimum values have been computed from the observed raw data for all the AAQ monitoring stations. The summary of these results for each location for one season monitoring period are presented in Table-3.8.

Table 3-9: Ambient Air Quality Data for the study period (Mar-2024 to May-2024)

Location	Statistics	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)	SO_2 (µg/m³)	NO_2 (µg/m³)	NH_3 (µg/m³)	O_3 (µg/m³)	CO (mg/m³)	C_6H_6 (µg/m³)	B(a)P (ng/m³)	Pb (µg/m³)	Ni (ng/m³)	As (ng/m³)	Hg (µg/m³)
AAQ1	Max	84.00	50.00	15.00	30.00	26.00	23.00	0.45	0.38	BDL	BDL	BDL	BDL	BDL
	Min	70.00	36.00	10.00	19.00	24.00	21.00	0.41	0.36	BDL	BDL	BDL	BDL	BDL
	Avg	77.96	44.96	12.41	25.56	25.00	22.00	0.43	0.37	BDL	BDL	BDL	BDL	BDL
	98 percentile	82.96	49.48	14.48	29.48	25.96	22.96	0.45	0.38	BDL	BDL	BDL	BDL	BDL
AAQ2	Max	66.00	38.00	13.00	27.00	28.00	25.00	0.49	0.43	BDL	BDL	BDL	BDL	BDL
	Min	48.00	28.00	5.00	15.00	25.00	21.00	0.44	0.41	BDL	BDL	BDL	BDL	BDL
	Avg	56.56	32.70	7.59	20.25	26.33	23.33	0.47	0.42	BDL	BDL	BDL	BDL	BDL
	98 percentile	64.96	37.48	12.23	25.96	27.92	24.96	0.49	0.43	BDL	BDL	BDL	BDL	BDL
AAQ3	Max	58.00	36.00	13.00	25.00	32.00	28.00	0.56	0.74	BDL	BDL	BDL	BDL	BDL
	Min	48.00	28.00	9.00	18.00	28.00	25.00	0.48	0.63	BDL	BDL	BDL	BDL	BDL
	Avg	53.33	31.93	10.63	21.52	30	26.33	0.52	0.68	BDL	BDL	BDL	BDL	BDL
	98 percentile	57.48	35.48	12.48	24.48	31.92	27.92	0.56	0.74	BDL	BDL	BDL	BDL	BDL
AAQ4	Max	88.00	50.00	17.00	32.00	28.00	40.00	0.58	0.49	BDL	BDL	BDL	BDL	BDL
	Min	76.00	40.00	10.00	20.00	25.00	28.00	0.50	0.45	BDL	BDL	BDL	BDL	BDL
	Avg	81.93	45.11	13.74	26.67	26.67	34.67	0.53	0.47	BDL	BDL	BDL	BDL	BDL
	98 percentile	86.96	48.96	16.48	30.96	27.96	39.84	0.58	0.49	BDL	BDL	BDL	BDL	BDL
AAQ5	Max	86.00	47.00	15.00	26.00	28.00	23.00	0.49	0.44	BDL	BDL	BDL	BDL	BDL
	Min	54.00	31.00	9.00	16.00	26.00	22.00	0.44	0.41	BDL	BDL	BDL	BDL	BDL
	Avg	70.33	36.96	11.41	21.44	27.00	22.33	0.47	0.43	BDL	BDL	BDL	BDL	BDL

	98 percentile	84.44	44.40	14.48	24.96	27.96	22.96	0.49	0.44	BDL	BDL	BDL	BDL	BDL
AAQ6	Max	78.00	43.00	16.00	28.00	28.00	24	0.55	0.51	BDL	BDL	BDL	BDL	BDL
	Min	54.00	32.00	7.00	14.00	26.00	22.00	0.48	0.43	BDL	BDL	BDL	BDL	BDL
	Avg	70.00	37.38	10.19	20.46	27.00	23.00	0.52	0.48	BDL	BDL	BDL	BDL	BDL
	98 percentile	77.50	42.50	14.50	26.50	27.96	23.96	0.55	0.51	BDL	BDL	BDL	BDL	BDL
AAQ7	Max	86.00	49.00	15.00	28.00	28.00	24.00	0.47	0.41	BDL	BDL	BDL	BDL	BDL
	Min	54.00	30.00	9.00	20.00	24.00	20.00	0.39	0.36	BDL	BDL	BDL	BDL	BDL
	Avg	72.35	39.19	11.27	22.62	26.00	22.00	0.43	0.38	BDL	BDL	BDL	BDL	BDL
	98 percentile	85.50	48.50	14.50	27.00	27.92	23.92	0.47	0.41	BDL	BDL	BDL	BDL	BDL
AAQ8	Max	62.00	37.00	13.00	25.00	29.00	24.00	0.62	0.58	BDL	BDL	BDL	BDL	BDL
	Min	50.00	30.00	8.00	16.00	26.00	22.00	0.55	0.52	BDL	BDL	BDL	BDL	BDL
	Avg	54.46	32.62	10.73	21.42	27.33	23.00	0.59	0.55	BDL	BDL	BDL	BDL	BDL
	98 percentile	60.50	36.50	12.50	24.50	28.92	23.96	0.62	0.58	BDL	BDL	BDL	BDL	BDL
AAQ9	Max	64.00	38.00	14.00	24.00	28.00	25.00	0.58	0.51	BDL	BDL	BDL	BDL	BDL
	Min	48.00	29.00	6.00	14.00	25.00	22.00	0.48	0.43	BDL	BDL	BDL	BDL	BDL
	Avg	58.23	35.08	9.88	19.85	26.67	23.33	0.53	0.47	BDL	BDL	BDL	BDL	BDL
	98 percentile	63.00	37.50	13.50	23.50	27.96	24.92	0.58	0.51	BDL	BDL	BDL	BDL	BDL
AAQ10	Max	90.00	50.00	15.00	26.00	30.00	25.00	0.55	0.48	BDL	BDL	BDL	BDL	BDL
	Min	78.00	40.00	10.00	18.00	26.00	22.00	0.49	0.46	BDL	BDL	BDL	BDL	BDL
	Avg	84.12	43.23	11.46	22.81	28.00	23.67	0.52	0.47	BDL	BDL	BDL	BDL	BDL
	98 percentile	89.00	49.00	14.50	26.00	29.92	24.96	0.55	0.48	BDL	BDL	BDL	BDL	BDL

3.7.2 Interpretation

- The minimum and maximum concentrations for PM_{10} were recorded as 48 µg/m^3 and 90µg/m^3 respectively.
- The minimum and maximum concentrations for $PM_{2.5}$ were recorded as 28 µg/m^3 and 50µg/m^3 respectively.
- The minimum and maximum SO_2 concentrations were recorded as 5 µg/m^3 and 17µg/m^3 respectively.
- The minimum and maximum NO_2 concentrations were recorded as 14 µg/m^{3}and 32 µg/m^{3}respectively.
- The maximum concentration might be due to nearby commercial activities, local fluctuations in the vicinity due to vehicular transportation.
- The minimum and maximum CO concentrations were recorded as 0.39 mg/m^3 and 0.62 mg/m^3. The maximum CO concentration might be due to vehicular transportation.

The concentrations of $PM_{2.5}$, PM_{10}, SO_2, NO_2, O_3, CO, NH_3, Pb, BaP, Hg, As, Ni and C_6H_6 are observed to be well within the NAAQ standards prescribed by Central Pollution Control Board (CPCB) for industrial and rural /residential zone. The baseline concentration can be attributed due to the existing activities including traffic, industries, domestic and agricultural activities in the area.

3.7.3 Analysis of Comparative baseline data:

A comparative study in an Environmental Impact Assessment (EIA) report serves as a crucial tool for evaluating and contrasting different project alternatives or assessing impacts against baseline conditions.

The comparative study has been created using both previous baseline data and current baseline data to illustrate the variations observed.

Particulate Matter (PM_{10}):

The 98th percentile values of PM_{10} ranged from 76.22µg/m^{3}to 95.63 µg/m^3 in 2022, while in 2024 PM_{10} concentration ranged from 57.48 µg/m^3 to 86.96 µg/m^3**.** The values show slight decrease in the overall PM_{10} concentration. Furthermore, the baseline data were collected during different seasonsi.e.,fromOctober to December in 2022and March to May in 2024which may have influenced the observed trends in particulate matter concentrations due to seasonal variation in meteorological conditions**.**

Fine Particulate Matter ($PM_{2.5}$):

The 98th percentile values of $PM_{2.5}$ ranged from 34.72 µg/m^3 to 52.93 µg/m^3 in 2022while in 2024 the $PM_{2.5}$ concentration ranged from 35.48 µg/m^3 to 49.48 µg/m^3 in 2024. The values show slight decrease in the overall $PM_{2.5}$ concentration. Furthermore, the baseline data were collected during different seasonsi.e.,fromOctober to December in 2022and March to May in 2024which may have

influenced the observed trends in fine particulate matter concentrations due to **seasonal variation in meteorological conditions.**

Sulfur Dioxide (SO_2):

In 2022, 98th percentile values of SO_2 ranged from 8.89 µg/m^3 to 14.66 µg/m^3, while in 2024, the values ranged from 12.48 to 16.48 µg/m^3. The slight increase is attributed to the combustion of fuel and from diesel-powered vehicles operating in the area.

Nitrogen Dioxide (NO_2):

The 98th percentile values of NO_2 concentration ranged from 13.55 to 27.94 µg/m^3 in 2022 while it ranged from 24.48 to 30.96 µg/m^3 in 2024. The primary sources contributing to this increase may be due to fuel combustion, vehicular movements.

Table 3-10: Comparative analysis of base line data

Locations		PM_{10}		$PM_{2.5}$		SO_2		NO_2	
		2022	2024	2022	2024	2022	2024	2022	2024
Govt. Hospital Godavarikhani	Min	59.5	70	25.5	36	5.8	10	12.8	19
	Max	96	84	53	50	15.1	15	28.4	30
	98 percentile	**95.63**	**82.96**	**52.93**	**49.48**	**14.66**	**14.48**	**27.94**	**29.48**
Gram Panchayat Basanth Nagar	Min	36.2	48	19.6	28	5.8	9	11.8	18
	Max	96.2	58	52.2	36	11.2	13	19.5	25
	98 percentile	**95.42**	**57.48**	**51.26**	**35.48**	**11.11**	**12.48**	**19.36**	**24.48**
Lingapur Village	Min	42.9	76	16.3	40	5.5	10	9.5	20
	Max	78.2	88	35.2	50	9.2	17	17.2	32
	98 percentile	**76.22**	**86.96**	**34.72**	**48.96**	**9.13**	**16.48**	**13.55**	**30.96**
Janagam Village	Min	41.8	54	21.84	31	5.5	9	10.7	16
	Max	82.2	86	43.1	47	9.1	15	22.6	26
	98 percentile	**81.92**	**84.44**	**42.66**	**44.4**	**8.89**	**14.48**	**22.09**	**24.96**
Near Existing Ash Dyke	Min	49.2	54	18.7	30	5.8	9	10.9	20
	Max	95.5	86	50.4	49	12.4	15	20.8	28
	98 percentile	**94.58**	**85.5**	**49.89**	**48.5**	**12.15**	**14.5**	**20.71**	**27**

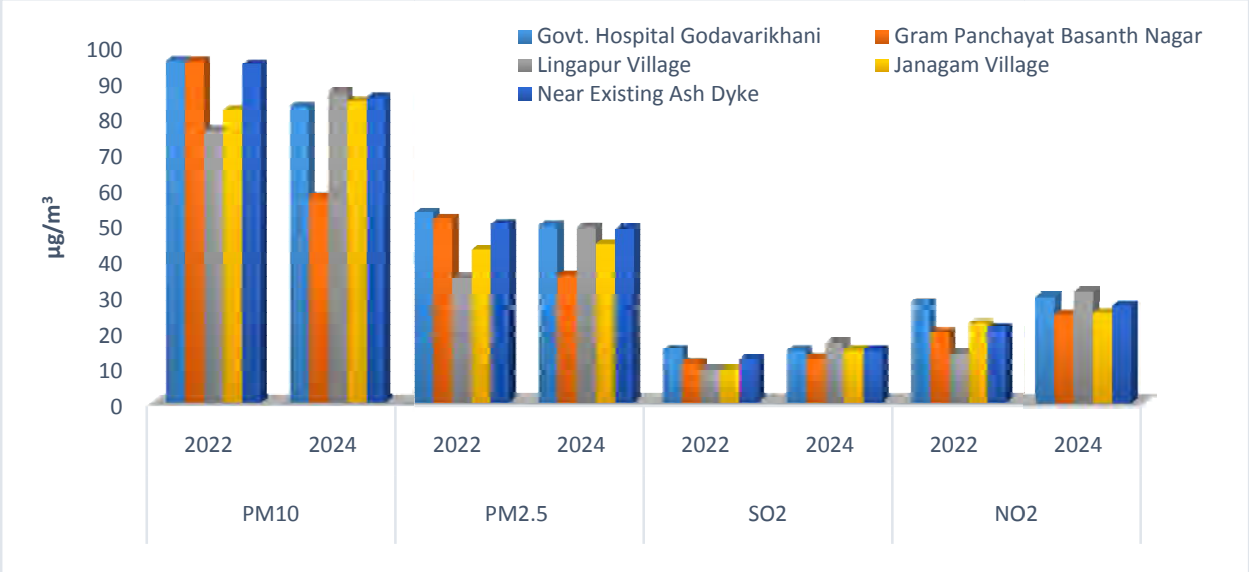


Figure 3-13: Comparative Study Chart of the baseline study

3.8 WATER QUALITY

Selected water quality parameters of surface and ground water resources in the study area have been studied for assessing the water environment and evaluate anticipated impact of the plant. Understanding the water quality is essential in preparation of environmental impact assessment to identify critical issues with respect to water environment.

The purpose of this study is to:

- Assess the water quality characteristics for critical parameters;
- Evaluate the impacts on agricultural productivity, habitat conditions, recreational resources and aesthetics in the vicinity; and
- Predict impact on water quality due to proposed project,

3.8.1 Methodology

Reconnaissance survey was undertaken and monitoring locations were finalized based on:

- Drainage pattern;
- Location of residential areas representing different activities/likely impact areas; and
- Likely areas, which can represent baseline conditions

Water samples were collected at 12 locations, out of which 6 samples from ground water sources and 6 samples from surface sources. All the samples were collected for physico chemical parameters like pH, TSS, TDS, Sulphate, Phosphate, Nitrate, TH, Ca, Mg, D.O., BOD, COD, Cl, F, Silica, Oil & Grease, Phenolic Compounds, Na & K, Heavy metals, etc. & for Bacteriological (Total Coliform) etc. These parameters analyzed as per the procedures specified in 'IS: 3025 Part-1, Standard Methods for Examination of Water and Wastewater' published by American Public Health Association (APHA).

Ground water samples results are compared with IS: 10500 specification and surface water samples results are compared with Water Quality Criteria, published by CPCB for its suitability to drinking, outdoor bathing, drinking water after treatment, propagation of wild life, fisheries and irrigation purpose.

3.8.2 Water Sampling Locations

The water sampling locations and monitoring results are listed below Table no: 3-9 to 3-16 and shown in Figure 3.14.

3.8.3 Ground Water

Description of Sampling Locations

Ground Water: The ground water samples were collected from the village hand pumps surrounded by the habitation. The major usages of the ground water are for drinking and domestic activities.

Table 3-11: Ground Water Monitoring Locations

Station Code	Stations	Distance w.r.t. Plant Site (km)	Direction w.r.t. Plant Site	Longitude Latitude
GW1	Govt. Hospital Godavarikhani	2.08 km	NE	18° 45' 33.142" N 79° 30' 8.877" E
GW2	Hanuman Temple Vittal Nagar	3.38 km	E	18° 43' 57.832" N 79° 31' 13.834" E
GW3	Gram Panchayat Basanth Nagar	4.70 km	WSW	18° 42' 32.176" N 79° 24' 12.493" E
GW4	Khader Colony Near Subodh High School	1.02 km	NW	18° 46' 30.310" N 79° 26' 47.815" E
GW5	Lakshmi Devi Temple Singareddypalle	8.20 km	E	18° 43' 25.419" N 79° 34' 11.983" E
GW6	Eklaspur Village	4.10 km	WNW	18° 46' 54.536" N 79° 21' 16.582" E

Identification of Ground Water Monitoring Locations

GW1: This location selected in the North-East direction of the project site at distance of 2.08 km from the project boundary to identify the Ground Water status in the Sensitive hospital area.

GW2: This location selected in the East direction of the project site at distance of 3.38 km from the project boundary.

GW3: This location selected in the WSW direction of the project site at distance of 4.70 km from the project boundary to identify the status in the residential area.

GW4: This location selected in the NW direction of the project site at distance of 1.02 km from the project boundary to identify the impact on nearest sensitive area like school.

GW5: This location selected in the East direction of the project site at distance of 8.20 km from the project boundary at sensitive area like Temple.

GW6: This location selected in the WNW direction of the project site at distance of 3.38 km from the project boundary at residential area.

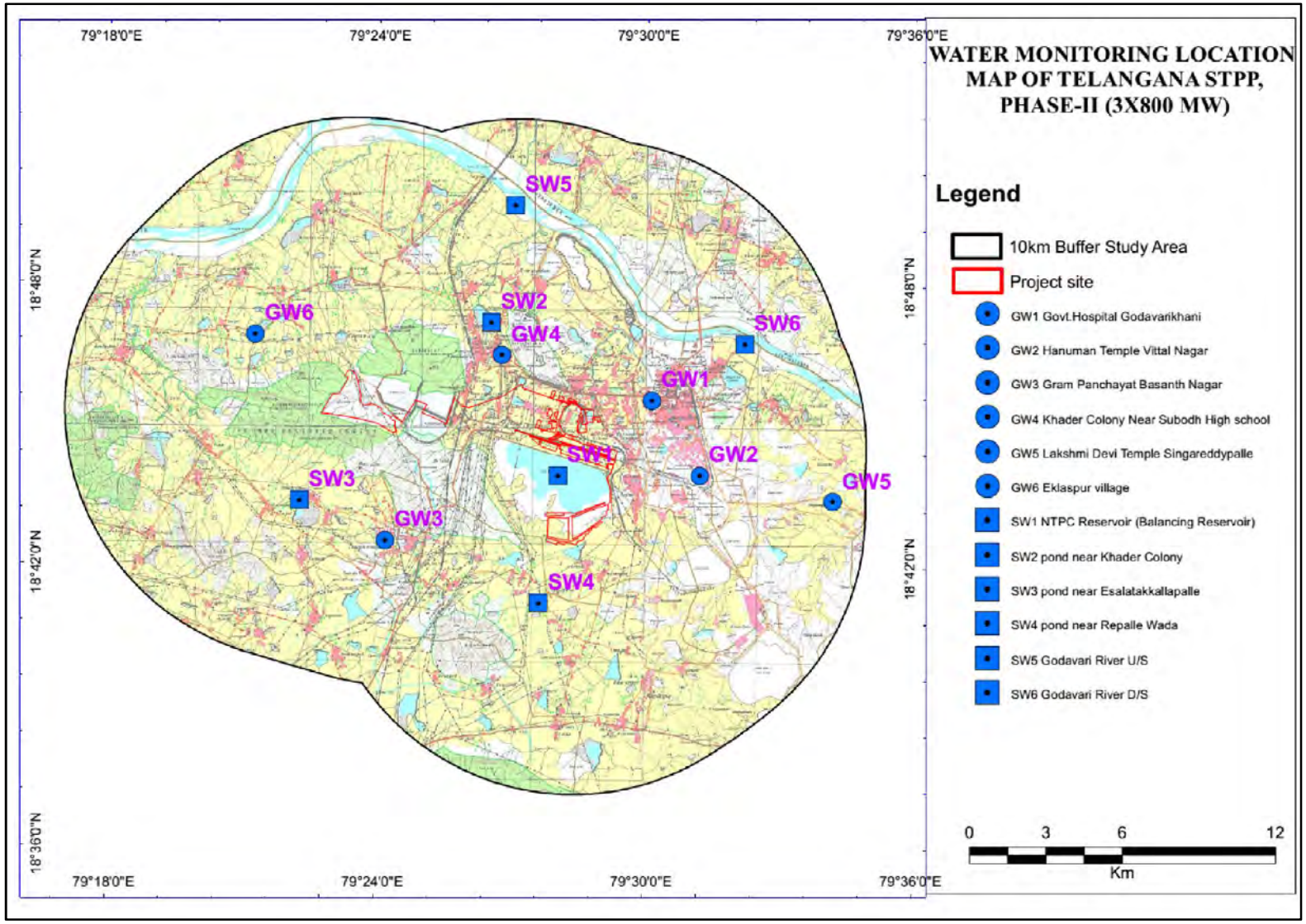


Figure 3-14:Water sample monitoring locations

The analytical results of ground water samples are given in Table 3-12, 3-13 and Table 3-14.

Table 3-12: Groundwater Quality (March 2024)

SL. No.	Parameters	Units of Measurements	GW1 Govt. Hospital Godavarikhani	GW2 Hanuman Temple Vittal Nagar	GW3 Gram Panchayat Basanth Nagar	GW4 Khader Colony Near Subodh High school	GW5 Lakshmi Devi Temple Singareddypalle	GW6 Eklaspur village	Desired Limit (IS 10500: 2012)	Permissible Limit (IS 10500: 2012)
1	Colour	Hazen Units	<5	<5	<5	<5	<5	<5	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	-	7.21	7.51	7.33	7.42	7.39	7.28	6.5-8.5	No relaxation
4	Temperature	°C	30	31	31	30	30	31	-	-
5	Conductivity	µmhos/cm	862	970	979	891	790	783	-	-
6	Alkalinity as $CaCO_3$	mg/l	264	294	320	318	288	320	200	600
7	Total Dissolved Solids	mg/l	560	631	637	579	513	509	500	2000
8	Total Suspended Solids	mg/l	5	6	7	6	5	6	-	-
9	Total Hardness as $CaCO_3$	mg/l	372	422	436	396	356	366	200	600
10	Calcium as Ca	mg/l	103.3	109.6	124	118.4	107.2	96	75	200
11	Magnesium as Mg	mg/l	27.7	35.96	30.61	24.3	21.38	30.61	30	100

12	Chloride as Cl	mg/l	124	142	132	102	86	80	250	1000
13	Phosphate as PO4	mg/l	0.52	0.61	0.48	0.42	0.35	0.35	-	-
14	Nitrate as NO_3	mg/l	10.4	11.2	12.1	10.6	9.8	10		
15	Sulphate as SO_4	mg/l	46	56	48	42	38	26	200	400
16	Fluoride as F	mg/l	0.23	0.15	0.18	0.21	0.26	0.25	45	No relaxation
17	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
18	Silica as Si	mg/l	4.8	5.1	4.7	5.2	5	4.9	-	-
19	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-	-
20	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
21	Total Arsenic as As	mg/l	0.025	0.006	0.018	0.008	<0.005	0.006	0.1	0.5
22	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No relaxation
23	Zinc as Zn	mg/l	0.025	0.036	0.033	0.032	0.442	0.238	5	15
24	Total Chromium as Cr	mg/l	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	0.05	No relaxation
25	Copper as Cu	mg/l	0.005	0.008	0.008	0.009	0.014	0.025	0.05	1.5
26	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001	No relaxation
27	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	No relaxation
28	Iron as Fe	mg/l	0.215	0.228	0.154	0.183	0.254	0.159	0.3	No relaxation
29	Selenium as Se	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No relaxation
30	Sodium as Na	mg/l	42	48	46	42	36	33	-	-

31	Potassium as K	mg/l	8	6	6	7	5	4	-	-
32	Dissolved Oxygen	mg/l	3.8	2.4	2.6	3.4	4.2	3.6	-	-
33	BOD	mg/l	<2	<2	<2	<2	<2	<2	-	-
34	COD	mg/l	<4	<4	<4	<4	<4	<4	-	-
35	Total Coliform	MPN/100ml	<2	<2	<2	<2	<2	<2	<2	Shall not be detectable in any 100 ml sample
36	Faecal Coliform	MPN/100ml	<2	<2	<2	<2	<2	<2	<2	Shall not be detectble in any 100 ml sample

Table 3-13: Groundwater Quality (April 2024)

SL. No.	Parameters	Units of Measurements	GW1	GW2	GW3	GW4	GW5	GW6	Desired Limit (IS 10500: 2012)	Permissible Limit (IS 10500: 2012)
			Govt. Hospital Godavarikhani	Hanuman Temple Vittal Nagar	Gram Panchayat Basanth Nagar	Khader Colony Near Subodh High school	Lakshmi Devi Temple Singareddypalle	Eklaspur village		
1	Colour	Hazen Units	<5	<5	<5	<5	<5	<5	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	-	7.32	7.48	7.41	7.23	7.31	7.24	6.5-8.5	No relaxation
4	Temperature	°C	32	31	32	32	32	31	-	-
5	Conductivity	µmhos/cm	785	785	823	774	798	760	-	-

6	Alkalinity as $CaCO_3$	mg/l	250	254	284	270	262	306	200	600
7	Total Dissolved Solids	mg/l	510	510	535	503	519	494	500	2000
8	Total Suspended Solids	mg/l	3	4	5	4	5	4	-	-
9	Total Hardness as $CaCO_3$	mg/l	334	344	378	344	368	356	200	600
10	Calcium as Ca	mg/l	92	92.8	105.6	97.6	94.4	97.6	75	200
11	Magnesium as Mg	mg/l	25.27	27.21	27.7	24.3	32.07	27.21	30	100
12	Chloride as Cl	mg/l	110	108	116	98	115	74	250	1000
13	Phosphate as PO4	mg/l	0.62	0.58	0.48	0.52	0.63	0.38	-	-
14	Nitrate as NO_3	mg/l	11.2	11	10.2	10.6	10.5	10.2	45	No relaxation
15	Sulphate as SO_4	mg/l	36	38	26	32	34	30	200	400
16	Fluoride as F	mg/l	0.14	0.16	0.18	0.22	0.19	0.17	1.0	1.5
17	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
18	Silica as Si	mg/l	4.8	5.1	4.9	5.1	4.9	5.2	-	-
19	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-	-
20	Sodium as Na	mg/l	42	38	34	36	32	30	-	-
21	Potassium as K	mg/l	7	6	6	6	6	5	-	-
22	Dissolved Oxygen	mg/l	3.6	2.8	3.2	3.8	4.0	3.4	-	-
23	BOD	mg/l	<2	<2	<2	<2	<2	<2	-	-
24	COD	mg/l	<4	<4	<4	<4	<4	<4	-	-

25	Total Coliform	MPN/100ml	<2	<2	<2	<2	<2	<2	<2	Shall not be detectble in any 100 ml sample
26	Faecal Coliform	MPN/100ml	<2	<2	<2	<2	<2	<2	<2	Shall not be detectble in any 100 ml sample

Table 3-14: Groundwater Quality (May 2024)

SL. No.	Parameters	Units of Measurements	GW1	GW2	GW3	GW4	GW5	GW6	Desired Limit (IS 10500: 2012)	Permissible Limit (IS 10500: 2012)
			Govt. Hospital Godavarikhani	Hanuman Temple Vittal Nagar	Gram Panchayat Basanth Nagar	Khader Colony Near Subodh High school	Lakshmi Devi Temple Singareddypalle	Eklaspur village		
1	Colour	Hazen Units	<5	<5	<5	<5	<5	<5	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	-	7.21	7.42	7.11	7.43	7.05	7.21	6.5-8.5	No relaxation
4	Temperature	°C	32	32	31	32	32	32	-	-
5	Conductivity	µmhos/cm	824	777	851	741	829	886	-	-
6	Alkalinity as $CaCO_3$	mg/l	242	234	272	236	262	312	200	600
7	Total Dissolved Solids	mg/l	536	505	553	482	539	576	500	2000
8	Total Suspended Solids	mg/l	4	5	5	4	6	6	-	-
9	Total Hardness as	mg/l	358	354	386	316	384	424	200	600

	$CaCO_3$									
10	Calcium as Ca	mg/l	96.8	91.2	101.6	88	101.6	117.6	75	200
11	Magnesium as Mg	mg/l	28.18	30.61	32.07	23.32	31.59	31.59	30	100
12	Chloride as Cl	mg/l	124	120	124	102	126	108	250	1000
13	Phosphate as PO4	mg/l	0.54	0.53	0.52	0.51	0.48	0.54	-	-
14	Nitrate as NO_3	mg/l	11.2	10.6	10.5	11.2	10.6	10.5	45	No relaxation
15	Sulphate as SO_4	mg/l	46	40	40	36	35	44	200	400
16	Fluoride as F	mg/l	0.24	0.23	0.16	0.22	0.17	0.14	1.0	1.5
17	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
18	Silica as Si	mg/l	4.9	5.1	5.2	5.2	5.1	4.9	-	-
19	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	-	-
20	Sodium as Na	mg/l	38	32	36	40	32	30	-	-
21	Potassium as K	mg/l	8	4	6	5	6	5	-	-
22	Dissolved Oxygen	mg/l	4.0	2.6	3.0	3.6	3.8	3.5	-	-
23	BOD	mg/l	<2	<2	<2	<2	<2	<2	-	-
24	COD	mg/l	<4	<4	<4	<4	<4	<4	-	-
25	Total Coliform	MPN/100ml	<2	<2	<2	<2	<2	<2	<2	Shall not be detectble in any 100 ml sample
26	Faecal Coliform	MPN/100ml	<2	<2	<2	<2	<2	<2	<2	Shall not be detectble in any 100 ml sample

Ground Water Quality discussion

- The analysis results of ground water samples showed that the pH ranges from 7.05 to 7.51 which are with the specified standard limits of 6.5 to 8.5.
- Electrical conductivity of the samples ranged from 741 to 979 µmhos/cm
- Total hardness of the samples ranged from 316 to 436 mg/l.
- Calcium concentrations ranged from 88 to 124 mg/l.
- Magnesium concentrations ranged from 21.38 to 35.96 mg/l.
- The total dissolved solids of the samples ranged from 482 to 637 mg/l.
- All the Heavy Metals are under the permissible limit.

3.8.4 Surface Water

Description of Surface Water

The sampling sites are selected at village ponds and at upstream, downstream streams of Godavari River.

Table 3-15: Surface Water Monitoring Locations

Station Code	Stations	Distance w.r.t. Plant Site (km)	Direction w.r.t. Plant Site	Longitude Latitude
SW1	NTPC Reservoir (Balancing Reservoir)	-	-	18° 43' 56.594" N 79° 28' 3.579" E
SW2	Pond near Khader Colony	2.37 km	NNW	18° 43' 56.594" N 79° 28' 3.579" E
SW3	Pond near Esalatakkallapalle	7.40 km	WSW	18° 43' 22.514" N 79° 22' 17.695" E
SW4	Pond near Repalle Wada	2.50 km	S	18° 41' 13.528" N 79° 27' 39.039" E
SW5	Godavari River Upstream	6.76 km	N	18° 49' 41.346" N 79° 27' 4.132" E
SW6	Godavari River Downstream	6.36 km	NE	18° 46' 46.107" N 79° 32' 12.813" E

Identification of Ground Water Monitoring Locations

SW1: This location selected is the NTPC Balancing Reservoir located in the plant premises to analyze the Surface water status inside the plant boundary.

SW2: This location selected in the NNW direction of the project site at distance of 2.37 km from the project boundary to identify the Surface Water status of Pond near Khader Colony**.**

SW3: This location selected in the WSW direction of the project site at distance of 7.40 km from the project boundary to identify the Surface Water status of Pond near Esalatakkallapalle.

SW4: This location selected in the South direction of the project site at distance of 2.50 km from the project boundary to identify the Surface Water status in of Pond near Repalle Wada.

SW5: This location selected in the North direction of the project site at distance of 6.76 km from the project boundary to identify the Surface Water status in Upstream of Godavari River

SW6: This location selected in the NE direction of the project site at distance of 6.36 km from the project boundary to identify the Surface Water status in Downstream of Godavari River.

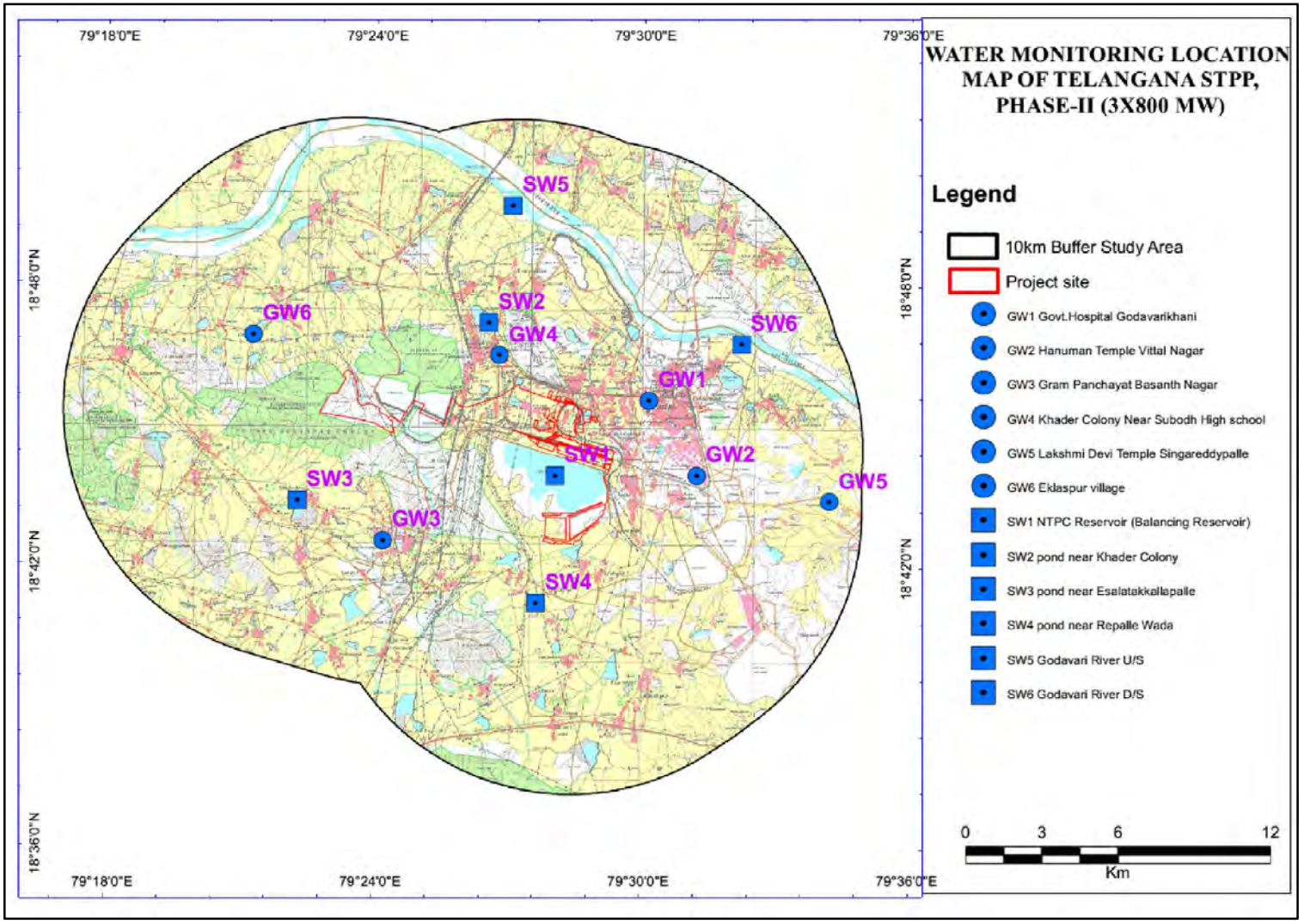


Figure 3-15: Water sample monitoring locations

The analytical results of surface water samples are given in Table 3-16, 3-17 and Table 3-18.

Table 3-16: Surface Water Quality (March 2024)

Sl. No.	Parameters	Units of Measurements	SW1 NTPC Reservoir (Balancing Reservoir)	SW2 Pond near Khader Colony	SW3 Pond near Esalatakkal lapalle	SW4 Pond near Repalle Wada	SW5 Godavari River U/S	SW6 Godavari River D/S
1.	Colour	Hazen Units	<5	<5	<5	<5	<5	<5
2.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	pH	-	7.36	7.42	7.28	7.34	7.52	7.15
4.	Temperature	°C	30	31	31	30	31	31
5.	Conductivity	µmhos/cm	334	332	368	290	316	303
6.	Alkalinity as $CaCO_3$	mg/l	122	128	136	108	116	100
7.	Total Dissolved Solids	mg/l	217	216	239	188	205	197
8.	Total Suspended Solids	mg/l	7	8	10	6	7	6
9.	Total Hardness as $CaCO_3$	mg/l	138	150	164	124	138	132
10.	Calcium as $CaCO_3$	mg/l	100	108	128	100	106	94

11.	Magnesium as Mg	mg/l	38	42	36	24	32	38
12.	Chloride as Cl	mg/l	30	28	34	22	26	30
13.	Phosphate as PO_4	mg/l	0.34	0.42	0.28	0.26	0.23	0.35
14.	Nitrate as NO_3	mg/l	8.6	8.4	8.2	8.8	7.6	8.2
15.	Sulphate as SO_4	mg/l	18	16	18	16	20	22
16.	Fluoride as F	mg/l	0.11	0.18	0.16	0.14	0.13	0.15
17.	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
18.	Silica as Si	mg/l	5.4	5.1	5.5	5.2	5.3	5.1
19.	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
20.	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21.	Total Arsenic as As	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
22.	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
23.	Zinc as Zn	mg/l	0.035	0.033	0.08	0.029	0.063	0.124
24.	Total Chromium as Cr	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
25.	Copper as Cu	mg/l	0.011	0.03	0.017	0.02	0.019	0.022
26.	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

27.	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
28.	Iron as Fe	mg/l	0.247	0.221	0.198	0.123	0.257	0.268
29.	Selenium as Se	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
30.	Sodium as Na	mg/l	20	14	16	14	15	14
31.	Potassium as K	mg/l	2	3	4	3	2	3
32.	Dissolved Oxygen	mg/l	6.6	5.9	7.4	6.8	6.4	6.0
33.	BOD	mg/l	4.2	9	5	5.3	4	3.8
34.	COD	mg/l	58	74	36	40	54	44
35.	Total Coliform	MPN/100ml	630	2400	2210	2120	490	460
36.	Faecal Coliform	MPN/100ml	430	790	1300	790	330	310

Table 3-17: Surface Water Quality (April 2024)

Sl. No.	Parameters	Units of Measurements	SW1	SW2	SW3	SW4	SW5	SW6
			NTPC Reservoir (Balancing Reservoir)	Pond near Khader Colony	Pond near Esalatakkallapalle	Pond near Repalle Wada	Godavari River U/S	Godavari River D/S
1	Colour	Hazen Units	<5	<5	<5	<5	<5	<5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	pH	-	7.4	7.42	7.22	7.27	7.18	7.38
4	Temperature	°C	32	31	32	32	32	31
5	Conductivity	µmhos/cm	317	321	274	297	367	276
6	Alkalinity as $CaCO_3$	mg/l	122	110	96	102	120	94
7	Total Dissolved Solids	mg/l	206	209	178	193	238	179
8	Total Suspended Solids	mg/l	6	5	4	5	6	5
9	Total Hardness as $CaCO_3$	mg/l	136	136	116	130	138	116
10	Calcium as Ca	mg/l	106	96	84	100	126	78
11	Magnesium as Mg	mg/l	30	40	32	30	42	38
12	Chloride as Cl	mg/l	18	30	20	28	38	24

13	Phosphate as PO4	mg/l	0.42	0.36	0.43	0.56	0.65	0.51
14	Nitrate as NO_3	mg/l	7.8	8.5	8.2	8.4	8	9.2
15	Sulphate as SO_4	mg/l	24	22	22	18	26	20
16	Fluoride as F	mg/l	0.11	0.13	0.14	0.15	0.24	0.19
17	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
18	Silica as Si	mg/l	4.5	4.7	4.8	5.1	4.8	5.2
19	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
20	Sodium as Na	mg/l	16	16	14	14	14	14
21	Potassium as K	mg/l	2	3	2	2	2	2
22	Dissolved Oxygen	mg/l	6.0	7.6	7.9	5.2	6.1	5.8
23	BOD	mg/l	5	6	5	9	6	8
24	COD	mg/l	44	50	40	56	48	68
25	Total Coliform	MPN/100ml	700	2530	2120	1750	580	480
26	Faecal Coliform	MPN/100ml	460	1200	1090	840	230	270

Table 3-18: Surface Water Quality (May 2024)

Sl. No.	Parameters	Units of Measurements	SW1	SW2	SW3	SW4	SW5	SW6
			NTPC Reservoir (Balancing Reservoir)	Pond near Khader Colony	Pond near Esalatakkallapalle	Pond near Repalle Wada	Godavari River U/S	Godavari River D/S
1.	Colour	Hazen Units	<5	<5	<5	<5	<5	<5
2.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	pH	-	7.25	7.22	7.37	7.41	7.31	7.15
4.	Temperature	°C	32	31	32	32	31	31
5.	Conductivity	µmhos/cm	322	395	263	308	277	348
6.	Alkalinity as $CaCO_3$	mg/l	118	138	92	100	88	112
7.	Total Dissolved Solids	mg/l	209	257	171	200	180	226
8.	Total Suspended Solids	mg/l	6	7	5	6	5	6
9.	Total Hardness as $CaCO_3$	mg/l	140	178	110	130	108	146
10.	Calcium as Ca	mg/l	104	132	76	100	82	118
11.	Magnesium as Mg	mg/l	36	46	34	30	26	28
12	Chloride as Cl	mg/l	26	34	24	30	26	34

13	Phosphate as PO_4	mg/l	0.61	0.43	0.36	0.61	0.51	0.33
16	Nitrate as NO_3	mg/l	8.6	8.2	8.4	10.2	8.6	9.8
14	Sulphate as SO_4	mg/l	20	30	16	20	20	24
15	Fluoride as F	mg/l	0.15	0.12	0.14	0.17	0.14	0.13
17	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
18	Silica as Si	mg/l	4.7	4.9	5.2	4.8	5.1	4.9
19	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
20	Sodium as Na	mg/l	16	16	14	16	16	18
21	Potassium as K	mg/l	2	3	2	2	4	3
22	Dissolved Oxygen	mg/l	6.8	5.8	7	7.6	6.6	7.8
23	BOD	mg/l	4.8	8	5.8	5.3	4.6	5
24	COD	mg/l	46	66	30	34	48	44
25	Total Coliform	MPN/100ml	760	2400	2210	1770	410	490
26	Faecal Coliform	MPN/100ml	430	1300	1090	700	340	330

Surface Water Quality discussion

- The analysis results of Surface water samples showed that the pH ranges 7.15 to 7.52 which are with the specified standard limits of 6.5 to 8.5.
- The analysis results of Surface water samples showed that the Total Coliform ranges 410 to 2530 MPN/100ml.
- The analysis results of Surface water samples showed that the Dissolved Oxygen ranges 5.2 to 7.9 mg/l
- The analysis results of Surface water samples showed that the Total Biochemical Oxygen Demand ranges 3.8 mg/l- 9 mg/l for all the locations.
- All the Heavy metals are under the permissible limits.

Table 3.19: CPCB Water Quality Criteria

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6 mg/l or more Biochemical Oxygen Demand 5 days 20˚C 2 mg/l or less
Outdoor bathing (Organised)	B	Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20˚C 3 mg/l or less
Drinking water source after conventional treatment and disinfection	C	Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4 mg/l or more Biochemical Oxygen Demand 5 days 20˚C 3 mg/l or less
Propagation of Wild life and Fisheries	D	pH between 6.5 to 8.5 Dissolved Oxygen 4 mg/l or more Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25 ˚C Max.2250 micro mhos/cm Sodium absorption Ratio Max. 26 Boron Max. 2 mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

Conclusion: Based on CPCB Water Quality Criteria, the nearby area surface water quality falls in D class of water.

3.8.5 GROUNDWATER QUALITY IN 2 KM OF HOTSPOT

As per Approved TOR vide letter no. J-13012/112/2010-IA.II (T) dated 10.04.2024 TOR condition no. (viii) Ground water monitoring sample has been collected within 2 km radius of project site from the 10 location.

Table 3-20: Groundwater Hotspot location (April 2024)

Station Code	Stations	Distance w.r.t. Plant Site (km)	Direction w.r.t. Plant Site	Longitude Latitude
GWH1	Primary Health Centre Laxmipur	1.03 km	SE	18° 42' 57.935" N 79° 29' 50.479" E
GWH2	Hanuman Temple	0.68 km	SSE	18° 42' 7.876" N 79° 28' 38.146" E
GWH3	St. Colony Primary School	2.08 km	NW	18° 46' 16.298" N 79° 26' 1.946" E
GWH4	NTPC Primary School	0.62 km	NE	18° 45' 35.610" N 79° 29' 15.826" E
GWH5	Khader Colony Near Subodh High School	1.05 km	NNW	18° 46' 30.310" N 79° 26' 47.815" E
GWH6	Gunturpally Grama Panchayat Office	1.33 km	SSE	18° 41' 54.062" N 79° 28' 59.364" E
GWH7	Ramagundam Railway Hospital	1.85 km	NW	18° 46' 3.811" N 79° 26' 6.159" E
GWH8	Kendriya Vidyalaya	1.12 km	ENE	18° 45' 18.354" N 79° 29' 37.969" E
GWH9	Hanuman Temple	0.34 km	E	18° 44' 26.620" N 79° 29' 44.266" E
GWH10	Pond Near CISF Unit. Malkapur	1.90 km	NE	18°46'4.04"N 79°29'52.97"E

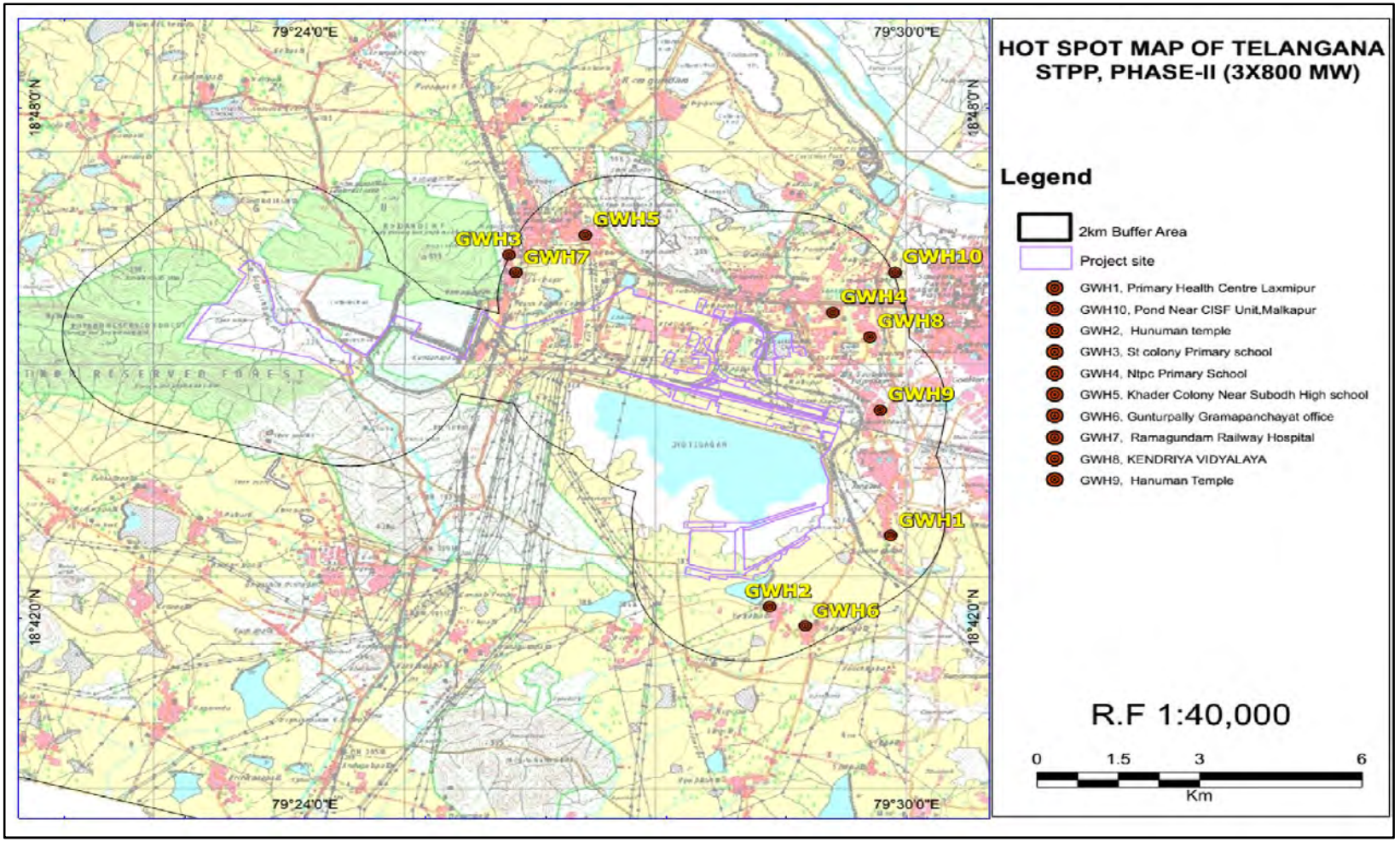


Figure 3-16:Map Showing Ground Water (Hotspot in 2 km Radius) Sampling Location

Table 3-21: Groundwater Quality on Hotspot location (April 2024)

SL. No.	Parameters	Units of Measurements	1 Primary Health Centre Laxmipur	2 Hanuman Temple	3 St Colony Primary school	4 NTPC Primary School	5 Khader Colony Near Subodh High school	Desirable Limit (IS 10500: 2012)	Permissible Limit (IS 10500: 2012)
1	Colour	Hazen Units	<5	<5	<5	<5	<5	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste		Not done	Not done	Not done	Not done	Not done	Agreeable	Agreeable
4	pH	-	7.53	7.51	7.28	7.41	7.42	6.5-8.5	No Relaxation
5	Temperature	°C	31	31	31	30	30	-	-
6	Conductivity	µmhos/cm	794	970	908	800	891	-	-
7	Alkalinity as $CaCO_3$	mg/l	248	294	296	280	318	200	600
8	Total Dissolved Solids	mg/l	516	631	590	520	579	500	2000
9	Total Suspended Solids	mg/l	5	6	7	6	6	-	-
10	Total Hardness as $CaCO_3$	mg/l	348	422	402	364	396	200	600
11	Calcium as Ca	mg/l	97.6	109.6	116.8	110.4	118.4	75	200
12	Magnesium as Mg	mg/l	25.27	35.96	26.73	21.38	24.3	30	100
13	Chloride as Cl	mg/l	112	142	120	96	102	250	1000
14	Phosphate as PO_4	mg/l	0.62	0.61	0.54	0.67	0.42	-	-
15	Nitrate as NO_3	mg/l	9.4	11.2	11.6	10.4	10.6	45	No Relaxation
16	Sulphate as SO_4	mg/l	42	56	46	36	42	200	400
17	Fluoride as F	mg/l	0.17	0.15	0.19	0.18	0.21	1.0	1.5
18	Phenolic	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002

	Compound								
19	Silica as Si	mg/l	4.8	5.1	4.9	5.2	5.2	-	-
20	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	-	-
21	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
22	Total Arsenic as As	mg/l	0.006	<0.005	<0.005	0.008	<0.005	0.01	0.05
23	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.1	No Relaxation
24	Zinc as Zn	mg/l	<0.020	0.034	0.041	0.028	0.226	5	15
25	Total Chromium as Cr	mg/l	<0.005	<0.005	<0.005	<0.005	0.008	0.05	No Relaxation
26	Copper as Cu	mg/l	0.008	0.007	0.006	0.007	0.011	0.05	1.5
27	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0001	No Relaxation
28	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	No Relaxation
29	Iron as Fe	mg/l	0.255	0.147	0.213	0.285	0.283	0.3	No Relaxation
30	Selenium as Se	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No Relaxation
31	Sodium as Na	mg/l	38	48	42	34	42	-	-
32	Potassium as K	mg/l	6	6	7	6	7	-	-
33	Dissolved Oxygen	mg/l	3.2	3.6	4.2	3.5	4.0	-	
34	BOD	mg/l	<2	<2	<2	<2	<2	-	-
35	COD	mg/l	<4	<4	<4	<4	<4	-	-
36	Total Coliform	MPN/100ml	<2	<2	<2	<2	<2	Shall no be detectable in any 100 ml sample	
37	Faecal Coliform	MPN/100ml	<2	<2	<2	<2	<2	Shall no be detectable in any 100 ml sample	

SL. No.	Parameters	Units of Measurements	6 Gunturpally Gramapanchayat office	7 Ramagundam Railway Hospital	8 Kendriya Vidyalaya	9 Hanuman Temple	10 Pond near CISF Unit. Malkapur	Desirable Limit (IS 10500: 2012)	Permissible Limit (IS 10500: 2012)
1	Colour	Hazen Units	<5	<5	<5	<5	<5	5	15
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Not done	Not done	Not done	Not done	Not done	Agreeable	Agreeable
4	pH	-	7.38	7.09	7.48	7.34	7.47	6.5-8.5	No Relaxation
5	Temperature	°C	31	31	30	31	30	-	-
6	Conductivity	µmhos/cm	853	844	834	836	363	-	-
7	Alkalinity as $CaCO_3$	mg/l	312	302	276	284	120	200	600
8	Total Dissolved Solids	mg/l	555	549	542	543	236	500	2000
9	Total Suspended Solids	mg/l	7	6	6	6	5	-	-
10	Total Hardness as $CaCO_3$	mg/l	386	382	378	360	166	200	600

11	Calcium as Ca	mg/l	105.6	110.4	104	104	128	75	200
12	Magnesium as Mg	mg/l	29.64	25.75	28.67	24.3	38	30	100
13	Chloride as Cl	mg/l	100	98	112	96	40	250	1000
14	Phosphate as PO4	mg/l	0.53	0.58	0.57	0.67	0.5	-	-
15	Nitrate as NO_3	mg/l	9.8	10.2	10.6	12	8.2	45	No Relaxation
16	Sulphate as SO_4	mg/l	38	40	40	48	22	200	400
17	Fluoride as F	mg/l	0.17	0.19	0.18	0.16	0.14	1.0	1.5
18	Phenolic Compound	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
19	Silica as Si	mg/l	5	5.1	4.9	4.7	4.2	-	-
20	Oil & Grease	mg/l	<0.4	<0.4	<0.4	<0.4	<0.4	-	-
21	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	-	-
22	Total Arsenic as As	mg/l	0.006	<0.005	0.007	0.006	<0.005	0.01	0.05
23	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.1	No Relaxation
24	Zinc as Zn	mg/l	0.254	0.08	0.052	0.064	0.11	5	15
25	Total Chromium as Cr	mg/l	<0.005	<0.005	0.009	<0.005	<0.005	0.05	No Relaxation

26	Copper as Cu	mg/l	0.031	0.021	0.031	0.027	0.007	0.05	1.5
27	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0001	No Relaxation
28	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	No Relaxation
29	Iron as Fe	mg/l	0.247	0.157	0.294	0.258	0.142	0.3	No Relaxation
30	Selenium as Se	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	No Relaxation
31	Sodium as Na	mg/l	38	36	34	42	14	-	-
32	Potassium as K	mg/l	6	7	8	7	2	-	-
33	Dissolved Oxygen	mg/l	3.3	2.8	3.9	3.2	5.9	-	
34	BOD	mg/l	<2	<2	<2	<2	14	-	-
35	COD	mg/l	<4	<4	<4	<4	50	-	-
36	Total Coliform	MPN/100ml	<2	<2	<2	<2	1750	Shall no be detectable in any 100 ml sample	
37	Faecal Coliform	MPN/100ml	<2	<2	<2	<2	390	Shall no be detectable in any 100 ml sample	

Ground Water Quality discussion

- The analysis results of ground water samples showed that the pH ranges 7.09 to 7.53 which are with the specified standard limits of 6.5 to 8.5.
- Electrical conductivity of the samples ranged from 363 to 970 µmhos/cm
- Total hardness of the samples ranged from 166 to 422 mg/l.
- Calcium concentrations ranged from 97.6 to 128 mg/l.
- Magnesium concentrations ranged from 21.38 to 38 mg/l.
- The total dissolved solids of the samples ranged from 236 to 631 mg/l.
- All the heavy metals are under limits.

Action Plan: Periodical ground water monitoring in the Hotspot location like schools/ Hospitals will be monitored and results will be submitted along with six monthly compliance report.

Table 3-22: Standard for discharge of liquid effluents as per CPCB (Coal Based thermal power plant)

S. No.	Source	Pollutant	Concentration
1	Condenser colling water (once through cooling system)	pH	6.5 – 8.5
		Temperature	More than 10°C than the intake water temperature
		Free available Chlorine	0.5 mg/l
2	Boiler blow down	Suspended solids	100 mg/l
		Oil and grease	20 mg/l
		Copper (total)	1.0 mg/l
		Iron (total)	1.0 mg/l
3	Cooling tower blow down	Free available Chlorine	0.5 mg/l
		Zinc	1.0 mg/l
		Chromium	0.2 mg/l
		Phosphate	5.0 mg/l
4	Ash pond effluent	pH	6.5 – 8.5
		SS	100 mg/l
		Oil & grease	20 mg/l

3.8.6 WASTEWATER

Waste water monitoring of Phase-I units was carried out for following treated effluent streams:

- Main Plant Effluent
- Township Treated Sewage
- Ash Pond Effluent

Results of wastewater monitoring are showing in Table no 3-23:

Table 3-23: Wastewater Quality (March 2024)

Sl. No.	Parameters	Units of Measurements	1 Main Plant Treated Effluent	2 Township Treated Sewage	3 Ash Pond Effluent
1	pH	-	7.2	6.97	7.42
2	Temperature	°C	32	33	31
3	Total Suspended Solids	mg/l	14	15	13
4	Phosphate as PO_4	mg/l	0.67	0.72	0.61
5	Oil & Grease	mg/l	8	9	6
6	Free Available Chlorine	mg/l	0.06	0.05	0.03
7	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01
8	Arsenic as As	mg/l	<0.005	<0.005	<0.005
9	Lead as Pb	mg/l	<0.005	<0.005	<0.005
10	Zinc as Zn	mg/l	0.061	0.032	0.029
11	Total Chromium as Cr	mg/l	<0.005	<0.005	<0.005
12	Copper as Cu	mg/l	0.025	0.019	0.031
13	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005
14	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002
15	Iron as Fe	mg/l	0.218	0.286	0.182
16	Selenium as Se	mg/l	0.008	<0.005	<0.005
17	BOD	mg/l	5.6	6.8	6
18	COD	mg/l	50	60	54

Table 3-24: Wastewater Quality (April 2024)

Sl. No.	Parameters	Units of Measurements	1 Main Plant Treated Effluent	2 Township Treated Sewage	3 Ash Pond Effluent
1	pH	-	7.31	7.38	7.28
2	Temperature	°C	31	32	31
3	Free Available Chlorine	mg/l	0.05	0.04	0.07
4	Total Suspended Solids	mg/l	14	16	16
5	Phosphate as PO_4	mg/l	0.46	0.57	0.52
6	Oil & Grease	mg/l	5	6	6
7	COD	mg/l	52	48	56
8	BOD	mg/l	5.9	5.4	6.3
9	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01
10	Total Chromium as Cr	mg/l	<0.005	<0.005	<0.005
11	Arsenic as As	mg/l	0.008	<0.005	<0.005
12	Lead as Pb	mg/l	<0.005	<0.005	<0.005
13	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002
14	Copper as Cu	mg/l	<0.005	<0.005	<0.005
15	Zinc as Zn	mg/l	0.023	0.028	0.036
16	Selenium as Se	mg/l	<0.005	<0.005	<0.005
17	Iron as Fe	mg/l	<0.02	<0.02	<0.02
18	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005

Table 3-25: Wastewater Quality (May 2024)

Sl. No.	Parameters	Units of Measurements	1 Main Plant Treated Effluent	2 Township Treated Sewage	3 Ash Pond Effluent
1	pH	-	7.51	7.23	7.15
2	Temperature	°C	32	31	32

3	Free Available Chlorine	mg/l	0.05	0.07	0.06
4	Total Suspended Solids	mg/l	17	18	15
5	Phosphate as PO_4	mg/l	0.58	0.64	0.44
6	Oil & Grease	mg/l	6	8	7
7	COD	mg/l	56	52	48
8	BOD	mg/l	6.3	5.9	5.4
9	Hexavalent Chromium as Cr	mg/l	<0.01	<0.01	<0.01
10	Total Chromium as Cr	mg/l	<0.005	<0.005	<0.005
11	Arsenic as As	mg/l	0.009	0.004	<0.005
12	Lead as Pb	mg/l	<0.005	<0.005	<0.005
13	Cadmium as Cd	mg/l	<0.002	<0.002	<0.002
14	Copper as Cu	mg/l	<0.005	<0.005	<0.005
15	Zinc as Zn	mg/l	0.026	0.028	0.029
16	Selenium as Se	mg/l	<0.005	0.008	<0.005
17	Iron as Fe	mg/l	<0.02	<0.02	<0.02
18	Mercury as Hg	mg/l	<0.0005	<0.0005	<0.0005

3.8.7 Conclusion:

Treated effluent generated from the Plant, STP and ash pond are within the prescribed standards of CPCB. Implementation of ZLD has been done in Phase-I & same has been envisaged for proposed expansion plant. All effluent generated will be reused and recycled within the plant and township after necessary treatment.

3.9 SOIL QUALITY

It is essential to determine the quality of soil in the area and identify the current impacts of urbanization and industrialization on soil quality and also predict impacts, which may arise due to the proposed expansion project. Accordingly, a study on assessment of the baseline soil quality has been carried out. The present study of the soil profile establishes the baseline characteristics, and this will help in future identification of the incremental concentrations if any, due to the operation of the plant.

3.9.1 Methodology of Data Generation

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the plant area representing various land use conditions. The physical,

chemical and heavy metal concentrations were determined. The samples were collected by ramming a core-cutter into the soil up to a depth of 90 cm.

The sampling locations have been identified with the following objectives:

- To determine the baseline soil characteristics of the study area;
- To determine the impact of industrialization on soil characteristics; and (Discussed in Chapter 4, Sub section –II of Section 4.2)
- To determine the impact on soil more importantly from agricultural productivity point of view.

Ten locations in and around the proposed expansion of power plant area were selected for soil sampling. The details of the sampling locations are given in Table-3.26 and are shown in Figure-3.17.

Table 3-26: Details of Soil Sampling Locations

Station Code	Stations	Distance w.r.t. Plant Site (km)	Land Type	Direction w.r.t. Plant Site	Latitude Longitude
S1	Near Govt. Hospital Godavarikhani	2.20	Waste Land	NE	18° 45' 34.337" N 83° 27' 13.7" E
S2	Near Hanuman Temple Vittal Nagar	3.23	Vegetation Land	E	18° 43' 57.113" N 83°28'47.77" E
S3	Basanth Nagar	4.97	Agriculture Land	WSW	18° 42' 29.614" N 79° 24' 5.758" E
S4	Near State Bank of India Khader Colony	0.97	Waste Land	NW	18° 46' 27.667" N 79° 26' 46.815" E
S5	Singareddypalle	8.03	Agriculture Land	E	18° 43' 24.777" N 79° 34' 4.614" E
S6	Eklaspur Village	3.86	Agriculture Land	WNW	18° 46' 53.067" N 79° 21' 23.392" E
S7	Main Plant Area	-	Industrial	-	18° 45' 17.057" N 79° 28' 26.276" E
S8	Proposed Ash Dyke	-	Near Forest Land	-	18° 45' 26.098" N 79° 23' 8.409" E
S9	Repalle Wada Village	1.84	Agriculture Land	S	18° 41' 30.211" N 79° 27' 54.453" E
S10	Near Indiramma Colony Park	1.71	Agriculture Land	NNE	18° 46' 34.719" N 79° 28' 36.608" E

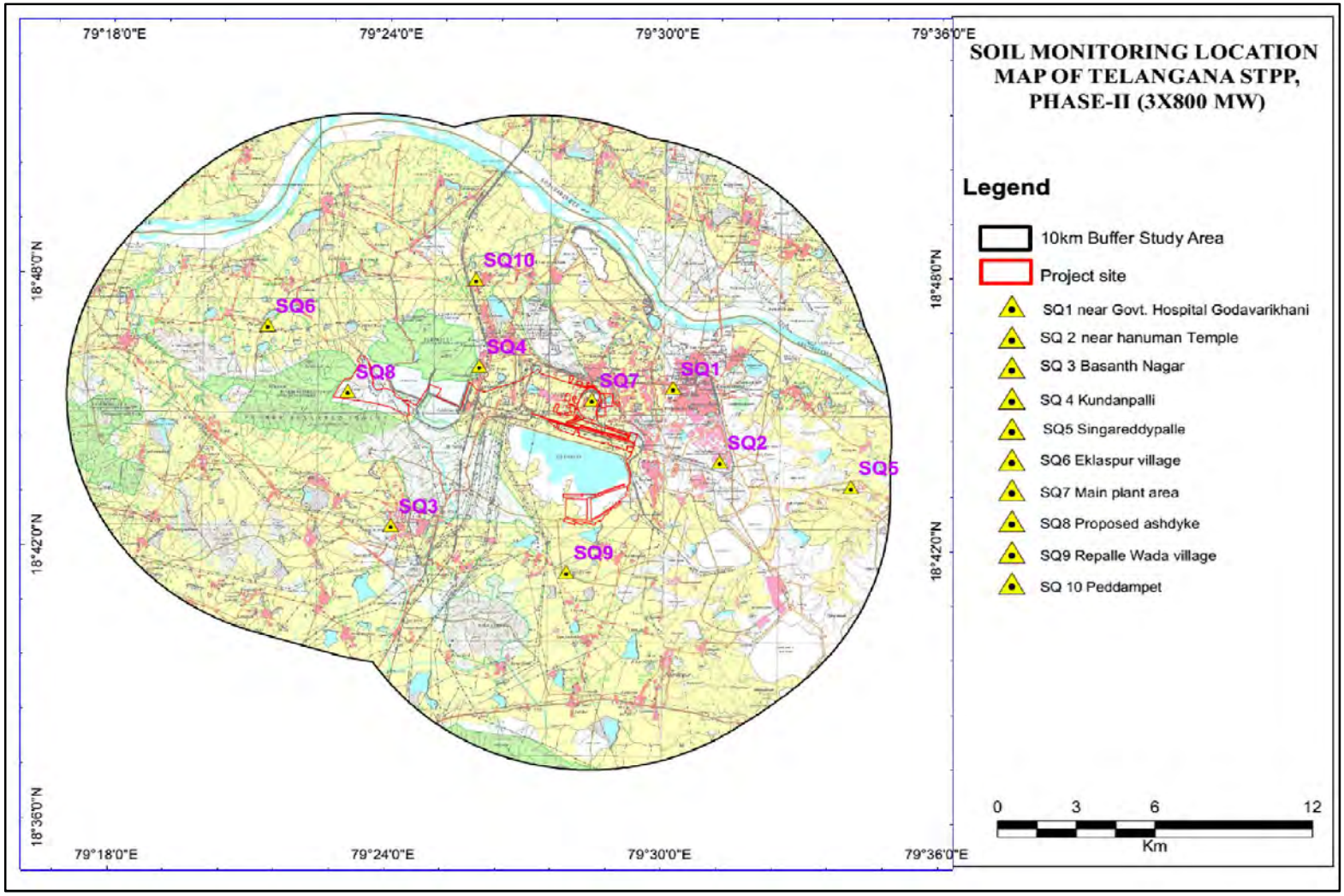


Figure 3-17: Soil Monitoring Locations

Table 3-27: Baseline Soil Status (March, 2024)

Parameters	Locations	Near Govt. Hospital Godavarikhani	Near Hanuman Temple Vittal Nagar	Basanth Nagar	Near State Bank of India, Khader Colony	Singareddypalle	Eklaspur village	Main plant area	Proposed Ash Dyke	Repalle Wada village	Near Indiramma colony
pH	-	7.24	7.36	7.14	7.08	7.39	7.34	7.18	7.37	7.46	7.35
Classification	-	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil	Red Soil
Conductivity	Micro mhos/cm	362	344	388	328	348	396	376	350	346	370
Texture	-	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
Sand	%	62	60	64	58	62	62	58	60	58	60
Clay	%	18	20	18	22	18	20	20	22	18	22
Silt	%	20	20	18	20	20	18	22	18	24	18
CEC	meq/100 gm	14.76	15.12	14.68	16.00	13.92	15.32	15.08	16.84	14.44	15.76
Nitrogen	mg/100gm	14.40	14.45	14.18	14.36	14.18	14.49	14.45	14.4	14.45	14.36
Phosphorous	mg/100gm	0.75	0.71	0.84	0.75	0.75	0.66	0.75	0.8	0.75	0.8
Potassium	mg/100gm	9.9	9.81	9.9	9.81	9.9	9.72	9.63	9.9	9.81	10.05
Mercury	ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

3.9.2 Soil Quality Result-

- It has been observed that the pH of the soil in the study area ranged from 7.08 to 7.46. The maximum pH value of 7.46 was observed at Repalle Wada Village (S9) and whereas the minimum value of 7.08 was observed at Lingapur Village (S4). Soil is Neutral in Nature.
- The electrical conductivity was observed to be in the range of 328 Micro mhos/cm to 396 Micro mhos/cm with the maximum observed at Existing Ash Dyke (S7) and the minimum observed in Lingapur Village (S4). The electric conductivity of the soil is average.
- The Nitrogen values range between 14.18 to 14.45 mg/100gm.
- The Phosphorus values range between 0.66 to 0.84 mg/100gm
- The Potassium values range between 9.63 to 10.05 mg/100gm.

Table 3-28: Standard Soil Classification

S. No.	Soil Test	Classification
1	pH	<4.5 Extremely acidic 4.51- 5.50 Very strongly acidic 5.51-6.0 moderately acidic 6.01-6.50 slightly acidic 6.51-7.30 Neutral 7.31-7.80 slightly alkaline 7.81-8.50 moderately alkaline 8.51-9.0 strongly alkaline >9.01 very strongly alkaline
2	Salinity Electrical Conductivity (ppm) (1 ppm =640 µmho/cm)	Upto 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops (sensitive to salts)
3	Organic Carbon (%)	Upto 0.2: very less 0.21-0.4: less 0.41-0.5 medium, 0.51-0.8: on an average sufficient 0.81-1.00: sufficient >1.0 more than sufficient
4	Nitrogen (kg/ha)	Upto 50 very less 51-100 less 101-150 good

		151-300 Better >300 sufficient
5	Phosphorus (kg/ha)	Upto 15 very less 16-30 less 31-50 medium, 51-65 on an average sufficient 66-80 sufficient >80 more than sufficient
6	Potash (kg/ha)	0 -120 very less 120-180 less 181-240 medium 241-300 average 301-360 better >360 more than sufficient

3.10 NOISE QUALITY

The environmental assessment of noise from the project activity and vehicular traffic is undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, annoyance and general community responses.

3.10.1 Method of Monitoring

For Noise levels measured over a given period of time interval, it is possible to describe important features of noise using statistical quantities. This is calculated using the percent of the time as certain noise levels are exceeding the time interval. The notations for the statistical quantities of noise level are given below:

- L_{10} is the noise level exceeded 10% of the time.
- L_{50} is the noise level exceeded 50% of the time and
- L_{90} is the noise level exceeded 90% of the time
- Equivalent Sound Pressure Level (L_{eq})

The L_{eq} is the equivalent continuous sound level, which is equivalent to the same sound energy as the actual fluctuating sound measured in the same period. This is necessary because sound from noise source often fluctuates widely during a given period of time.

This is calculated from the following equation

$$L_{eq}=L_{50}+ (L_{10}-L_{90})^2/60$$

L_{day} is defined as the equivalent noise level measured over a period of time during day (6 am to 10 pm). L_{night} is defined as the equivalent noise level measured over a period of time during night (10 pm to 6 am).

A noise rating developed by Environment Protection Agency, USEPA for specification of community noise from all the sources is Day-Night Sound Level, (L_{dn}).

Hourly noise recorded data and L_{day} values (16 hours) L_{night} (8 hours) and L_{dn} (24 hours) are computed and tabulated.

3.10.2 Day–Night Sound levels (Ldn):

The noise rating developed for community noise from all sources is the Day-Night Sound Level, (L_{dn}). It is similar to a 24 hr equivalent sound level except that during night time period (10 pm to 6 am). A 10 dB (A) weighting penalty is added to the instantaneous sound level before computing the 24 hr average.

The L_{dn} for a given location in a community may be calculated from the hourly

L_{eq}'S, by the following equation.

$$L_{dn} = 10 \log \{1/24 [16(10^{Ld/10}) + 9 (10^{(8Ln + 10)/10})]\}$$

Where L_d is the equivalent sound level during the day time (6 am to 10 pm) and L_n is the equivalent sound level during the night time (10 pm to 6 am).

3.10.3 Identification of Sampling Locations

A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the study area. Noise at different noise generating sources has been identified based on the activities in the village area and ambient noise due to traffic.

The noise monitoring has been conducted for determination of ambient noise levels at ten locations in the study area for one season from March 2024 to May 2024. The sampling locations are shown in Table 3-29 and Figure 3-18.

Table 3-29: Noise Monitoring Locations

Station Code	Stations Name	Distance w.r.t Plant site (km)	Category of Area	Direction w.r.t Plant site	Latitude Longitude
NQ1	Govt. Hospital Godavarikhani	2.08	Silence Area	NE	18° 45' 33.142" N 79° 30' 8.877" E
NQ2	Hanuman Temple Vittal Nagar	3.38	Silence Area	E	18° 43' 57.832" N 79° 31' 13.834" E
NQ3	Gram Panchayat Basanth Nagar	4.70	Residential Area	WSW	18° 42' 32.176" N 79° 24' 12.493" E
NQ4	Lingapur Village	4.07	Residential	N	18° 48' 03.24" N 79°

			Area		27' 36.39" E
NQ5	Janagam Village	4.94	Residential Area	NE	18° 46' 17.66" N 79° 31' 33.41" E
NQ6	Eklaspur village	4.10	Residential Area	WNW	18° 46' 54.536" N 79° 21' 16.582" E
NQ7	Near Existing Ash Dyke	0.20	Industrial Area	W	18° 45' 8.855" N 79° 25' 44.541" E
NQ8	Kasturbha Vidyalaya Santhosh Nagar	6.42	Silence Area	SE	18° 40' 47.409" N 79° 31' 58.971" E
NQ9	Repalle Wada Village	1.89	Residential Area	S	18° 41' 28.602" N 79° 27' 52.556" E
NQ10	Near Indiramma Colony Park	1.79	Residential Area	NNE	18° 46' 38.373" N 79° 28' 34.014" E

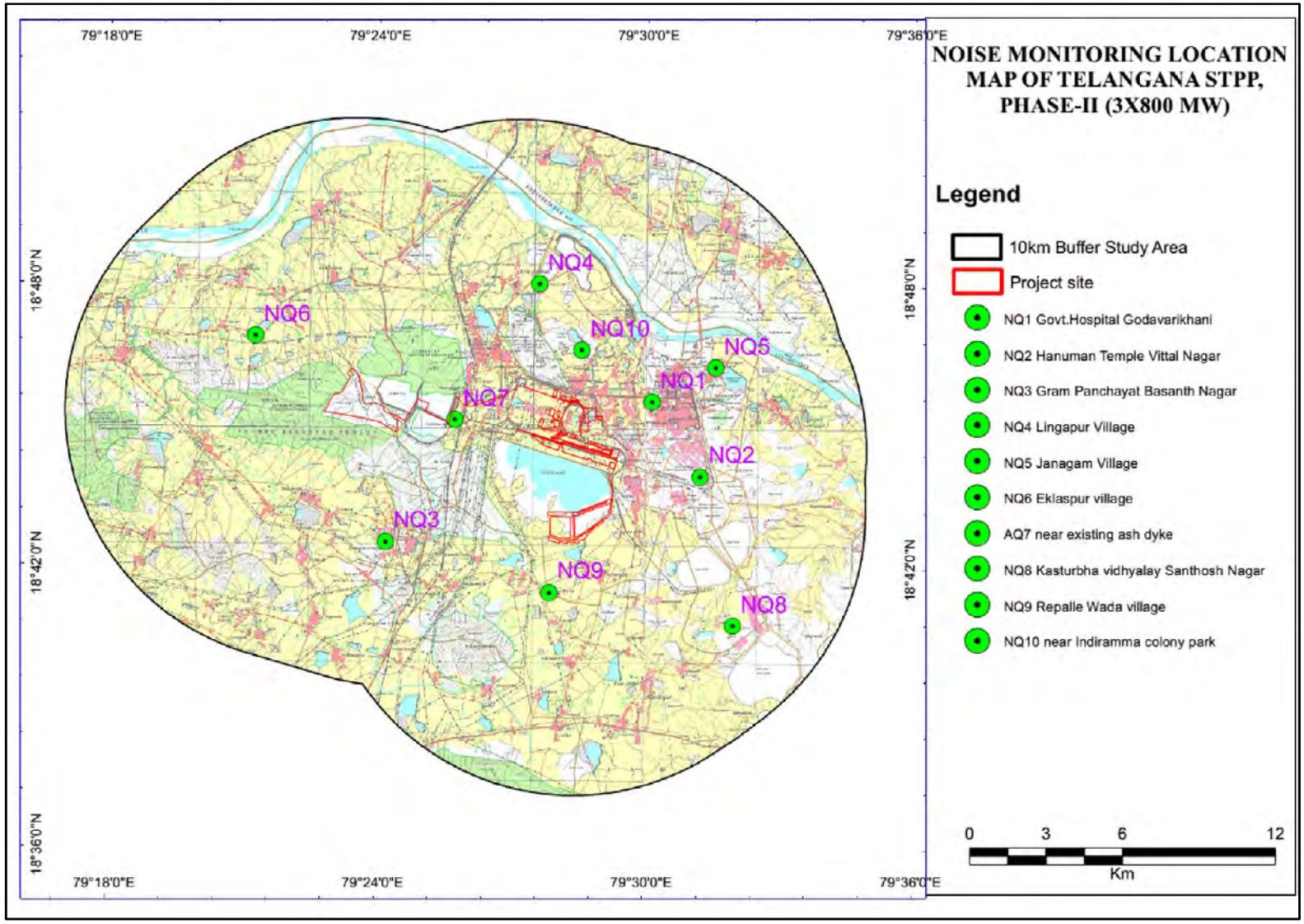


Figure 3-18: Noise Monitoring Locations

Table 3-30: Noise Levels [dB (A)] in the Study Area

Noise Location	Date of Sampling	Standards of Noise Level			Measured Noise Level db(A)	
		Category of Area	Day dB (A)	Night dB (A)	Day (L_d)	Night (L_n)
Govt. Hospital Godavarikhani	08.03.2024	Silence Zone	50	40	42.3	36.1
Hanuman Temple Vittal Nagar	12.03.2024	Silence Zone	50	40	40.1	35.8
Gram Panchayat Basanth Nagar	13.03.2024	Residential	55	45	48.5	38.4
Lingapur Village	15.03.2024	Residential	55	45	52.5	40.2
Janagam Village	18.03.2024	Residential	55	45	46.2	37.6
Eklaspur village	23.03.2024	Residential	55	45	49.5	41.6
Near Existing Ash Dyke	26.03.2024	Industrial	75	65	52.5	42.8
Kasturbha Vidyalaya Santhosh Nagar	30.03.2024	Silence Zone	50	40	42.7	35.4
Repalle Wada Village	02.04.2024	Residential	55	45	47.1	36.7
Near Indiramma Colony Park	06.04.2024	Residential	55	45	46.6	37.1

3.10.4 Observations

Day time Noise Levels (L_{day})

The daytime noise levels at all the locations ranged in between 40.1 dB (A) to 52.5 dB (A). The minimum value 40.1 dB (A) was recorded near Hanuman Temple Vittal Nagar (N2) and the maximum value 52.5 dB (A) was recorded at Lingapur Village (N4) & near existing ash dykes (N7).

Nighttime Noise Levels (L_{night})

The nighttime noise levels ranged in between 35.4 dB (A) to 42.8 dB (A). The minimum value 35.4 dB (A) was recorded at Kasturbha Vidyalaya Santosh Nagar (N8) and the maximum value 42.8 dB (A) was recorded Near Existing Ash Dyke (N7).

As per above baseline data it has been observed that the Noise Level at all locations are within the Ambient Noise Standard Limits.

3.11 ECOLOGY AND BIODIVERSITY

3.11.1 Introduction

Ramagundam is located in Peddapalli district of Telangana. The area has industrial area, villages, agriculture land, scrub forest patches, water bodies (Godavari River, lakes and ponds) and residential colony. Continuous industrial growth and urbanization has put the biodiversity of the area under pressure. The harmful chemicals and gases has potential to destroy the natural abode of various plants and animals. The biodiversity of the area is crucial for maintaining the health of the ecosystem.

This section will discuss the status of flora and fauna in the study area. It also tries to shed light on terrestrial ecology and aquatic ecology of the project site and its surroundings.

Thermal power plants are mega project, which require not only huge capital investment but also various natural resources like, fossil fuels and water, and generate stress in the local eco-system. Therefore, study of local biological environment is necessary to understand existing environment condition and on the basis of the study, possible impacts and their mitigation measures can be suggested. This section describes the biological environment of the project site and its surrounding study areas.

3.11.2 Objectives of Biological Study

The objectives of biological study are outlined as follows:

- To collect the baseline data of the existing flora and fauna within the study area.
- To assess the RET (rare, endangered, threatened) species and schedule I species found within the study area.
- To assess ecological sensitive area found with the study area.
- To predict the probable effects of the Project-related activities during construction and operation phases on the biological diversity, and (Discussed in Chapter 4, Subsection V &VI of Section 4.3.)
- To suggest mitigation measures for conserving biodiversity and managing ecosystems health and human well-being (Discussed in Chapter 4, Subsection V &VI of Section 4.3.)

3.11.3 Methodology adopted for assessment of biodiversity of the study area

The primary baseline survey was conducted to assess the nature of the existing habitat and species composition. The study was carried out in 10 km radius of the project site. The floral species were identified with the help of plant taxonomy manual, published literatures, reports and websites (BSI and State/District Forest Departments etc.). In addition, information was also collected with vernacular names of plant species from local inhabitants.

Different sampling techniques were employed for documenting different faunal groups. For herpetofauna (Amphibians and Reptiles), visual encounter survey; for avifauna, point count and

transect methods and for mammals, direct and indirect sightings (signs like tracks, pellets and pugmarks) were adopted.

The water bodies in the area were also assessed for the status of the aquatic ecology. Zooplankton and Phytoplankton samples were collected from surface water bodies of sampling sites. Identification of phytoplankton was done with the help of standard books and monographs (Turner, 1892; smith, 1924, Ward and Whipple 1959) and the identification of zooplankton was done with the help of reference books including that of Ward and Wipples (1959). Fish were also collected using standard methods like using fishing net. Information from local fishermen were also collected.

Ecology and Biodiversity sampling location of the Study Area

The Biodiversity sampling locations are presented in Table-3.30 and depicted in Figure-3.19.

Table 3-31: Ecology and Biodiversity sampling locations in the study area

S.No.	Location Name	Distance (km)	Direction	Environment Type	Coordinates	
					Latitude	Longitude
1	AE1 pond near project site, Elkalapalli	0.18	SSE	Water	18° 42' 24.5376'' N	79° 28' 35.1624'' E
2	AE2 pond near Ranapur village	1.41	SSW	Water	18° 41' 55.9176'' N	79° 27' 8.244'' E
3	AE3 Kamanpur lake	4.95	SSE	Water	18° 39' 57.7332'' N	79° 29' 22.4124'' E
4	AE4 Godavari River U/S	6.20	N	Water	18° 49' 14.2356'' N	79° 28' 1.1856'' E
5	AE5 Godavari River D/S	6.33	NE	Water	18° 46' 42.0024'' N	79° 32' 16.0908'' E
6	TE1 near project site	0.34	N	Vegetation	18° 46' 14.9664'' N	79° 27' 20.2608'' E

7	TE2 Putnar RF near Basanth Nagar	2.40	WSW	Vegetation	18° 43' 2.4024'' N	79° 25' 15.1896'' E
8	TE3 near Godavari pump house	5.89	N	Vegetation	18° 49' 8.0688'' N	79° 27' 59.2236'' E
9	TE4 near Devunipalli village	5.99	SW	Vegetation	18° 39' 53.7804'' N	79° 25' 26.8356'' E
10	TE5 near NTPC ash pond	0.21	NE	Vegetation	18° 45' 50.1876'' N	79° 25' 51.0888'' E

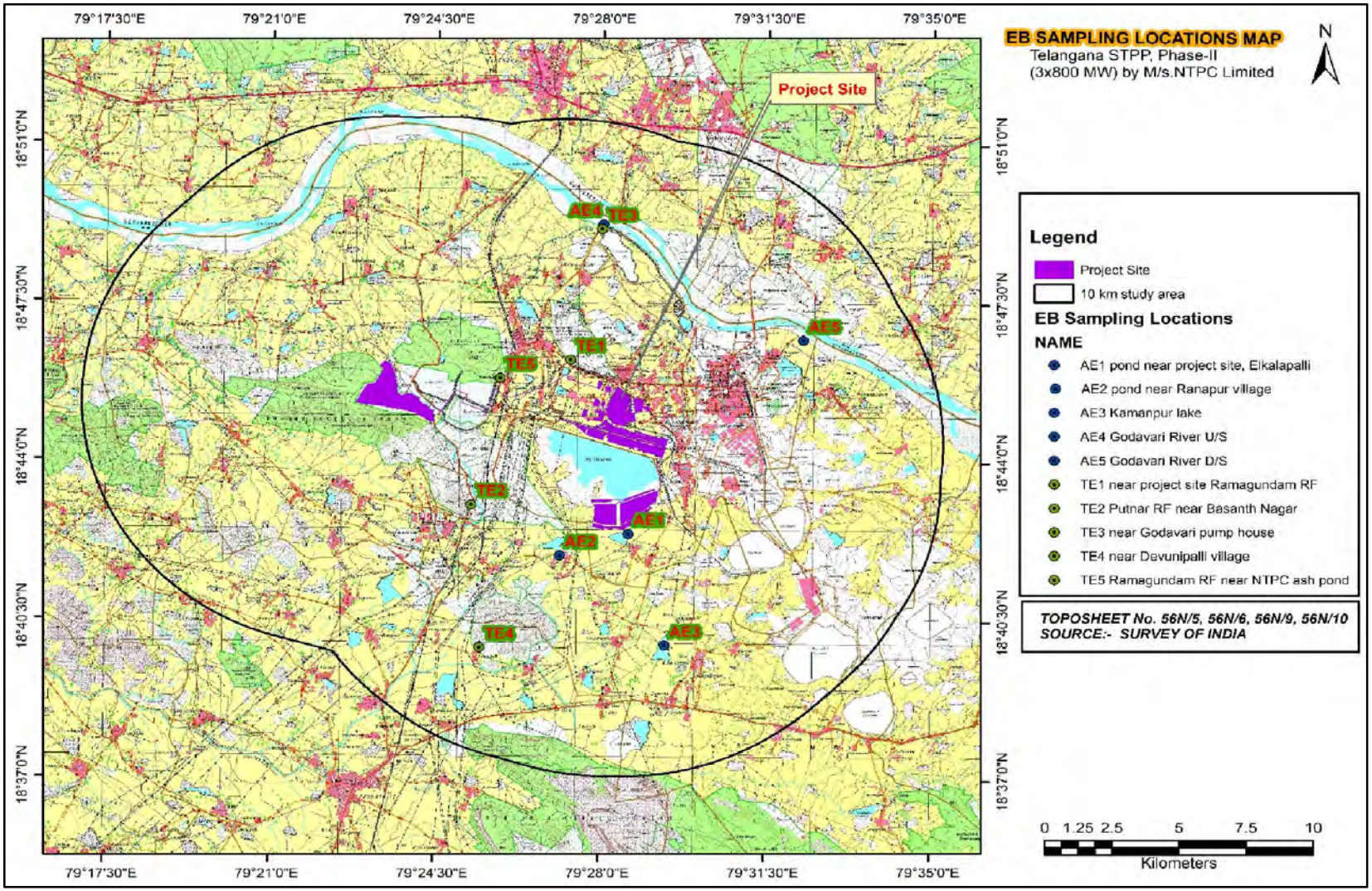


Figure 3-19: Ecology and Biodiversity sampling locations in the study area

3.11.4 Presence of Ecologically Sensitive Area

No protected area (National Park/Wildlife Sanctuary) falls within the study area. However, Godavari River is flowing near to the project site. Five reserved forests ranges are coming under 10km radius of the study area.

- Ramagundam R.F. (0.7 km, NNW direction from project site)
- Putnur R.F. (3.4 km, WSW direction from project site & adjoining to proposed Ash Dyke Phase-II)
- Raidandi R.F. (4.0 km, WNW direction from project site)
- Indaram R.F. (4.0 km, WSW direction from project site)
- Ramgir R.F. (8.99 km, S direction from Ash dyke Phase-I)
- Khanam Palli R.F. (7.1 km in W direction from proposed Ash Dyke Phase-II)

3.11.5 Terrestrial Ecology

Forest types and natural vegetation at regional level and in the study area

Vegetation in the study area belong to Tropical Dry Deciduous and Tropical Thorn Forest type. The project area mostly bears shrubby growth of bushy plant species and perennial weeds. The top layer is dominated by *Vachellia leucophloea*. Most of the woody species represent Tropical Thorny Forest and Open Scrub Forest Type (Champion and Seth 1968).

Phytosociology

The phytosociological study was conducted using the square quadrat technique with a random sampling procedure. Quadrats of 10m x 10m for tree species, 5m x 5m for shrub species, and 1m x 1m for herb species were used for sampling purposes at each sampling location. The final result was determined by averaging all the quadrats in the sampling location to predict the average phytosociology of the entire study area. The phyto-sociological table for trees, shrubs and herbs of natural vegetation are given below from table 3.32 to table 3.34 respectively.

Table 3.32:Phyto-sociological attributes of Trees in the study area

Trees Species	Relative Frequency	Relative Density	Relative Dom	IVI
Albizia lebbeck	6.87	6.08	6.21	19.16
Albizia amara	12.88	8.64	7.27	28.78
Melia azedarach	19.89	22.38	19.98	62.24
Wrightia tinctoria	13.16	12.87	12.69	38.72
Vachellia leucophloea	11.30	13.47	13.19	37.96
Tectona grandis	5.87	10.70	12.67	29.23

Cordia myxa	12.30	8.37	8.28	28.95
Ficus hispida	6.72	9.78	10.22	26.72
Morinda tinctoria	9.59	6.08	8.16	23.83
Cassia fistula	1.43	1.63	1.33	4.39
	100.00	100	100	300
Shannon-Weiner Species Diversity Index (H) = 2.16				

Table 3.33:Phyto-sociological attributes of Shrubs in the study area

Shrubs Species	Relative Frequency	Relative Density	Relative Dom	IVI
Abrus precatorius	11.08	6.73	6.19	24.01
Calycopteris floribunda	21.67	11.85	9.87	43.39
Lantana camara	17.24	2.37	2.57	22.18
Smilax macrophylla	21.18	39.20	32.55	92.93
Indigofera	6.40	11.42	18.40	36.22
Senna auriculata	15.02	19.60	21.93	56.56
Catunaregam dumetorum	1.72	1.08	1.01	3.81
Sida cordata	2.46	1.08	0.71	4.25
Ziziphus oenoplia	1.72	3.45	3.23	8.41
Calotropis procera	1.48	3.23	3.54	8.25
	100.00	100.00	100.00	300.00
Shannon-Weiner Species Diversity Index (H) = 1.78				

Table 3.34:Phyto-sociological attributes of Herbs in the study area

Herbs Species	Relative Frequency	Relative Density	Relative Dom	IVI

Sida cordata	26.49	14.33	20.97	61.78
Indigofera cordifolia	17.84	24.24	27.65	69.73
Sesbania sesban	12.43	9.09	15.50	37.02
Triumfetta acutangulus	18.92	12.67	24.98	56.57
Portulaca oleracea	3.24	2.20	2.43	7.88
Sida cordifolia	1.62	1.10	2.43	5.15
Senna tora	14.05	9.64	14.43	38.13
Sida acuta	16.22	8.26	10.94	35.42
Hibiscus micranthus	8.11	4.41	11.30	23.82
Desmodium triflorum	23.78	21.21	19.36	64.36
Waltheria indica	30.81	31.68	22.92	85.41
Indigofera linifolia	4.86	3.86	2.84	11.56
Cynodon dactylon	4.32	10.74	8.89	23.96
Chloris barbata	2.70	3.58	4.74	11.02
Sporobolus coromandelianus	3.78	6.61	6.25	16.65
Perotis indica	2.70	4.41	5.83	12.94
Indigofera hirsuta	2.70	5.23	6.93	14.86
	100.00	100.00	100.00	300.00
Shannon-Weiner Species Diversity Index (H) = 1.99				

Vegetation structure around sampling location

The vegetation in the study area comprises both cultivated and naturally occurring plants. The area is a mix of degraded scrubland and agricultural fields.

Project site

In the northern direction of the project site lies the River Godavari along with an open-cast coal mining area on its riverbank. The eastern portion includes habitations and scrubland with an open-cast mining site in the southeast direction of the project. The western part is surrounded by the Puntur Reserve Forest, habitations, and agricultural fields, along with tributaries of the Godavari and an irrigation canal. The southern part consists of patches of hillocks, water bodies, habitations, and scrubland. During the pre-monsoon season, there is very little vegetation diversity due to the absence of herbaceous floral patches and the dominance of dry deciduous forest. The tree cover includes *Vachellia leucophloea, Albizia amara, Tamarindus indica, Cordia myxa, Tectona grandis, Melia azedarach etc.* The trees outside forest (TOF) include plantation vegetation such as *Kigelia Pinnata, Acacia sps, Albizia sps, Cassia fistula, Melia azedarach, Vachellia leucophloea, and Pongamia pinnata, Terminalia elliptica, Hardwickia binata, Terminalia latifolia, Tectona grandis Lannea coromandelica* etc. Shrubs include *Bridelia hamiltoniana, Capparis sepiaria, Senna auriculata, Indigofera sps,* and in herbs *Sesbania sesban, Sida cordifolia, Senna tora and Hibiscus micranthus* were seen.



Figure 3.20: Hilly Scrub land and agricultural field near project site.



Figure 3.21: Pre-monsoon dry Godavari Canal

Near Project site Ramagundam RF

The top layer dominated by *Vachellia leucophloea*, *Wrightia tinctoria*. Middle storey includes shrubs *Lantana, Ziziphus oenoplia, Sida cordata, Smilax macrophylla, Senna auriculata* and the ground layer include *Sida cordifolia*. *Sesbania sesban*, *Senna tora*, *Waltheria indica* etc. Roadside plantation includes *Kigelia, Pinnata, Acacia sps, Albizia sps, Cassia fistula, Melia azedarach, Vachellia leucophloea, andPongamia pinnata.*



Figure 3.22: Vegetation Near Project site Ramagundam RF

Putnar RF near Basanth Nagar

The main trees are *Vachellia leucophloea*, and *Melia azedarach*. Middle layer includes Shrubs such as *Lantana camara,Senna auriculata, Indigofera cordifolia* along with regeneration of saplings of *Tectona grandis.* Herbs include *Hibiscus micranthus*, *Portulaca oleracea.* The ground flora does not have grass vegetation.

Roadside plantation includes *Kigelia, Pinnata, Acacia sps, Albizia sps, Cassia fistula, Melia azedarach, Vachellia leucophloea, and Pongamia pinnata.*

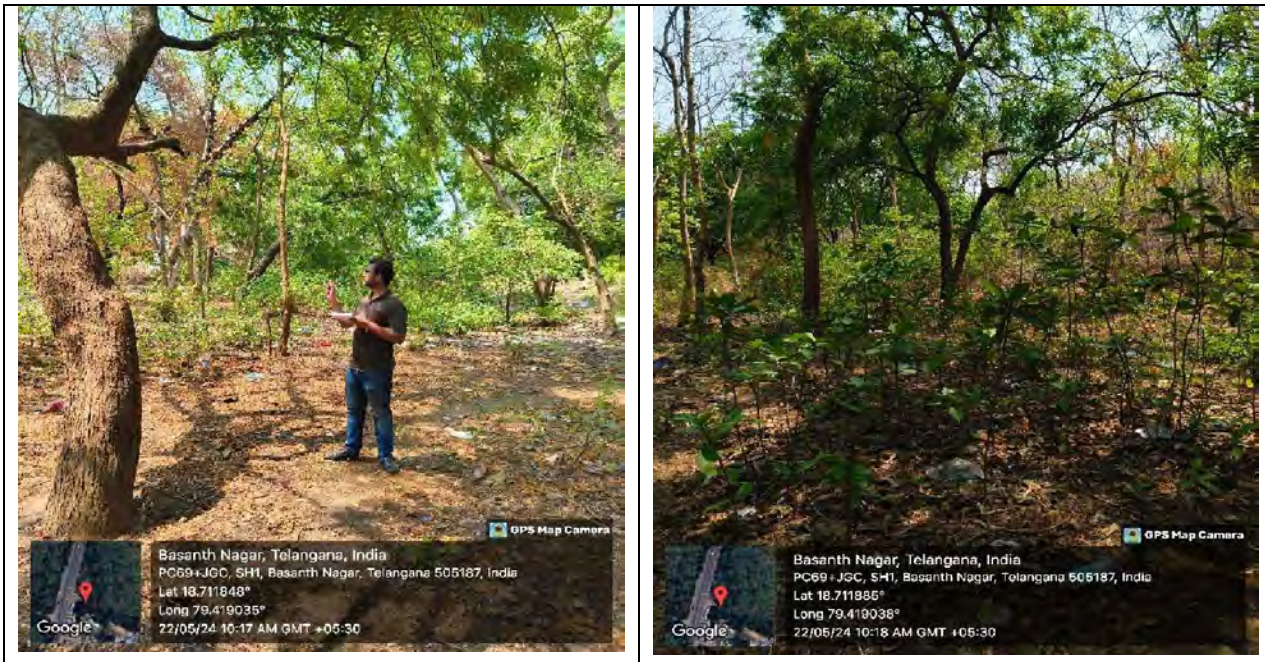


Figure 3.23: Vegetation in Putnar RF near Basanth Nagar

Near Godavari pump house

The top layer dominated by *Vachellia leucophloea*, *Tamarindus indica*. Middle storey includes shrubs *Lantana, Ziziphus oenoplia, Sida cordata, Smilax macrophylla, Senna auriculata* and the ground layer include *Waltheria indica*. *Sesbania sesban*, *Senna tora*, *Waltheria indica*, etc. Roadside plantation includes *Kigelia, Pinnata, Acacia sps, Albizia sps, Cassia fistula, Melia azedarach, Vachellia leucophloea, andPongamia pinnata.*

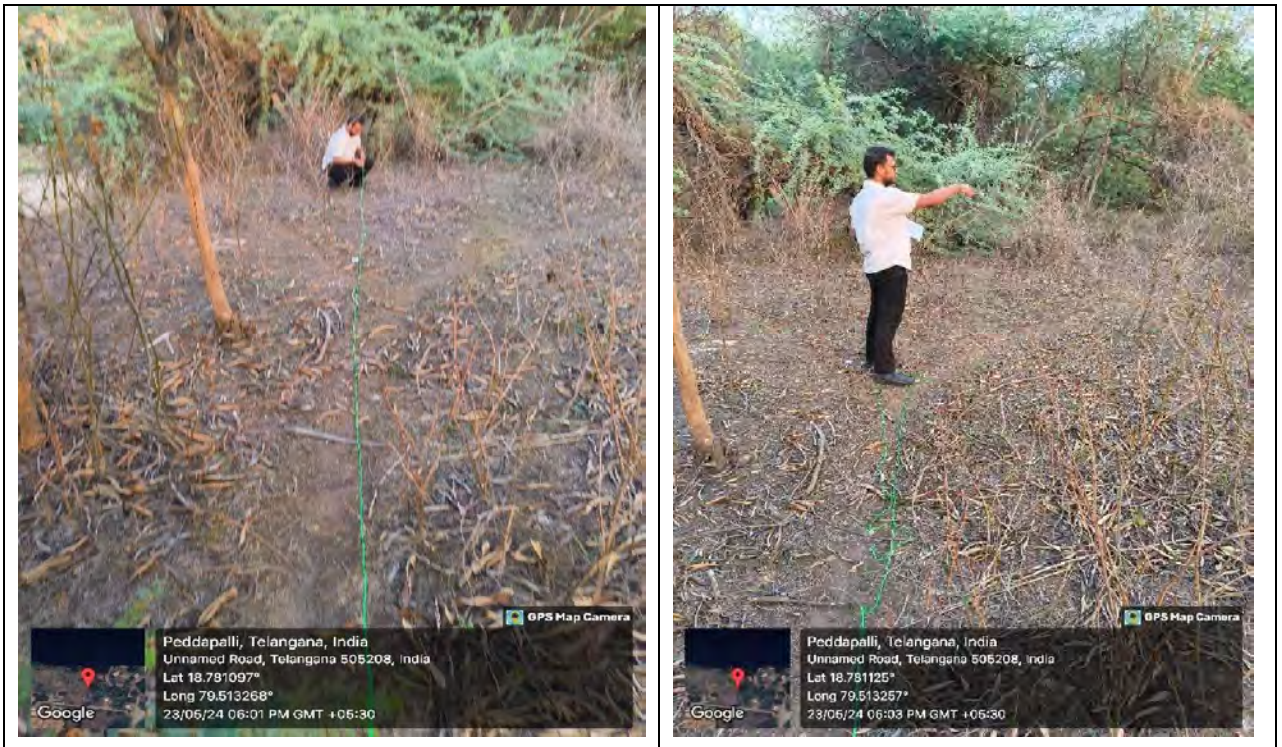


Figure 3.24: Vegetation Near Godavari pump house

Devunipalli village

The main trees are *Vachellia leucophloea*, and *Melia azedarach*. Middle layer includes Shrubs such as *Lantana camara,Senna auriculata, Indigofera sps* along with regeneration of saplings of *Tectona grandis.* Herbs include *Hibiscus micranthus*, and *Portulaca oleracea.*

Roadside plantation includes *Kigelia, Pinnata, Acacia sps, Albizia sps, Cassia fistula, Melia azedarach, Vachellia leucophloea, andPongamia pinnata.*

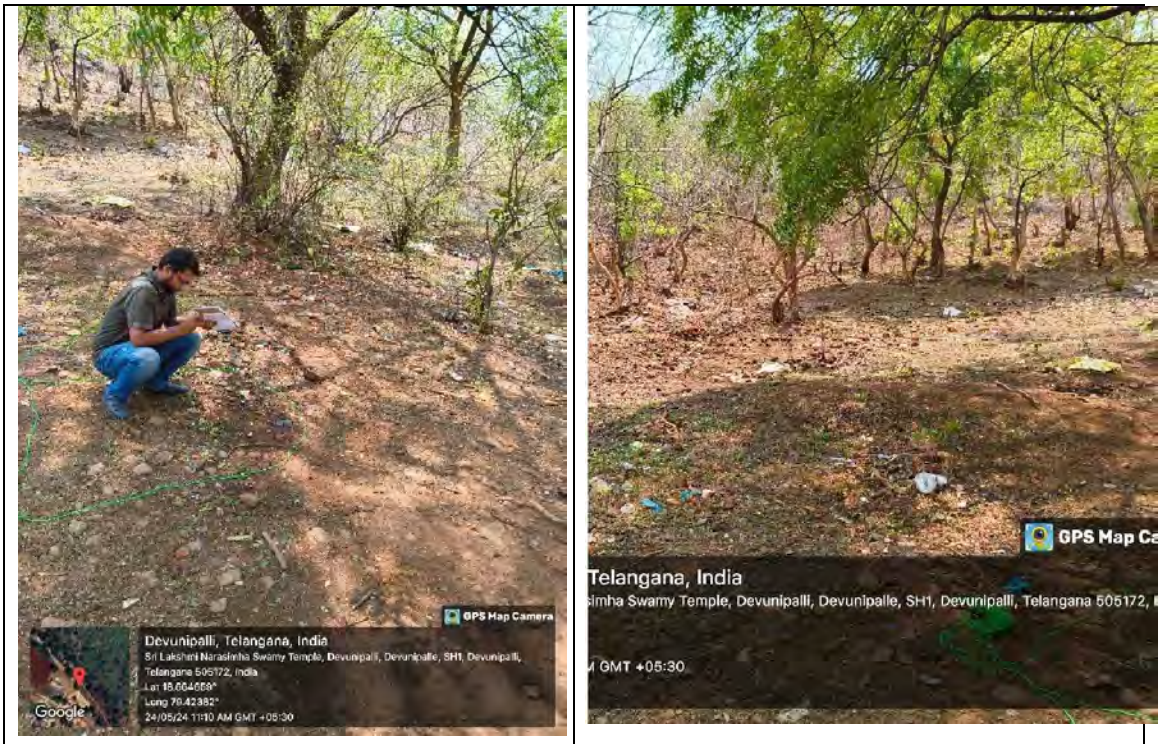


Figure 3.25: Vegetation near Devunipalli village

Ramagundam RF near NTPC ash pond

The top layer dominated by *Vachellia leucophloea,Wrightia tinctoria*. Middle storey includes shrubs *Lantana, Ziziphus oenoplia, Sida cordata, Smilax macrophylla, Senna auriculata* and the ground layer include *Sida cordifolia*. *Sesbania sesban*, *Senna tora*, *Waltheria indica*, etc. Roadside plantation includes *Kigelia, Pinnata, Acacia sps, Albizia sps, Cassia fistula, Melia azedarach, Vachellia leucophloea, andPongamia pinnata*

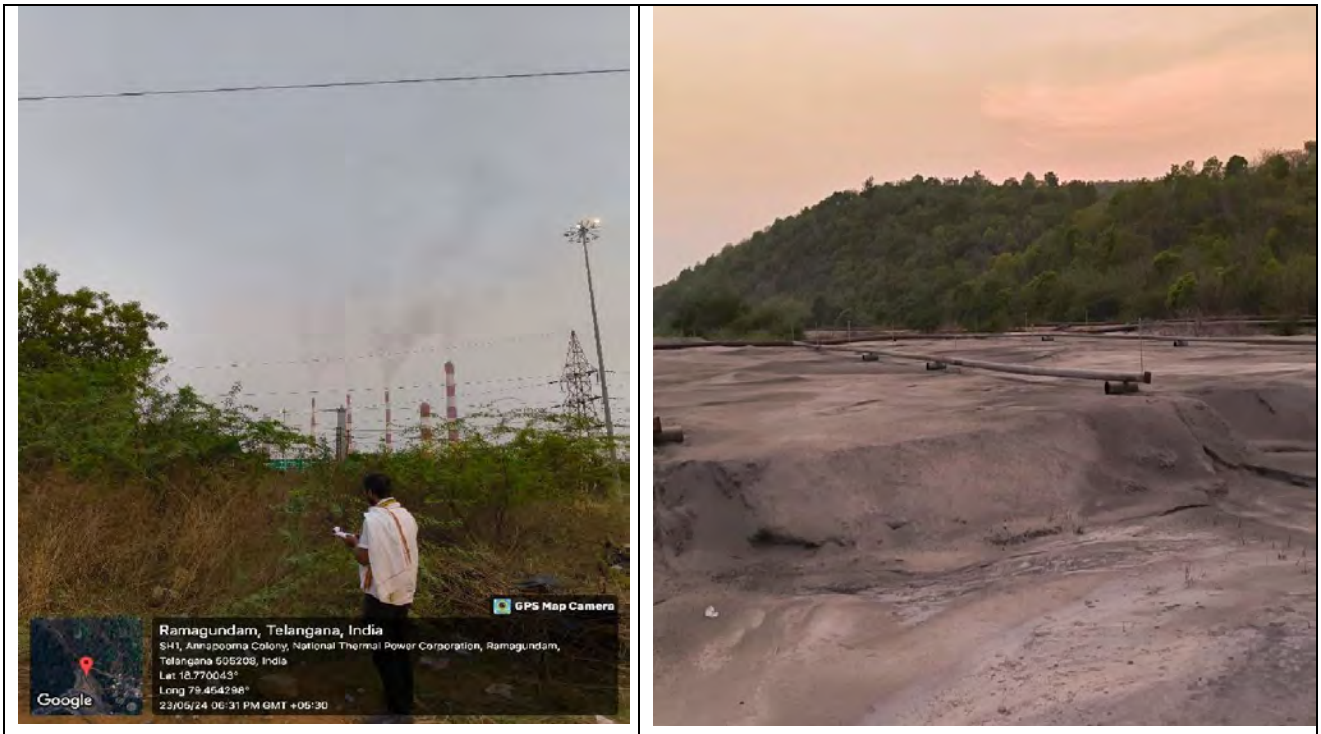


Figure 3.26: Vegetation near Ramagundam RF near NTPC ash pond

Floral composition of the study area

A list of floral species has been prepared based on site observations, discussion with local people and an authenticated list received from the Forest Department. The floral composition along with common name, family, life form is listed below **Table-3.35.** The % distribution of total floral species is shown in **Figure-3.28.**

GOVERNMENT OF TELANGANA
FOREST DEPARTMENT

From :
Sri Ch. Sivalah, M.Sc.,
District Forest Officer,
Peddapally.

To
The Deputy General Manager (EMG),
NTPC Ltd., Ramagundam.

Rc.No.821/54/2024(i), Dated:- 29-03-2025.

Sir,

Sub: - TGFD – NTPC – Expansion of Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW (Phase II: 2400 (3x800 MW) in an area of 738.5509 Ha (256.97 existing and 481.57 proposed) at Village Ramagundam, Kundanpally, Ranapur and etc., District Peddapally, Telangana by NTPC Ltd., - Terms of References (TOR) – NTPC sought for certificate regarding non-involvement of Forest Land, Distance from Protected Areas and List of Flora & Fauna – Report submitted – Regarding.

Ref: - 1) DGM (EMG), NTPC Ltd., Ramagundam, Ref: 09/TP–II/2025–243, Dated: 17.03.2025.
2) FRO Peddapally, Rc.No 156/NTPC/PDPL/2025, dt.26-03-2025.

-oOo-

With references to the subject cited above, it is to inform that, in view of "Expansion of Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW (Phase II: 2400 (3x800 MW) in an area of 738.5509 Ha (256.97 existing and 481.57 proposed) at Village Ramagundam, Kundanpally, Ranapur and etc., District Peddapally, Telangana by NTPC Ltd., the MoEF&CC has accorded ToR for the purpose of obtaining the certificates regarding involvement of forest land, distance from the Protected Areas and the list of Flora & Fauna from the Forest Department.

In this regard, the Forest Range Officer, Peddapally was instructed to inspect the said site area and submit report. Accordingly, the Forest Range Officer, Peddapally has submitted the report of non-involvement of forest land, distance from the Protected Areas and the list of Flora & Fauna.

In this regard, I have inspected the said site area and verified the same and submitting herewith the details as sought by the NTPC Ltd., Ramagundam

1. It is certified that, there is no forest land involved in the proposed Telangana Super Thermal Power Project, Stage-II, 3X800 MW.
2. As per the topographical records, no National Park/protected areas and Wildlife Sanctuary fall within (10) Km radius of the project boundary. The Shivaram Crocodile Wildlife Sanctuary is located 20.4 km from the project boundary. A small portion of Eco Sensitive Zone area of Shivaram Wildlife Sanctuary area is falling in (10) Kms limits of Project study area.
3. A large no. of Flora & Fauna are Present in this area, some of the names are given below:

   Flora:- Acacia catechu, Albizzia lebbek, Bambusaarundinacea, Cassia fistula, Dalbergia latifolia, Ficus bengalensis, Mangifera indica, Melia azedarach, Tamarindus indica, Ziziphus jujuba, ZizyphusOenopila, Indigofera cordifolia etc.

   Fauna:- Melursus ursinus, Panthera pardus, Herpestesedwardsii, Hyaena, Cuon alpinus, Canis aureus, Presbytis entellus, Pavo cristatus, Python molurusbivittatus, Naja naja etc.

Yours faithfully,

District Forest Officer
Peddapally. 29-03-2025

Copy submitted to the Principal Chief Conservator of Forests (P&V) & I/c Wild Life & Chief Wild Life Warden, Telangana, Hyderabad for favour of kind information.

Copy submitted to the Chief Conservator of Forests, Kaleshwaram Circle, Jayashankar Bhupalpally for favour of kind information.

District Forest Officer
Peddapally. 29-03-2025

Figure 3.27: Letter received for the List of Flora and Fauna Authenticated by Forest Department, Peddapally.

Table 3.35: List of floral species found in the study area

S. No	Scientific Name	Common Name	Family	IUCN Category
Trees				
1	*Acacia catechu*	Sundra, Khair	Fabaceae	LC
2	*Acacia ferruginea*	Wal-sundra	Fabaceae	LC
3	*Acacia leucophloea*	Tella tumma, safed Babul	Fabaceae	LC
4	*Adina cordifolia*	Yellow Teak	Rubiaceae	LC
5	*Aegle marmelos*	Maredu, Belphal	Rutaceae	LC
6	*Alangium lamarckii*	Udgu, Akola	Cornaceae	LC
7	*Albizia lebbeck*	Siris	Fabaceae	LC
8	*Albizia amara*	Narlinga	Fabaceae	LC
9	*Albizia odoratissima*	Chinta, Elugu, Chinduga	Fabaceae	LC
10	*Terminalia latifolia*	Tirman	Combretaceae	LC
11	*Annona squamosa*	Sitaphal	Annonaceae	LC
12	*Madhuca indica*	Ippa, Mohwa	Sapotaceae	VU
13	*Bambusa arundinacea*	Bans, Veduru	Poaceae	LC
14	*Bauhinia malabarica*	Pedda Ari	Fabaceae	LC
15	*Bauhinia racemosa*	Apta, Siali	Fabaceae	LC
16	*Boswellia serrata*	Anduga	Burseraceae	LC
17	*Buchanania latifolia*	Chiranji, Morri	Anacardiaceae	LC
18	*Careya arborea*	Budda Dharmi	Lecythidaceae	LC
19	*Cleistanthus collinus*	Nalla-kodsha	Phyllanthaceae	LC
20	*Chloroxylon swietenia*	Bilugu, Satin	Rutaceae	LC
21	*Cassia fistula*	Amaltas, Rela	Fabaceae	LC
22	*Cochlospermum gossypium*	Kondagogu	Bixaceae	LC
23	*Cordia myxa*	Irikim Pedda, Kiriki	Boraginaceae	LC
24	*Crateva religiosa*	Askiaman, Unionidi	Capparaceae	LC
25	*Dalbergia latifolia*	Shisham, Jitregi	Fabaceae	VU
26	*Dendrocalamus strictus*	Baus-Bongu	Poaceae	LC
27	*Dillenia pentagyna*	China Karenga	Dilleniaceae	LC
28	*Diospyros melanoxylon*	Abnus, Tuniki	Ebenaceae	LC
29	*Dolichandrone falcata*	Vaddi	Bignoniaceae	LC
30	*Elaeodendron roxburghii*	Butankus	Celastraceae	LC
31	*Eugenia jambolana*	Danum, Ginna	Myrtaceae	LC

32	*Feronia elephantum*	Kaweet, Velaga, Chettu	Rutaceae	LC
33	*Ficus benghalensis*	Bad, Marri	Moraceae	LC
34	*Gardenia lucida*	Karinga	Rubiaceae	LC
35	*Garuga Pinnata*		Burseraceae	LC
36	*Givotia rottleriformis*	Talla Punki, or Punki	Euphorbiaceae	LC
37	*Gmelina arborea*	Gummaditeak	Lamiaceae	LC
38	*Hardwickia binata*	Naravepa, Epa	Fabaceae	LC
39	*Holarrhena antidysentrica*	Kurchi, Conessi	Apocynaceae	LC
40	*Ixora parviflora*	Korvi	Rubiaceae	LC
41	*Hymenodictyon excelsum*	Dudippa, Chedippa	Rubiaceae	LC
42	*Lagerstroemia parviflora*	Chennangi	Lythraceae	LC
43	*Kydia calycina*	Botri	Malvaceae	LC
44	*Limonia acidissima*	Toraelka, Kaitha	Rutaceae	LC
45	*Holarrhena pubescens*	Kurchi, Conessi	Apocynaceae	LC
46	*Mangifera Indica*	Mamidi	Anacardiaceae	DD
47	*Melia azedarach*	Neem	Meliaceae	LC
48	*Mimusops hexandra*	Pala, Khirai	Sapotaceae	LC
49	*Ougeinia dalbergioides*	Darois, Tella Moduga	Fabaceae	LC
50	*Phyllanthus emblica*	Amla, Usirika	Phyllanthaceae	LC
51	*Pongamia Pinnata*	Kanuqu or Karanii	Fabaceae	LC
52	*Tamrindus indica*	Imli, Chinta	Fabaceae	LC
53	*Tectona grandis*	Teku, Sagwan	Lamiaceae	LC
54	*Terminalia arjuna*	Erumaddi	Combretaceae	LC
55	*Terminalia bellirica*	Tani	Combretaceae	LC
56	*Triweia nudiflora*	Botku	euphorbiaceae	LC
57	*Vitex negundo*	Vavili, Shimbalu	Lamiaceae	LC
58	*Wrightia tinctoria*	Palakodisha	Apocynaceae	LC
59	*Xylia xylocarpa*	Boiia	Fabaceae	LC
60	*Ziziphus jujuba*	Gangaregu	Rhamnaceae	LC
61	*Ziziphus xylopyra*	Gotti	Rhamnaceae	LC
Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable, DD= Data Deficient, NT= Near Threatened, EN= Endangered.				

Shrubs			
1	*Cassia auriculate*	-	Fabaceae
2	*Indigofera (Species)*	-	Fabaceae
3	*Redina Dumetorum*	Manga	Fabaceae
4	*Ochnn squarrosa*	Sonari	Ochnaceae
Climbers			
1	*Abrus precatorius*	Gumchi	Fabaceae
2	*Lantana*	Lantana	Verbenaceae
3	*Smilax macrophylla*	Kamurika	Smilacaceae
4	*Ziziphus oenoplia*	Pariki	Rhamnaceae
Herbs			
1	*Portulaca oleracea*	Purslane	Portulacaceae
2	*Sida cordifolia*	Bala	Malvaceae
3	*Sida cordata*	Heartleaf Sida	Malvaceae
4	*Sida acuta*	Common Wireweed	Malvaceae
5	*Hibiscus micranthus*	Small-flowered Hibiscus	Malvaceae
6	*Waltheria indica*	Walthersia	Malvaceae
7	*Triumfetta acutangulus*	Burweed	Malvaceae
8	*Indigofera cordifolia*	Indian Indigo	Fabaceae
9	*Indigofera hirsuta*	Hairy Indigo	Fabaceae
10	*Desmodium triflorum*	Three-flower Ticktrefoil	Fabaceae
11	*Sesbania sesban*	Sesban	Fabaceae
12	*Cassia tora*	Sickle Senna	Fabaceae
Grasses			

1	*Perotis indica*	Bluestem	Poaceae (Gramineae)
2	*Sporobolus coromandelianus*	sacaton grasses	Poaceae (Gramineae)
3	*Cynodon dactylon*	Bermuda Grass	Poaceae (Gramineae)
4	*Chloris tenella*	-	Poaceae (Gramineae)
5	*Chloris barbata*	Bearded Windmill Grass	Poaceae (Gramineae)
Source: Government of Telangana forest department			

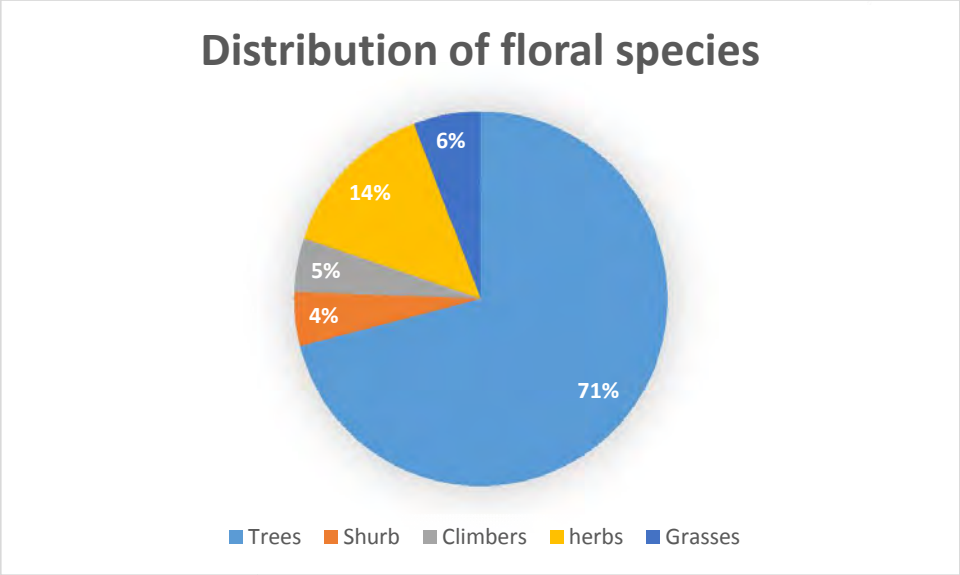


Figure 3.28: Pie-diagram showing % distribution of different groups of floral species

Agricultural species

In this region, the agricultural landscape flourishes with an array of field crops like paddy, cotton, green gram, and red gram. Amidst this verdant tapestry, vibrant vegetables such as tomatoes, green chilies, ridge gourd, bottle gourd, lady fingers, and a variety of leafy greens thrive.

Rare or endangered or threatened flora

There are no rare or endangered or threatened plant species in the study area. All the plants found in the study area are of common occurrence.

Faunal Species Reported from the Study Area

During the survey, animals observed in the area have been identified and recorded. Information on wild animals has been collected from the secondary literature, forest departments and from local residents. Lists of mammals, birds, reptiles, amphibians, butterflies and fish species with their common names, family, their status as per IUCN and Wildlife (Protection) Act, 1972 (Amendment 2022) is listed below in **Table-3.36** and % of distribution of total fauna is shown in **Figure-3.29**

Table-3.36: Mammals Species reported from the Study Area

Sl. No.	Scientific name	Common name	IUCN/W(P)A(Amendment,2022)
1	*Melursus ursinus*	Sloth Bear	VU/I
2	*Lepus nigricollis*	Indian hare	LC/IV
3	*Hystrix indica*	Indian porcupine	LC/I
4	*Panthera pardus*	Common Leopard	VU/I
5	*Herpestes edwardsii*	Common mongoose	LC/I
6	*Hyaena hyaena*	Hyaena	NT/III
7	*Canis lupus*	Indian Wolf	LC/ I
8	*Cuon alpinus*	Indian wild Dog	EN/I
9	*Canis aureus*	Jackal	LC/I
10	*Lutra lutra*	Common Otter	NT/I
11	*Ratufa indica*	Indian Giant squirrel	LC/I
12	*Rusa unicolor*	Sambar	VU/I
13	*Panthera tigris*	Tiger	EN/I
14	*Boselaphus tragocamelus*	Bluebull	LC/ III
15	*Tetracerus quadricornis*	Four -Horned Antelope	VU/ I
16	*Axis axis*	Spotted deer	LC/ III
17	*Presbytis entellus*	Common langur	VU/III
Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable, DD= Data Deficient, NT= Near Threatened, EN= Endangered. Source: Government of Telangana Forest department			

Table 3.37: Avian Species reported from the Study Area

Sl. No	Scientific name	Common name	IUCN/W(P)A(Amendment,2022)
1.	*Pavo cristatus*	Peafowl	LC/I
2.	*Milvus migrans*	Paraiah kite	LC/I

3.	*Gallus gallus*	Indian red jungle fowl	LC/IV
4.	*Halcyon smyrnensis*	White breasted king fisher	LC/IV
5.	*Orthotomus sutorius*	Common Tailorbird	LC/IV
6.	*Terpsiphone paradisi*	Paradise fly catcher (Show bulbul)	LC/IV
7.	*Coracias benghalensis*	The Blue jay	LC/IV
8.	*Himantopus himantopus*	Black winged stilt	LC/IV
9.	*Dicrurus adsimilis*	Black drongo	LC/IV
10.	*Tachybaptus ruficollis*	Dabchick	LC/IV
11.	*Ardea alba*	Egret large	LC/IV
12.	*Mycteria leucocephala*	Painted stork	LC/IV
13.	*Ardeola grayii*	Pond heron	LC/IV
14.	*Milvus migrnas*	Black Kite	LC/I

Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable,
DD= Data Deficient, NT= Near Threatened, EN= Endangered.
Source: Government of Telangana forest department

Table-3.38: Butterflies Species reported from the Study Area

Sl. No.	Scientific name	Common name	IUCN/W(P)A(Amendment,2022)
1	*Papilio demoleus*	Lime butterfly	IV
2	*Junonia almanac*	Peacock pansy	IV
3	*Hypolimnas bolina*	Great eggfly	IV
4	*Euploea core*	Common crow	IV
5	*Neptis hylas*	Common sailor	IV
6	*Eurema hecabe*	Common grass yellow	IV

Table-3.39: Reptilians Species reported from the Study Area

Sl. No.	Scientific name	Common name	IUCN/W(P)A(Amendment,2022)
1	*Geochelone elegans*	Indian star tortoise	VU/IV
2	*Python molurus bivittatus*	Python	VU/I
3	*Naja naja*	Spectacled cobra	LC/I

4	*Crocodylus palustris*	Crocodiles	VU/I
5	*Vipera russelii*	Russell's Viper	LC/I
Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable, DD= Data Deficient, NT= Near Threatened, EN= Endangered.			
Source: Forest Department, Government of Telangana, Vide letter no. Rc. No. 821/S4/2024(i) dated: 29.-03.2025.			

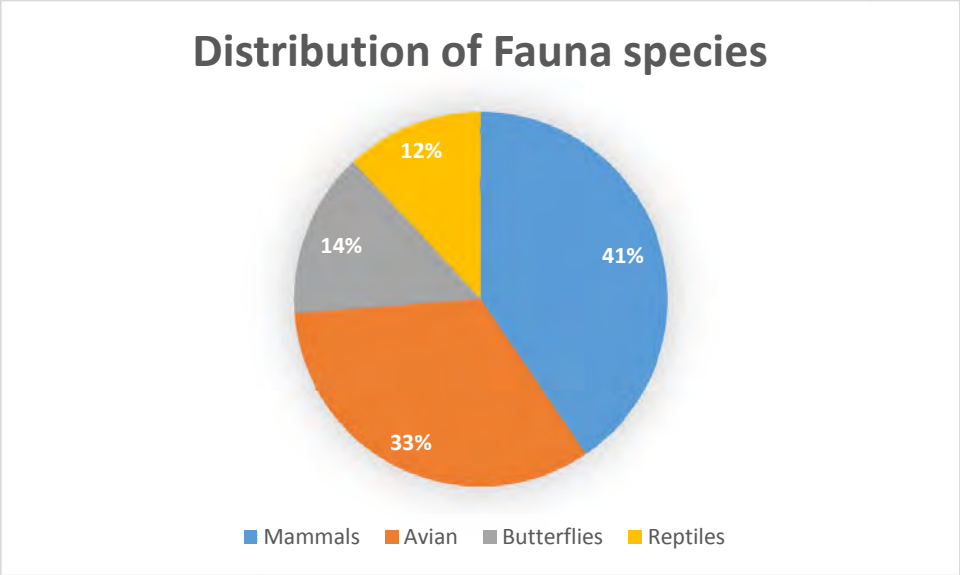


Figure-3.29: Pie-diagram showing % distribution of different groups of faunal species

List of Schedule- I species in the study area

Sl. No.	Scientific name	Common name	IUCN/W(P)A (Amendment,2022)
Mammalia			
1	*Melursus ursinus*	Sloth Bear	VU/I
2	*Hystrix indica*	Indian porcupine	LC/I
3	*Panthera pardus*	Common Leopard	VU/I
4	*Panthera tigris*	Tiger	EN/I
5	*Herpestes edwardsii*	Common mongoose	LC/I
6	*Canis lupus*	Indian Wolf	LC/ I
7	*Cuon alpinus*	Indian wild Dog	EN/I

8	*Canis aureus*	Jackal	LC/I
9	*Lutra lutra*	Common Otter	NT/I
10	*Ratufa indica*	Indian Giant squirrel	LC/I
11	*Rusa unicolor*	Sambar	VU/I
12	*Tetracerus quadricornis*	Four -Horned Antelope	VU/ I
Reptilia			
13	*Naja naja*	King Cobra	LC/ I
14	*Python molurus*	Indian Python	VU/I
15	*Crocodilus palustris*	Crocodiles	VU/I
16	*Vipera russellii*	Russell's Viper	LC/ I
Avians			
17	*Pavo cristatus*	Peafowl	LC/ I
18	*Milvus migrans*	Black Kite	LC/ I
Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable, DD= Data Deficient, NT= Near Threatened, EN= Endangered. Source: Government of Telangana Forest department			

The percentage distribution of the total fauna, as depicted in Figure 3.29, highlights the diversity and conservation status of the species in the study area. This information is crucial for developing conservation strategies and ensuring the protection of these species and their habitats, especially the 18 Schedule I species, which are afforded the highest level of protection under the WPA.

Wildlife and domestic animal conflict

As per the information given by forest department and working plan of the Peddapalli division up to 2023 one domestic cattle (9 month) was killed by a leopard in the study area in 2023. As per news two dogs were also killed by leopard on 28 December 2020. 1 snake bite case on September 2024 was also reported. These all are of wild to domestic animal and human conflict while human to wildlife conflict is described in the table 3.40 given below.



Figure3.30: Photograph of domestic cattle killed by leopard (Source: Working plan of forest department)

Table 3.40: Wildlife cases of Peddapalli Division of past 10 years

Sl. No.	Year	Location	Case
1	2021-22	Kamanpur of Kalvacherla Beat	The Indian Pond Herons (2 Nos) dead due to falling from trees during tree cutting
2	2021-22	Lakkaram of Lakkaram Beat	Animal killed
3	2020-21	Pathipaka of Bommareddypally Beat	Animal killed
4	2019-20	Vennampally of Merdugonda Beat	Deer meat soup (50 gm)
5	2019-20	Sulthanabad of Peddapally Beat	Indian Soft Shelled Turtle (Lissemy's punctata) - 79 Active, 4 Dead (Total 83 Nos)
6	2018-19	Pegadapally of Kunaram Beat	Natural death
7	2018-19	Ramagundam of Ramagundam Beat	Chital skin (2 Nos)
8	2016-17	Vennampally of Merdugonda Beat	*Sus scrofa* - Schedule III (Sl. no. 19)
9	2016-17	Julapally of Bompally Beat	*Sus scrofa* - Schedule III (Sl. no. 19)
10	2016-17	Medaram of Bompally Beat	*Hystrix indica* (Porcupine) Death
11	2015-16	Jafarkhanpet of Lakkaram Beat	Carcass of hare
12	2015-16	Vennampally village shivar of Merdugonda Beat	Natural death
13	2014-15	Edulapur village shivar of Lakkaram Beat	*Sus scrofa* - Schedule III (Sl. no. 19)
Source: Telangana Forest Department Yearly Wildlife Crime Database: https://fmis.telangana.gov.in/FPMIS/ReportView/FP_WildLife_Crime_Y.aspx?Comp=4			

3.11.6 Aquatic Ecology

To assess the aquatic ecological status, samples were collected for fishes, phytoplankton and zooplankton within study area. The list of aquatic life *i.e.* Phytoplanktons, Zooplanktons and Fishes reported in the study area are given in Table 3.39 to Table 3.40.

Table-3.41: Phytoplankton found in the study area

S. No.	Family	Species
1.	Bacillariophyceae	*Diatoma sp.*
2.		*Achnanthes sp.*
3.		*Navicula sp.*
4.		*Cyclotella sp.*
5.		*Nitzschia sp.*
6.		*Tabellaria sp.*
7.		*Frustulia sp.*
8.	Chlorophyceae	*Spirogyra sp.*
9.		*Ulothrix sp.*
10.		*Cladophora sp.*
11.		*Pediastrum sp.*
12.	Mixophyceae	*Oscilaltoria sp.*
13.		*Nostoc sp.*

Table3.42: Zooplankton found in the study area

S. No.	Class	Species
1.	Copepoda	*Cyclops sp.*
2.		*Arctodiaptomus sp.*
3.		*Heliodiaptomus sp.*
4.	Cladocera	*Daphnia sp.*
5.		*Diaphanosoma sp.*
6.		*Moina sp.*
7.		*Macrothrix sp.*
8.	Rotifera	*Keratella sp.*
9.		*Brachionus sp.*
10.		*Filinia sp.*
11.		*Lecane sp.*
12.		*Monostyla sp.*

Fish species in Study Area

Fishes are commonly found in all type of natural water bodies. To obtain data on the most prominent fish species present in the water bodies and streams, the study area has been inventoried. To compile a list of fishes found in the study, primary survey, interaction with fishermen, district fishery officer and secondary materials were reviewed, and the results are shown in Table 3.43.

Table-3.43: Fishes found in the study area

S. No.	Common Name	Scientific Name	Family
1.	Spotted snakehead	*Channa punctata*	Channidae
2.	Striped snakehead	*Channa stricta*	Channidae
3.	Channa marulius	*Channa marulius*	Channidae
4.	Rohu	*Labeo rohita*	Cyprinidae
5.	Catla	*Cutla cutla*	Chordata
6.	Common car	*Cyprinus carpio*	Cyprinidae

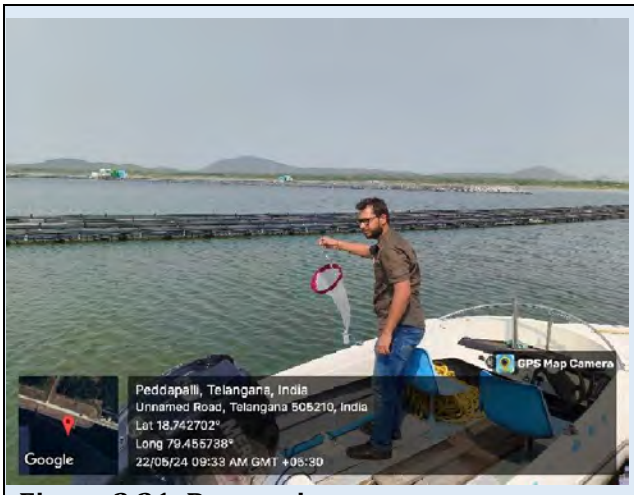


Figure 3.31: Reservoir



Figure 3.32: District Fisheries Office

Site Visit Photographs



Figure 3.33: Project Site







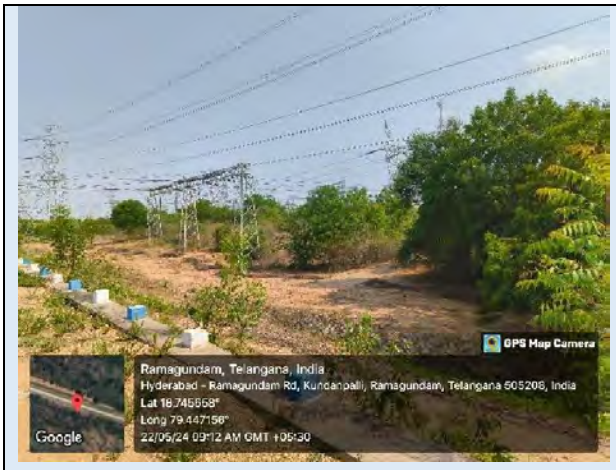


Figure 3.34: Quadrate sampling and Aquatic Ecological Study





Figure 3.35: Quadrate sampling



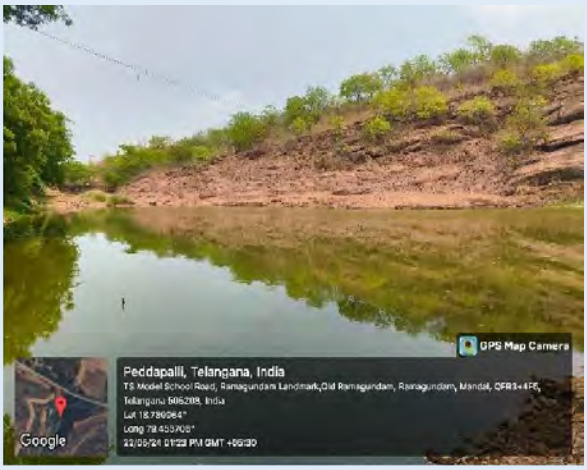




Figure 3.36: NTPC water pump



Figure 3.37: Kamanpur Lake



Figure 3.38: Sheepyard in Village



Figure 3.39: Lizard

3.12 DEMOGRAPHY AND SOCIO-ECONOMICS

3.12.1 Introduction: Socio-Economic Impact Assessment

Socio-Economic Impact Assessment (SEIA) refers to systematic analysis of various social and economic characteristics of human being living in a given geographical area (study area/impact area). The prime objective of SEIA is to identify and evaluate potential socio-economic and cultural impacts of a proposed development project on the lives & conditions of people, their families and communities. If the potential impacts are significant and adverse, SEIA assist the developers and other stakeholders to reduce, remove or prevent these impacts through proper mitigation measures. Also, it examined how a development project changes the lives of local residents. The outcome of the study relies on both quantitative and qualitative measure of impacts. The impacts are evaluated in terms of changes in community demographics, housing, employment, market effects, public services, retail business, quality of life and artistic qualities of the community. Further, assessing proposed developments in socio-economic context help the community leaders and local people identify potential social equity issues, evaluate the adequacy of social services and determine whether the project has adverse effects on overall social well-being or not.

SEIA also provides a forum for planning how to maximize the beneficial impacts of a proposed development. Beneficial impacts can include:

1) A better standard of living due to increased access to employment, business opportunities, training, education & health.
2) Greater access to and from a community, and
3) Increase funding to improve social infrastructure and employment opportunities.

3.12.2 Objectives of the Study

The objectives of Socio-Economic Impact Assessment of the project are as follows:

I. To comprehend socio-economic status of the people living there in the defined study area.
II. To assess probable impact of the project on social and economic aspects.
III. To measure the impact of the project on quality of life of the people.
IV. To ensure sustainability of positive impacts.
V. To suggest mitigation measures and agency responsible for taking action in case of adverse impact.

3.12.3 Steps taken to prepare the SEIA Report

- Literature Review.
- Identification of the study area and important landmarks therein.
- Preparation of list of habitations located in the study area.
- Firming up of approach and methodology.
- Collection of Secondary Data from Census Report, district profile, published and un-published literatures, administrative records etc.
- Data Entry and Data Validation.
- Generation of Tables.

- Data Analysis and preparation of report.

3.12.4 Methodology

For Socio-economic Impact Assessment of the proposed project systematic analysis of habitations level studies of various socio-economic characteristics, both in terms of quality and quantity was carried out. Accordingly, both qualitative and quantitative data of the study area was collected through various sources.

For collection of information, Census of India 2011 was approached for published data/information, state & district portals were visited, and administrative records were referred of the state & district administration.

The habitations/villages for field study were selected based on proximity to the project site. The tools that was used to carry out the field survey was pre-tested structured village fact sheet, conducted focused group discussions with various cross section of the society like school teachers, cultivators, Panchayat members etc. The villages that were visited were Elkalpalle, Mustial, Kamanpur, Julapalle, Nagaram, Rompikunta, Kannala, Yellampalle, Murmoor, Akenpalle, Eklaspur, Palakurthy, Putnoor, Gudipalle, and Jayyaram. Approximately 18 per cent of the total study area villages were considered for field study. The field survey was carried out to know the amenities status of the study area habitation and the perception of the people with respect to the upcoming project. Accordingly based on the findings the development program was proposed for the study area habitations.

3.12.5 Study Area

The study area defines the circle, radius of 10 km around the project site- Telangana Super Thermal Power Project, Phase-II (3x800 MW) by NTPC Limited in Ramagundam in Peddapalle district of Telangana.

The study area comprises of 85 identified habitations out of which 70 are villages and there are 15 urban areas. The habitations of the study area are spread over the sub districts Mancherial and Jaipur of Adilabad District (now Mancherial District) and sub districts Ramagundam, Velgatoor, Manakondur, Kamanpur, Dharmaram, Manthani, Peddapalle and Karimnagar of Karimnagar District (now Peddapalle District), Telangana as per Census of India, 2011. In the study area there are 03 uninhabited villages.

The habitations are shown in the map and the table below.

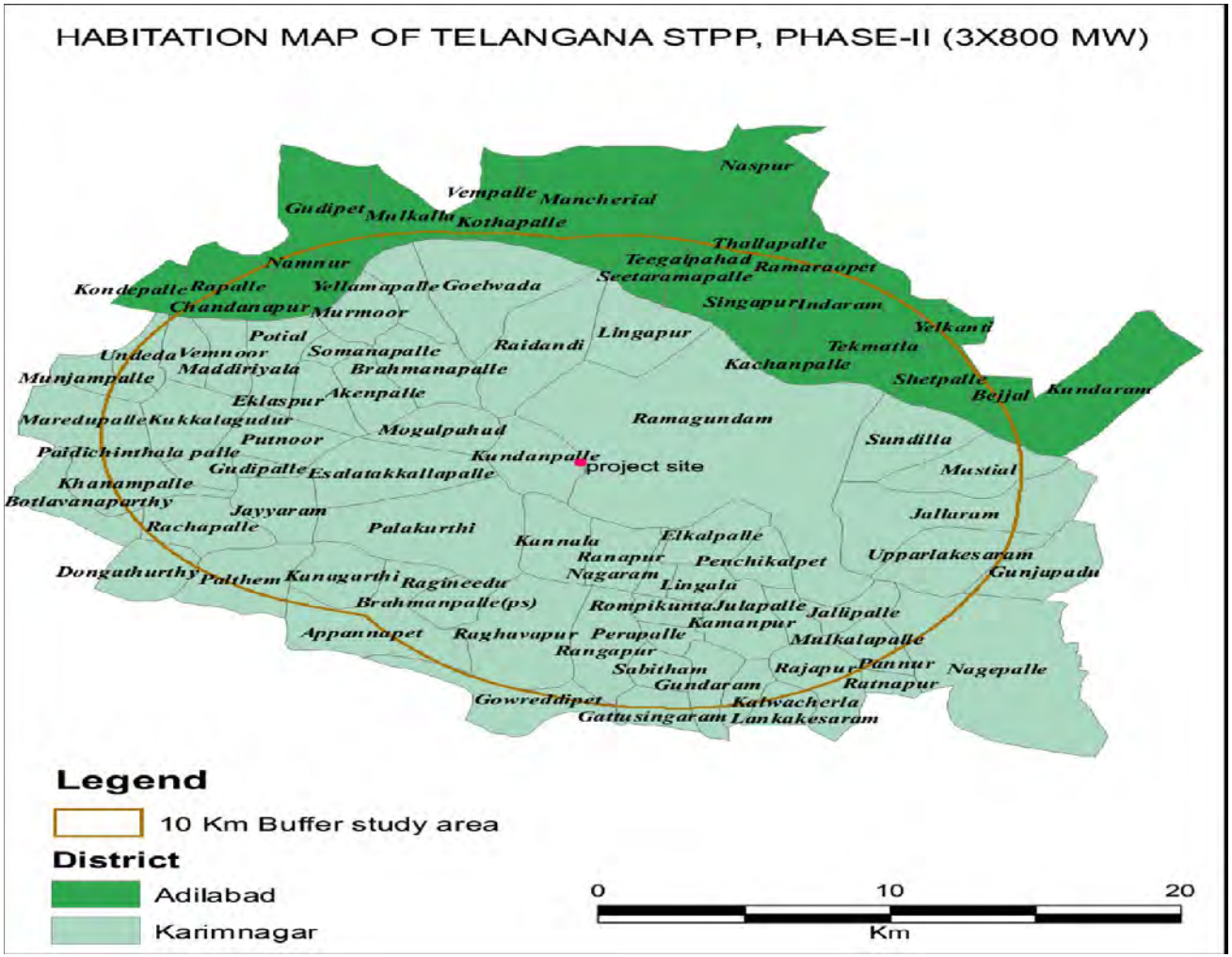


Figure 3.40: Habitation Map of the Study area - Source: GIS Team Mantec Consultants Pvt. Ltd.

Table3.44: Habitations in the Study Area

S. No.	Name	District	State
1	Mulkalla	Mancherial	Telangana
2	Gudipet	Mancherial	Telangana
3	Vempalle	Mancherial	Telangana
4	Kothapalle	Mancherial	Telangana
5	Ramaraopet	Mancherial	Telangana
6	Indaram	Mancherial	Telangana
7	Namnur	Mancherial	Telangana
8	Kondepalle	Mancherial	Telangana
9	Chandanapur	Mancherial	Telangana
10	Rapalle	Mancherial	Telangana
11	Yelkanti	Mancherial	Telangana
12	Tekumatla	Mancherial	Telangana
13	Kundaram	Mancherial	Telangana
14	Kachanpalle	Mancherial	Telangana
15	Shetpalle	Mancherial	Telangana
16	Bejjal	Mancherial	Telangana
17	Goelwada	Peddapalli	Telangana
18	Yellampalle	Peddapalli	Telangana
19	Murmoor	Peddapalli	Telangana
20	Potial	Peddapalli	Telangana
21	Maddiriyala	Peddapalli	Telangana
22	Undeda	Peddapalli	Telangana
23	Vemnoor	Peddapalli	Telangana
24	Brahmanapalle	Peddapalli	Telangana
25	Akenpalle	Peddapalli	Telangana
26	Eklaspur	Peddapalli	Telangana
27	Somanapalle	Peddapalli	Telangana
28	Munjampalle	Peddapalli	Telangana
29	Kukkalagudur	Peddapalli	Telangana

30	Mogalpahad	Peddapalli	Telangana
31	Putnoor	Peddapalli	Telangana
32	Maredupalle	Peddapalli	Telangana
33	Esalatakkallapalle	Peddapalli	Telangana
34	Mustial	Peddapalli	Telangana
35	Botlavanaparthy	Peddapalli	Telangana
36	Gudipalle	Peddapalli	Telangana
37	Jayyaram	Peddapalli	Telangana
38	Khanampalle	Peddapalli	Telangana
39	Paidichinthala Palle	Peddapalli	Telangana
40	Kannala	Peddapalli	Telangana
41	Rachapalle	Peddapalli	Telangana
42	Elkalpalle	Peddapalli	Telangana
43	Ranapur	Peddapalli	Telangana
44	Gunjapaduga	Peddapalli	Telangana
45	Upparlakesaram	Peddapalli	Telangana
46	Dongathurthy	Peddapalli	Telangana
47	Nagaram	Peddapalli	Telangana
48	Kanagarthi	Peddapalli	Telangana
49	Palthem	Peddapalli	Telangana
50	Ragineedu	Peddapalli	Telangana
51	Lingala	Peddapalli	Telangana
52	Kamanpur	Peddapalli	Telangana
53	Raghavapur	Peddapalli	Telangana
54	Brahmanpalle (PS)	Peddapalli	Telangana
55	Jallipalle	Peddapalli	Telangana
56	Nagepalle	Peddapalli	Telangana
57	Julapalle	Peddapalli	Telangana
58	Rangapur	Peddapalli	Telangana
59	Rompikunta	Peddapalli	Telangana
60	Perapalle	Peddapalli	Telangana

61	Appannapet	Peddapalli	Telangana
62	Mulkalapalle	Peddapalli	Telangana
63	Pannur	Peddapalli	Telangana
64	Gundaram	Peddapalli	Telangana
65	Sabitham	Peddapalli	Telangana
66	Rajapur	Peddapalli	Telangana
67	Gowreddipeta	Peddapalli	Telangana
68	Kalwacherla	Peddapalli	Telangana
69	Lankakesaram	Peddapalli	Telangana
70	Gattusingaram	Peddapalli	Telangana
	Urban Area	**District**	**State**
71	Naspur	Mancherial	Telangana
72	Mancherial	Mancherial	Telangana
73	Thallapalle	Mancherial	Telangana
74	Singapur	Mancherial	Telangana
75	Teegalpahad	Mancherial	Telangana
76	Ramagundam	Peddapalli	Telangana
77	Jallaram	Peddapalli	Telangana
78	Palakurthy	Peddapalli	Telangana
79	Ratnapur	Peddapalli	Telangana
80	Penchikalpet	Peddapalli	Telangana
81	Kundanapalle	Peddapalli	Telangana
82	Sundilla	Peddapalli	Telangana
83	Raidandi	Peddapalli	Telangana
84	Lingapur	Peddapalli	Telangana
85	Seetarampalle	Mancherial	Telangana

3.12.6 Baseline Data

The baseline data with respect to population in the study area has been worked out as under as per Census of India, 2011:

Table 3.45: Demographic particulars/population details

S. No.	Description	Number	Percentage to Respective Total
1	**Total Population**	**510625**	**100**
	Male	259436	50.8
	Female	251189	49.2
	Sex Ratio	968	
2	**Population (0-6 age group)**	**41885**	**100**
	Male	22036	52.6
	Female	19849	47.4
	Sex Ratio	901	
3	**Population- Scheduled Caste**	**107221**	**100**
	Male	54205	50.6
	Female	53016	49.4
	Sex Ratio	978	
4	**Population Scheduled Tribe**	**10065**	**100**
	Male	5094	50.6
	Female	4971	49.4
	Sex Ratio	976	
5	**Total Literates**	**327559**	**100**
	Male	184257	56.3
	Female	143302	43.7
	Gender Gap in Literates	12.6	
6	**Overall Literacy Rate**	**69.9%**	
	Male	77.6%	
	Female	61.9%	
	Gender Gap in Literacy Rate	15.7	
7	**Total Workers**	**187330**	**100**
	Male	134363	71.7
	Female	52967	28.3
	Gender Gap in Work Participation	43.4	
8	**Main Workers**	**152485**	**100**
	Male	117407	77.0
	Female	35078	23.0

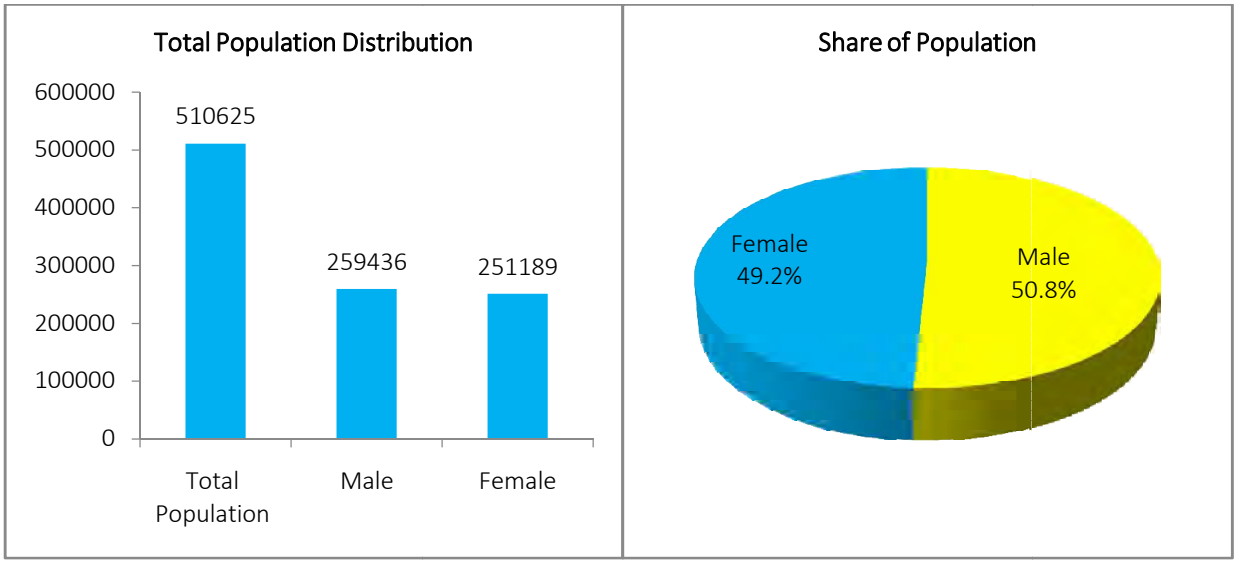
	Gender Gap in Work Participation	54.0	
9	**Marginal Workers**	**34845**	**100**
	Male	16956	48.7
	Female	17889	51.3
	Gender Gap in Work Participation	2.6	
10	**Main Household Industrial Workers**	**3330**	**100**
	Male	2440	73.3
	Female	890	26.7
11	**Total Main Agricultural Workers**	**49426**	**100**
	Male	28168	57.0
	Female	21258	43.0
12	**Main Cultivators**	**11184**	**100**
	Male	8332	74.5
	Female	2852	25.5
13	**Main Agricultural Labour**	**38242**	**100**
	Male	19836	51.9
	Female	18406	48.1
14	**Main Other Workers**	**99729**	**100**
	Male	86799	87.0
	Female	12930	13.0

Source: Primary Census Abstract, 2011

3.12.7 Population Composition

According to Census 2011, total population of the study area has been worked out to 510625 out of which 259436 (50.8 per cent) are males and remaining 251189 (49.2 per cent) are females. The overall sex ratio in the study area has been worked out to 968 females per 1,000 males. The population density of the study area is 655 persons per square kilometer.

Total Population Distribution



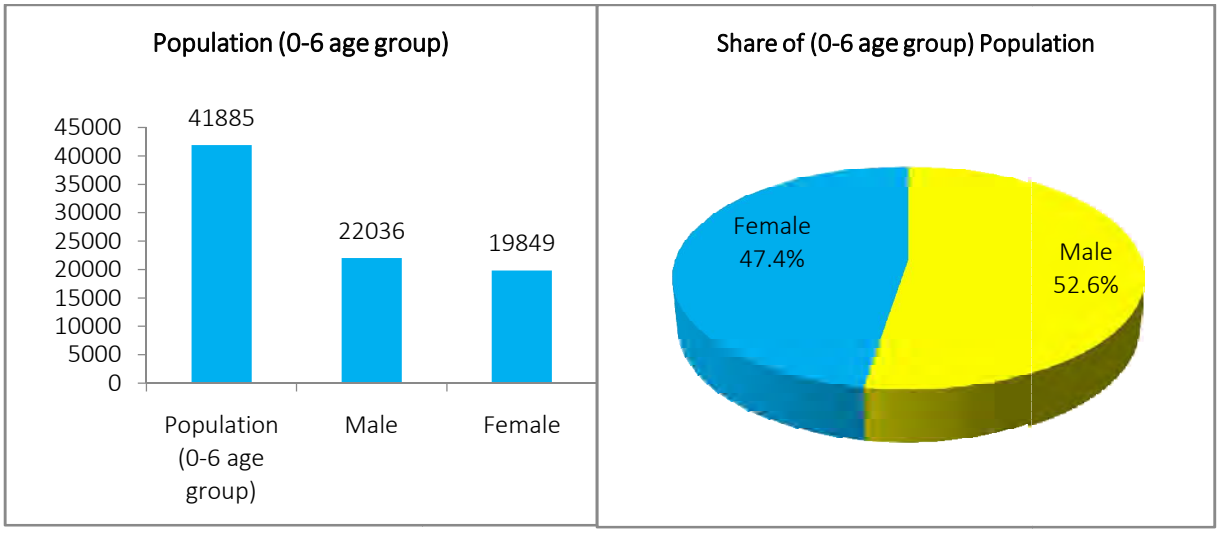
Source: Primary Census Abstract, 2011

The combined decadal growth rate of Mancherial and Peddapalle district is 9.2 per cent. Therefore, the population of the study area for the year 2023-24 is calculated to be 557602 with the male population being 283304 and the female population being 274298.

3.12.8 Child Population Distribution

In the study area, the total child population of age group of 0-6 year has been worked out to be 41885 which constitute about 8.2 per cent of the total population. Of the total child population, 22036 (52.6 per cent) are boys and remaining 19849 (47.4 per cent) are girls. The sex ratio in this age group is 901 girls per 1,000 boys.

Child Population Distribution

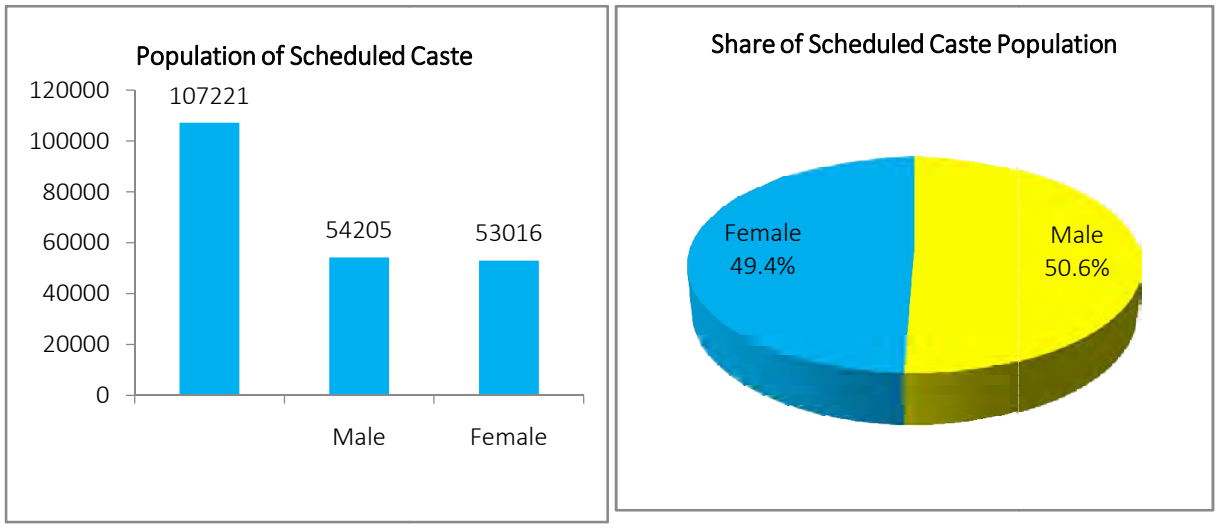


Source: Primary Census Abstract, 2011

3.12.9 Social Group Population Distribution

In the study area, Scheduled Caste population is 107221 which constitute 21.0 per cent of the total population of the study area. Of the total Scheduled Caste population, 54205 (50.6 per cent) are males and remaining 53016 (49.4 per cent) are females. The sex ratio among Scheduled Caste population has been worked out to 978 females per 1,000 males.

Scheduled Caste Population Distribution

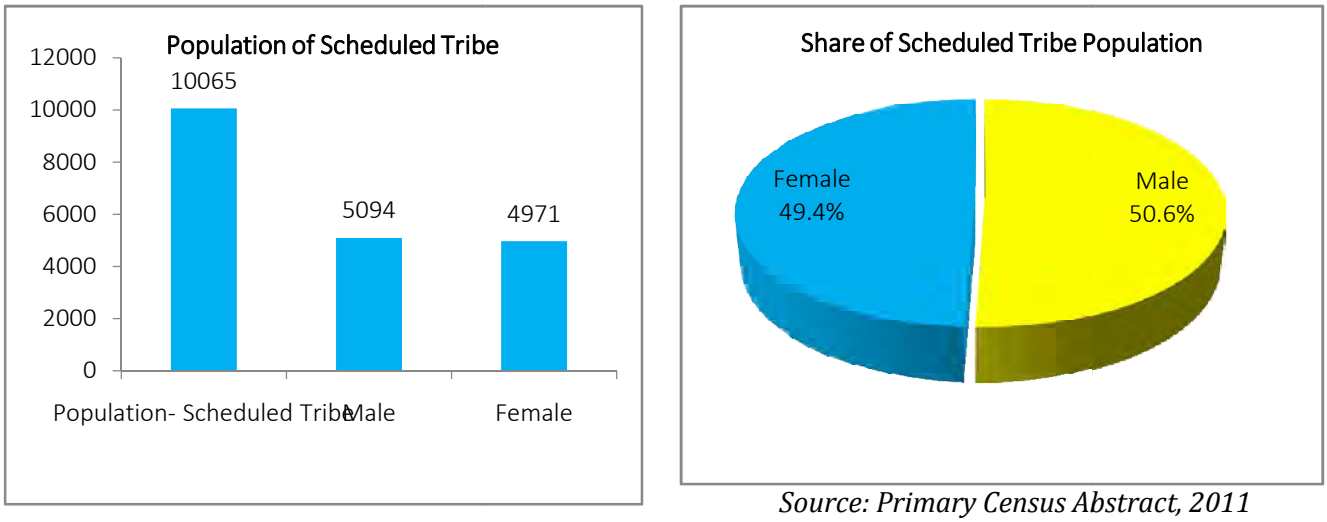


Source: Primary Census Abstract, 2011

Scheduled Tribe Population

There are 10065 people belonging to Scheduled Tribe population in the study area which constitutes 2.0 per cent of the total population. Of the total Scheduled Tribe population, 5094 (50.6 per cent) are males and remaining 4971 (49.4 per cent) are females. The sex ratio among this population group has been worked out to 976 females per 1,000 males.

Scheduled Tribe Population Distribution



Source: Primary Census Abstract, 2011

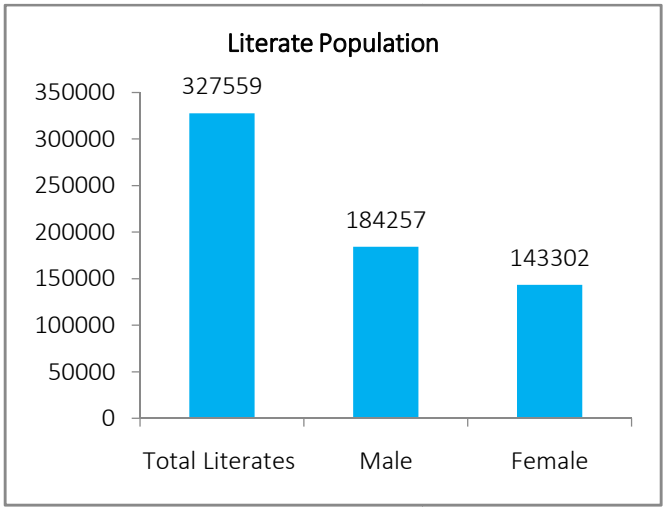
3.12.10 Household and Household Size

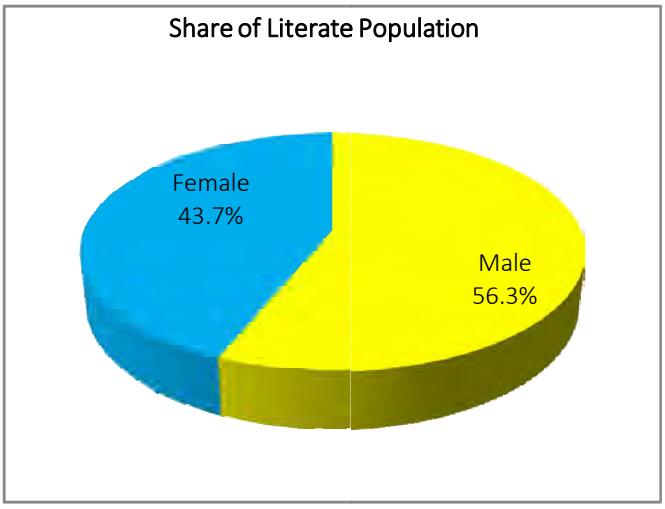
The entire population of the study area is distributed into 129627 households and the average household size is 4. The household size depicts there are mostly nuclear families existing in the study area and the same was confirmed during the primary site visit of the study area.

3.12.11 Literates, Literacy Rate and Gender Gap in Literacy Rate

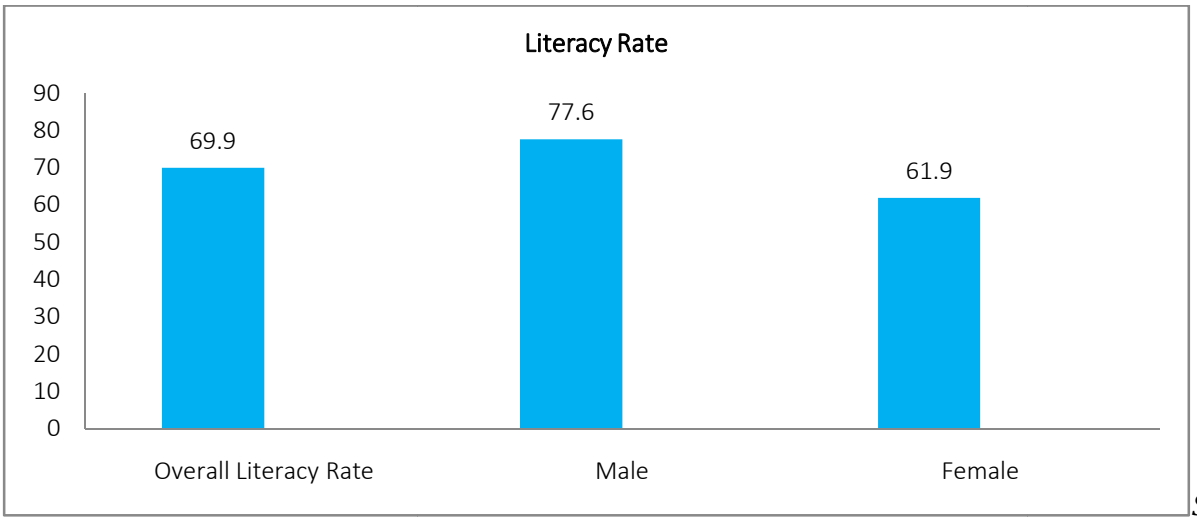
In the study area, 327559 (64.1 per cent) of the population is literate in which 184257 (56.3 per cent) are male literates and remaining 143302 (43.7 per cent) are female literates. There is a gender gap of 12.6 per cent in the literate population. The overall literacy rate has been worked out to 69.9 per cent. The male literacy rate is 77.6 per cent and female literacy rate is 61.9 per cent, creating a considerable gender gap in literacy rate of 15.7 per cent.

Distribution of Literate Population





Source: Primary Census Abstract, 2011

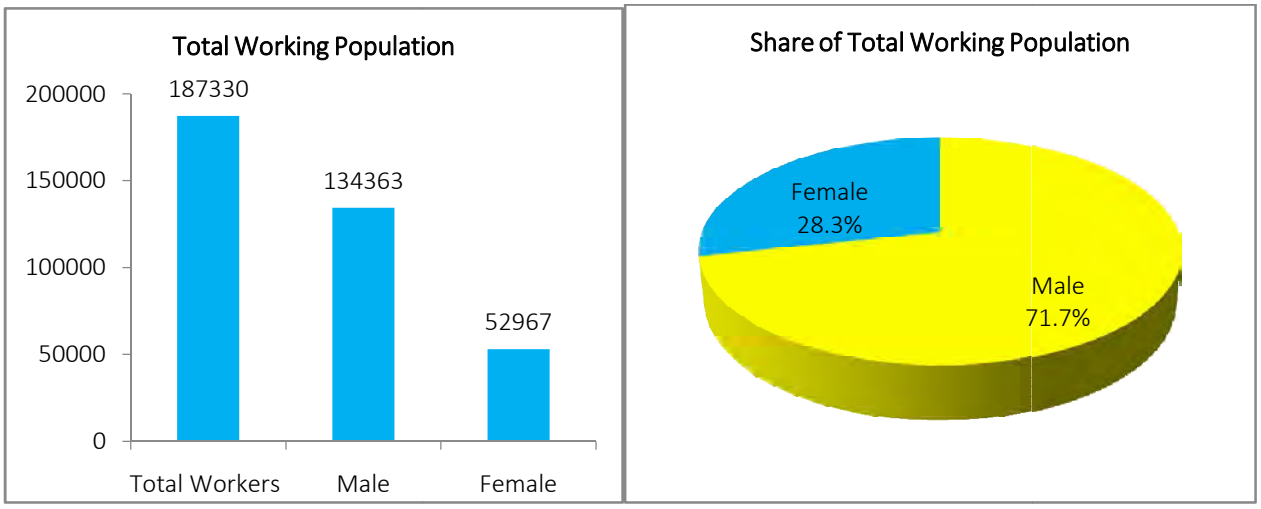


Source: Primary Census Abstract, 2011

3.12.12 Total Working Population Details

Based on Census 2011, total number of workers in the study area has been worked out to be 187330 which constitute 36.7 per cent of the total population. Of the total workers, 134363 (71.7 per cent) aremales and the remaining 52967 (28.3 per cent) are females. There is a significant gender gap of 43.4 per cent in work participation.

Distribution of Total Worker

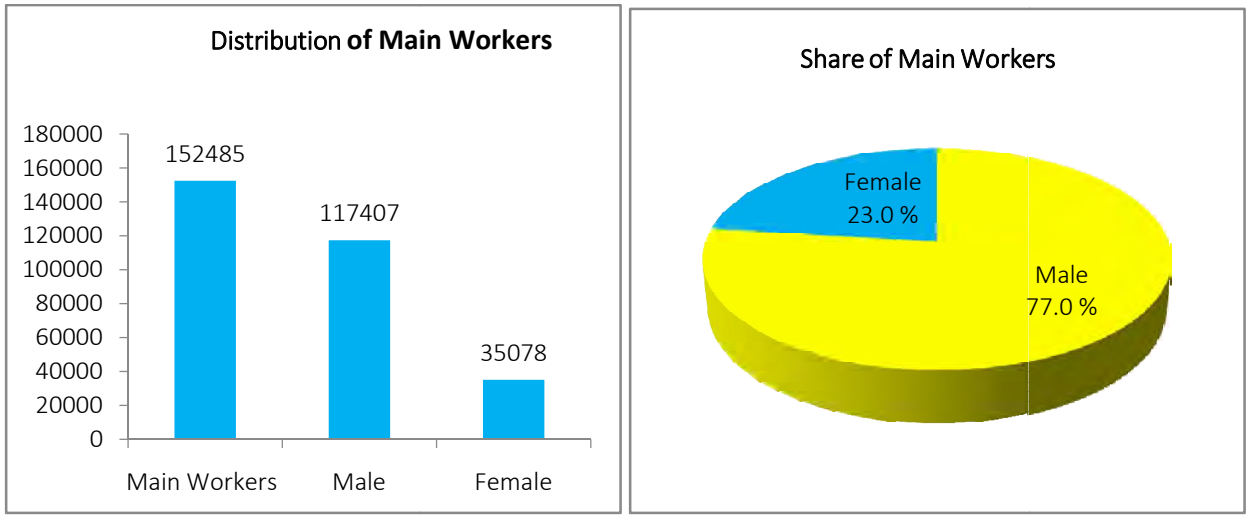


Source: Primary Census Abstract, 2011

3.12.13 Main Workers Population Details

Based on Census 2011, number of main workers in the study area has been worked out to be 152485 which constitute 29.9 per cent of the total population. Of the main workers, 117407 (77.0 per cent) are males and the remaining 35078 (23.0 per cent) are females. There is a significant gender gap of 54.0 per cent in work participation.

Main Workers Distribution

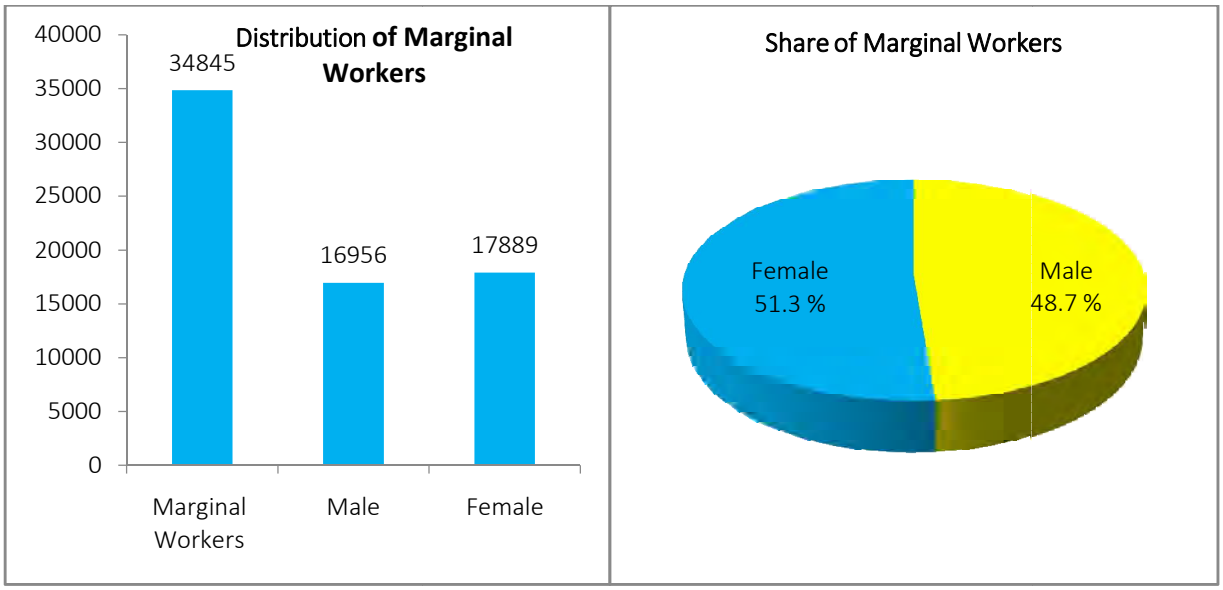


Source: Primary Census Abstract, 2011

3.12.14 Marginal Workers Population Details

Based on Census 2011, total number of marginal workers in the study area has been worked out to be 34845 which constitute 6.8 per cent of the total population. Of the marginal workers, 16956 (48.7 per cent) are males and the remaining 17889 (51.3 per cent) are females. There is a gender gap of 2.6 per cent in work participation. The female marginal workers are more owing to the fact that they are involved in other daily wage labour activities apart from agriculture labour.

Marginal Workers Distribution

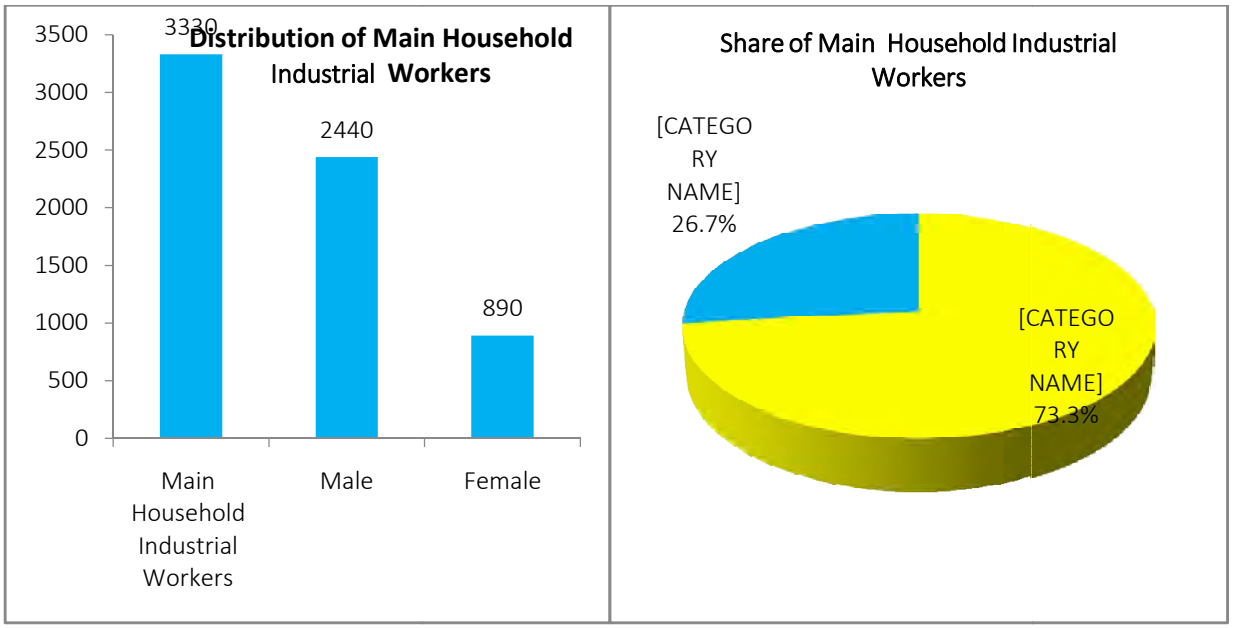


Source: Primary Census Abstract, 2011

3.12.15 Main Household Industrial Workers Population Details

Based on Census 2011, total number of main household workers in the study area is 3330 which constitute 2.2 per cent of the total main working population. Of the main household workers, 2440 (73.3 per cent) are males and the remaining 890 (26.7 per cent) are females. There is a major gender gap of 46.6 per cent in this segment of work participation.

Main Household Workers Distribution

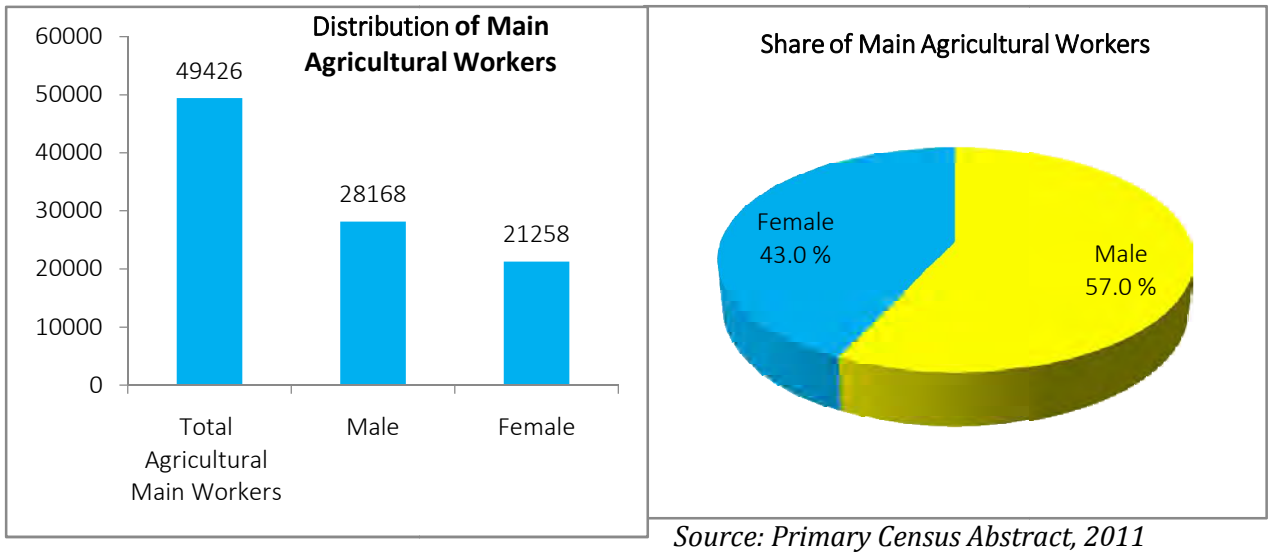


Source: Primary Census Abstract, 2011

3.12.16 Total Main Agricultural Workers Population Details

Based on Census 2011, total number of main agricultural workers in the study area has been worked out to be 49426 which constitute 32.4 per cent of the total main working population. The sum of the cultivator and agricultural laborers is termed as total agricultural workers. Of the main agricultural workers, 28168 (57.0 per cent) are males and the remaining 21258 (43.0 per cent) are females. There is a gender gap of 14.0 per cent in work participation.

Main Agricultural Workers Distribution

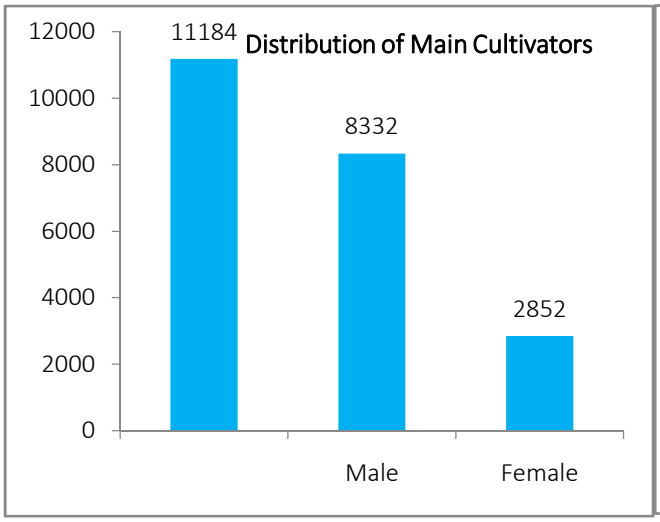


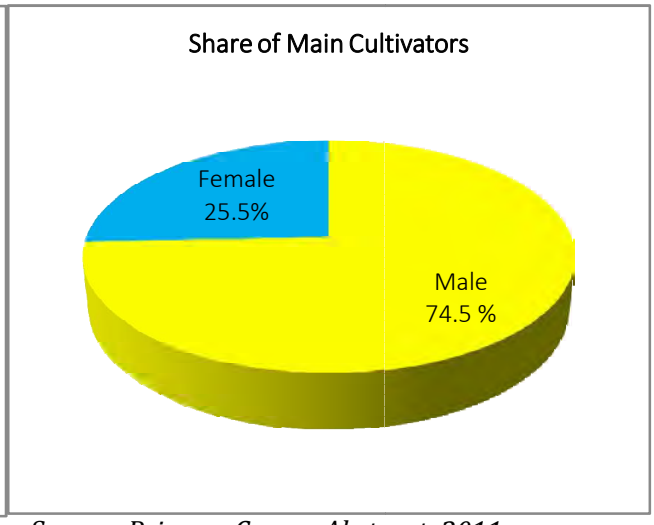
Source: Primary Census Abstract, 2011

3.12.17 Main Cultivator Population Details

Based on Census 2011, total number of main cultivators in the study area has been worked out to be 11184 which constitute 7.3 per cent of the total main working population. Of the main cultivator, 8332 (74.5 per cent) are males and the remaining 2852 (25.5 per cent) are females. There is a significant gender gap of 49.0 per cent in work participation.

Main Cultivator Distribution



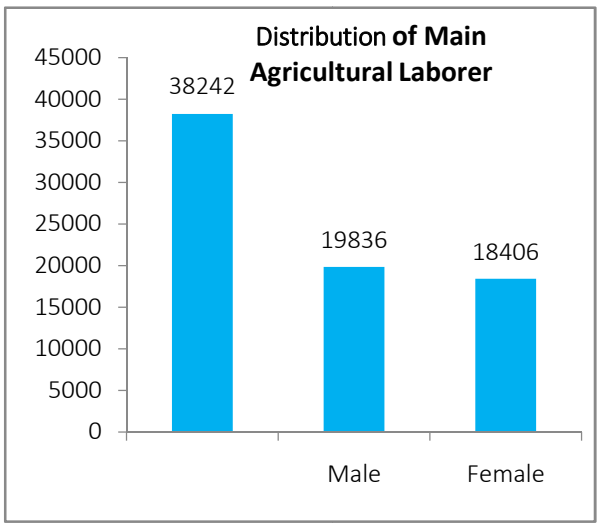


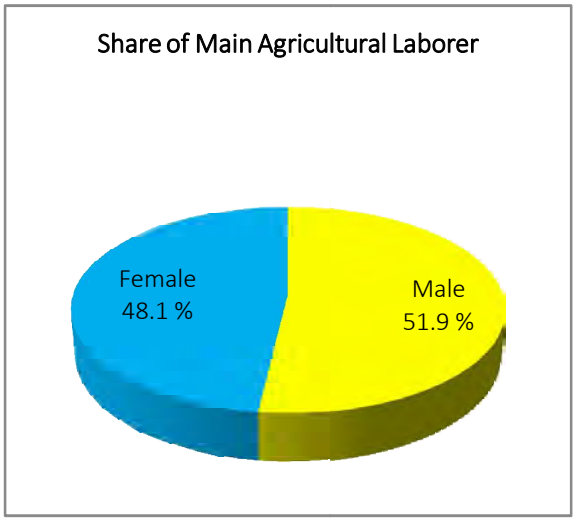
Source: Primary Census Abstract, 2011

3.12.18 Main Agricultural Laborer Population Details

Based on Census 2011, total number of main agricultural laborer in the study area has been worked out to be 38242 which constitute 25.1 per cent of the total main working population. Of the main agricultural laborer, 19836 (51.9 per cent) are males and the remaining 18406 (48.1 per cent) are females. There is a gender gap of 3.8 per cent in work participation.

Main Agricultural Labour Distribution



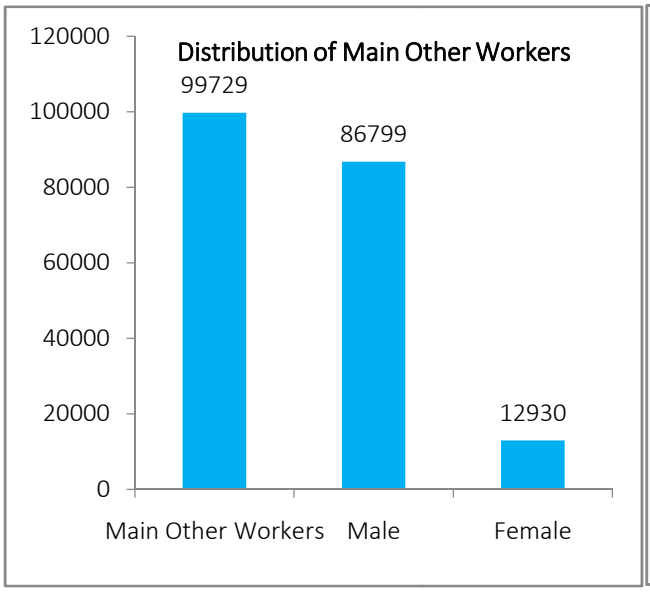


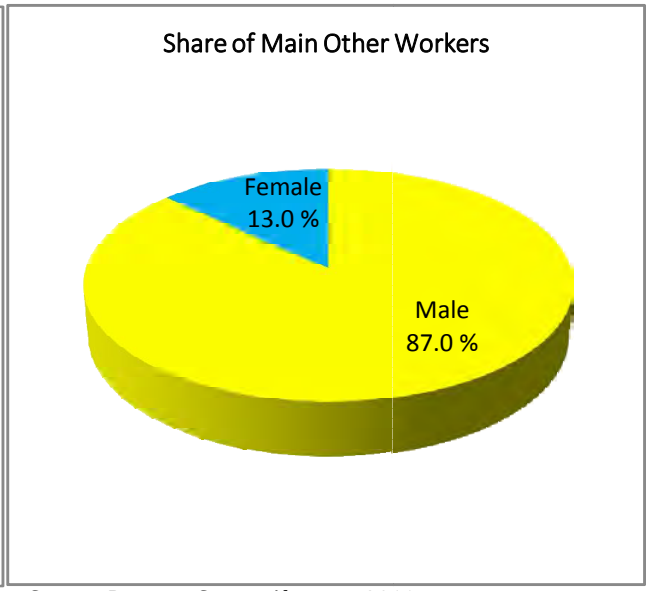
Source: Primary Census Abstract, 2011

3.12.19 Main Other Workers Population Details

Based on Census 2011, total number of other workers in the study area has been worked out to be 99729 which constitute 65.4 per cent of the total main working population. Of the main other workers, 86799 (87.0 per cent) are males and the remaining 12930 (13.0 per cent) are females. There is a significant gender gap of 74.0 per cent in this segment of work participation.

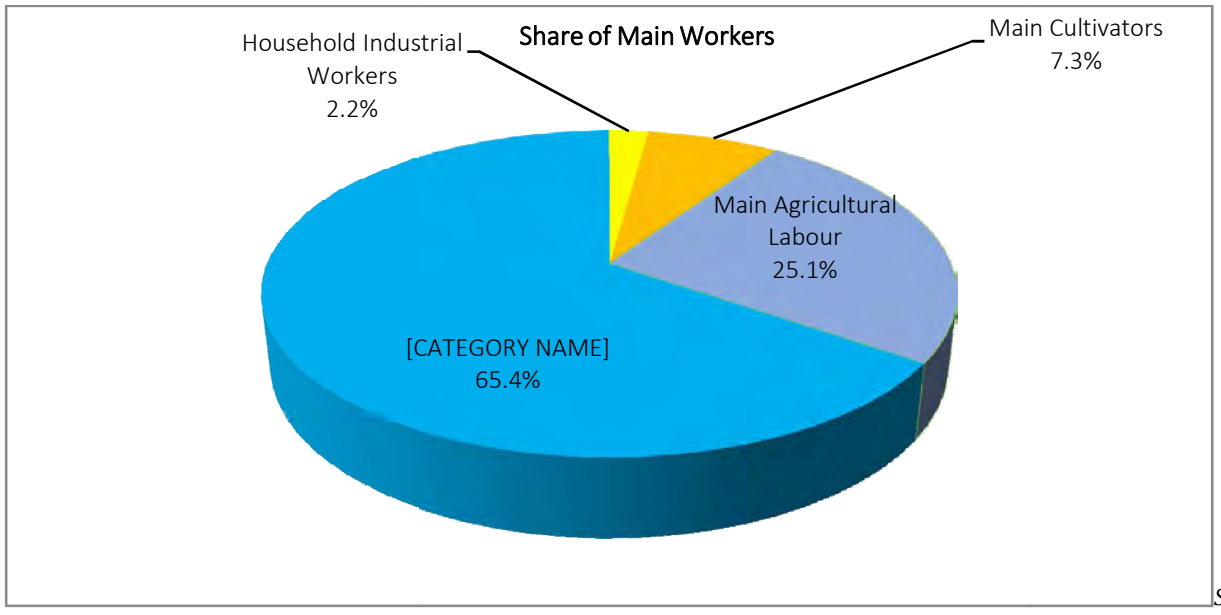
Main Other Workers Distribution





Source: Primary Census Abstract, 2011

Main WorkersDistribution



Source: Primary Census Abstract, 2011

Out of the total main working population, 7.3 per cent is cultivators and 25.1 per cent is agricultural labourers. Workers belonging to other workers category are 65.4 per cent whereas, 2.2 per cent belongs to the household industrial workers category. From the above distribution of workers, it is clear that the economy of the study area is mainly dependent on other workers followed by agricultural sector. According to the primary survey the main crops grown in the study area are rice, cotton and corn.

3.13 BASIC AMENITIES OF THE STUDY AREA:

The amenities available in the study area habitations is one of the aspects that decide the quality of life that the inhabitants have. The amenities details of the habitations of the villages have been shown below according to the Census of India, 2011.

3.13.1 Basic Amenities Available in the Study Area Villages

Table 3.46: Basic Amenities Available in the Study Area Villages

EDUCATION		
Educational Facilities	**Type of Institutions**	**Number**
	Private Pre - Primary School	10
	Government Primary School	132
	Private Primary School	16
	Government Middle School	59
	Private Middle School	09
	Government Secondary School	32
	Private Secondary School	12
	Government Senior Secondary School	03
	Private Senior Secondary School	02
	Total	**275**
HEALTH		
Health Facilities	**Type of Facilities**	**Number**
	Primary Health Centre	04

	Primary Health Sub Centre	28
	Mobile Health Clinic	09
	Non Government Medical facilities Out Patient	158
	Non Government Medical Facilities In And Out Patient	17
	Total	**216**
WATER		
Drinking Water / Other Purpose Water Facilities	**Means of Drinking Water**	**No. of Habitations**
	Tap Water-Treated	59
	Tap Water Untreated	17
	Covered Well	13
	Uncovered Well	48
	Hand Pump	66
	Tube Wells/Borehole	37
	River/Canal	33
	Tank/Pond/Lake	55
ELECTRICITY		
Electricity Supply	Power for Domestic Uses	67
	Power for Agriculture Uses	67
	Power for Commercial Uses	67
DRAINAGE		
Sanitation Facility	Open Drainage	65
	No Drainage	02
	Open Pucca Drainage Covered with Tiles Slabs	04
	Open Pucca Drainage Uncovered	54

	Open Kuccha Drainage	27
ROAD & HIGHWAYS		
Approach Road & Highways	Major District Road	27
	Other District Road	59
	Black Topped (pucca) Road	66
	Gravel (Kuchha) Road	67
	All Weather Road	67
	Footpath	67
	National Highway	06
	State Highway	15
TRANSPORTATION		
Road Transportation Facility	Public Bus Service	61
	Private Bus Service	04
	Auto/Modified Autos	55
	Taxi	10
	Vans	19
BANK		
Banking Facility	ATM	03
	Commercial Bank	04
	Cooperative Bank	02
	Agricultural Credit Societies	04
OTHER AMENITIES		
Other Amenities	Public Distribution System (PDS) Shop	60
	Nutritional Centres-ICDS	40

	Post Office	08
	Sub Post Office	34
	Birth and Death Registration Office	61
	Daily Newspaper Supply	67

Source: Desk Research & Census of India, 2011

3.13.2 Health Facilities

Health facilities are limited in the study area villages as out of 70 villages present in the study area only 4 villages have Primary Health Centre whereas; Primary Health Sub-Centre is facility is available in 28 of the study area villages. Mobile Health Clinic facility is available in 9 of the study area villages. A total of 158 non-government medical facilities provide outpatient services, while 17 non-government medical facilities offer both inpatient and outpatient services in the study area villages. According to the primary site survey it can be inferred that health infrastructure in the study area villages' needs improvement for the betterment of the villagers.

3.13.3 Drinking Water Facilities

In 59 of the study area villages treated tap water facility is available whereas; 17 villages are having tap water untreated facility. In the study area villages covered wells, uncovered wells, hand pumps and bore holes/ tube wells facility is available. However, during the primary site visit it was seen that the drinking water was not sufficient in few of the study area villages and needed R.O. facility for covering the need of drinking purpose water of the villagers.

The basic amenities available in the study area towns have been shown in the table below.

Table 3.47: Basic Amenities Available in the Study Area Towns

EDUCATION		
Educational Facilities	**Type of Institutions**	**Number**
	Primary School (Govt. & Pvt.)	226
	Middle School (Govt. & Pvt.)	202
	Secondary School (Govt. & Pvt.)	148
	Senior Secondary School (Govt. & Pvt.)	23
	Degree College-Art, Science and Commerce (Govt. & Pvt.)	11
	Degree College-Art and Commerce (Pvt.)	03
	Engineering College (Pvt.)	02
	Management Institute (Govt.)	01
	Total	**616**
MEDICAL FACILITIES		

Health Facilities	**Type of Facilities**	**Number**
	Hospital Allopathic	03
	Dispensary/Health Centre	05
	Family Welfare Centre	01
	Mobile Health Clinic	01
	Non-Government Medical Facilities Out Patient	28
	Non-Government Medical Facilities In and Out Patient	07
	Total	**45**
WATER		
Drinking Water	**Means of Drinking Water**	**No. of Habitations**
	Tap Water from Treated Source	11
	Overhead Tank	01
	Tubewell /Borehole	01
	River / Canal	02
ELECTRICITY		
Electricity Supply	Electricity-Domestic	15
	Electricity-Industrial	15
	Electricity-Commercial	15
DRAINAGE		
Sanitation Facility	Open Drainage	05
	Both Open and Closed	10
BANKING FACILITIES		**NUMBER**
Banking Facilities	Nationalized Bank	17
	Private Commercial Bank	08
	Co-operative Bank	07
	Agricultural Credit Society	03
	Non-Agricultural Credit Society	61

Source: Desk Research & Census of India, 2011

3.14 Quality of Life*

"According to census 2011, about 70% population of the country belong to rural areas. Majority of India's rural population lives with an insufficient social infrastructure and poor access to basic amenities like education, medical drinking water and electricity etc. Amenities are key to understanding quality of life because access to these basic amenities are crucial to rural development

as they contribute to physical and material comfort. The availability of services supplied in a rural area is able to influence local resident's quality of life (Layard 2005, Nussbaum and Sen 1993; Alkire, 2002, Prescott-Allen 2001, Ura et al 2004, Stiglitz, et al 2009). The individual quality of life does not depend on utilities of services available, but on functioning and capabilities (Sen, 1980; 1982; 1988). In general, the concept of quality of life has socio- economic dimensions and monetarist measurements embracing social and environmental features. Therefore, a large set of indicators must be premeditated and evaluated to take all of these features into account. However, as Boncinelli and Casini (2014) pointed out that the quality of life includes not only the identification of a set of indicators, but also their aggregation. The development of a region can be identified with an increase in the employment opportunities, availability of infrastructural facilities, amenities and services, proper distribution of resources, increase in production, and investment in consumption and so on (Sixl and Sixl, 1999). Thus, the development refers to an improvement of all the sectors of economic, social and cultural pursuits (Verma, 1993). Availability of modern household amenities and assets also has dominant significance in the human life. It is also being realized that key dependencies exist between water supply and sanitation and improvement in the overall human development (Dreze and Murthi 2001; Gupta and Mitra 2002). It is unadventurously believed that housing conditions, availability of drinking water, sanitation facilities, etc. might contribute to the health improvement of the people and determine the quality of life of the society (Nayar, 1997). Other theoretical work by Roback (1985, 1988) and Blanchflower and Oswald (1996) show the relationship between amenities, quality of life, and rural economic growth."

Quality of Life of the Study Area:

The majority of the total population of the study area is urban with around 31.0 per cent of the rural population. The habitations of the study area are spread over the sub districts Mancherial and Jaipur of Adilabad District (now Mancherial District) and sub districts Ramagundam, Velgatoor, Manakondur, Kamanpur, Dharmaram, Manthani, Peddapalle and Karimnagar of Karimnagar District (now Peddapalle District), Telangana as per Census of India, 2011. In view of the above mentioned concepts an analysis of the quality of life of the study area was done and was found that owning to the fact that the villagers have lack of health facilities in rural and urban areas, on average educational facilities, on average sanitation facilities, drinking water facility and employment opportunities available in the study area villages, the inhabitants have a near to average quality of life that will improve after the coming of the project into operation. There is further scope of development and improving the basic amenities which are being taken up by the various government schemes and under the provision of Corporate Social Responsibility by private and government companies registered under the Companies' Act, 2013.

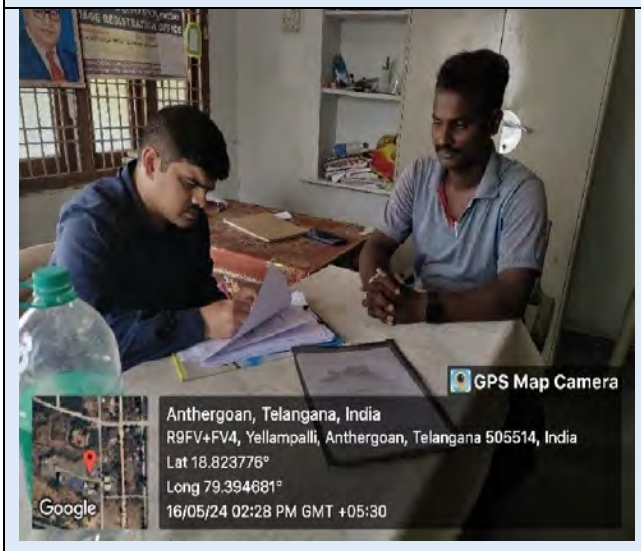
*(*Acknowledgement: Quality of Life in Rural Areas of Moradabad district: A Block-wise Study; Dr. Fatma Mehar Sultana, Assistant Professor (Women's College, Aligarh Muslim University, Aligarh, India); Zaid Alam; Research Scholar (Department of Geography, Aligarh Muslim University, Aligarh, India.)*



Interaction with the Sarpanch of Mustial Village Panchayat



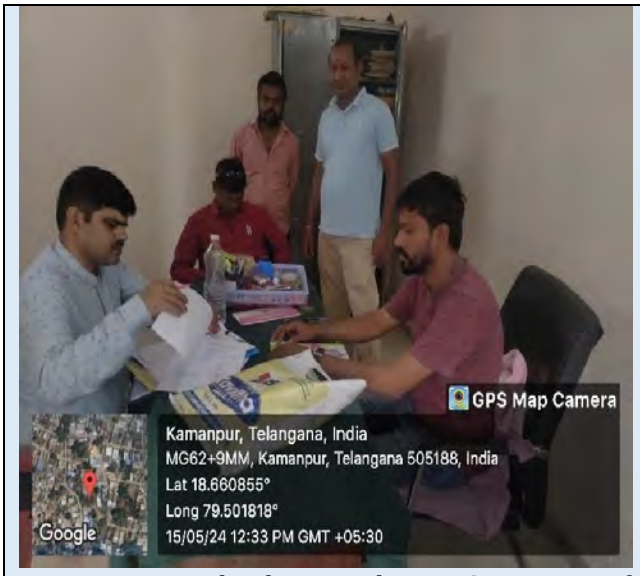
Interaction with the Panchayat Secretary of Nagaram Village Panchayat



Interaction with the Panchayat Secretary of Murmoor Village



Interaction with the Panchayat Secretary of Julapalle



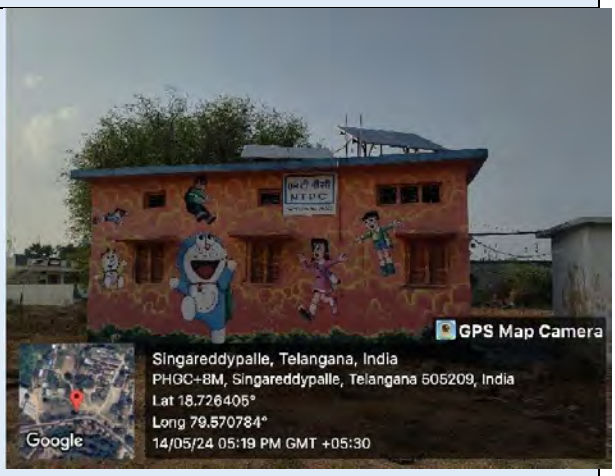
Interaction with the Panchayat Secretary of Kamanpur



Interaction with the villagers of Jallaram



Anganwadi made by NTPC under the CSR plan in Singareddypalle village



Anganwadi made by NTPC under the CSR plan in Singareddypalle village



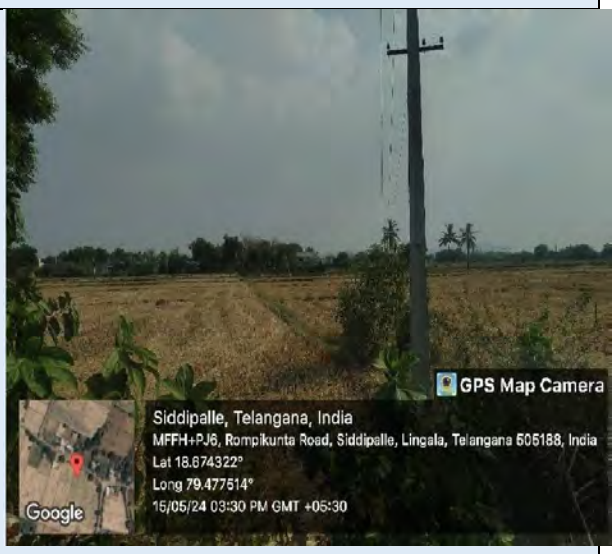
Visit to Kamanpur Mandal Office



Visit to Somanpalli Village Gram Panchayat



Focused Group Discussion with villagers at Rompikunta



Agriculture field in the study area village



Road condition in the study area village, Jalaram



Grain Mandi at Sundilla village



Drainage condition in the study area village



Connecting Road to the study area village



Water Tank facility in the study area village



Hand pump facility in the study area village



Well in the study area village



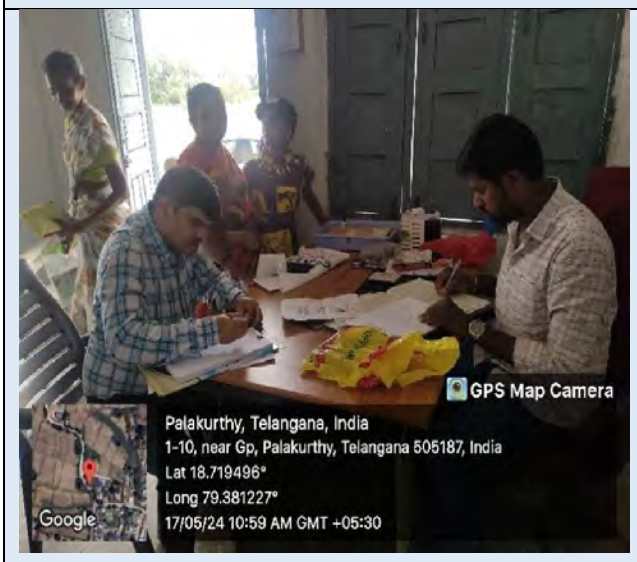
Hand pump in the study area village



Interaction with Panchayat Secretary of Gudipalli and Jayyaram Village



Interaction with Panchayat Secretary of Putnur Village



Interaction with the Panchayat Secretary of Palakurthy Village



Focused Group Discussion with the villagers of Akenpalli Village



Interaction with the villagers at Akenpalli Village



Interaction with the Panchayat Secretary of Elkalpalle village

Outcome of the Public Consultation and Findings of the Field Survey

In the study area, sample villages were selected in which stakeholder consultations were carried out. The details of the villages were collected through the Panchayat officials by filling up a structured village fact sheet for the information regarding present population, amenities present and the issues faced by the villagers. Focused group discussion was carried out with various cross-section of the society like villagers, farmers, Panchayat officials etc. The outcome of the field survey has been shown in the Table below.

Table 3.48: Findings of the Field Survey

Sl. No.	Points/Issues Discussed	Name of Village & Person Consulted	Mitigation Measures Suggested
1.	**Pollution:** Dust pollution on the main road that effects the agricultural land. **Education**: Lack of higher education facility in the village. Lack of transportation	Village Elkalpalle, Sub district Ramagundam, District Peddapalle Mr. P Ravi (Panchayat Secretary)	**Pollution**: Sprinkling of water on the haul roads with proper maintenance of the roads. The loaded vehicles should be fully covered to avoid dust pollution. **Education**: Transportation facility may be provided to the school students to Godavarikhani.

	facility for school students for Godavarikhani that is about 10 km from the village. **Road Infrastructure**: Road condition is not good inside the village. **Employment:** Lack of employment opportunities. **Positive Impact of Plant:** NTPC has installed solar streetlight in the village and had constructed CC road in the village.		**Road Infrastructure:** The construction and maintenance of road inside the village may be done. **Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given.
2.	**Streetlight:** No street light facility in the village. Lack of central lighting at major crossroads of the village. **Water Facility:** Water supply for drinking water and for other purposes is not sufficient for the villagers. **Road Infrastructure**: Road	Village Mustial, Sub district Kamanpur, District Peddapalle Sarpanch: Mrs. Ramagiri Lavanya	**Streetlight:** Street light facility with central lighting facility at major crossroads of the village may be provided. **Water Facility:** Water from borewell and tank for the old settlement (Mustial) may be provided for day to day use along with R.O. supply for drinking purpose.

	condition is not good inside the village. **Health Infrastructure:** Lack of health facilities in the village. **Employment:** Lack of employment opportunities. **Drainage:** Open drainage in the village. **Recreation:** Lack of park/open gym facility in the		**Road Infrastructure:** The construction and maintenance of road inside the village may be done. **Health Infrastructure:** Organization of regular health camps in the village. **Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given. **Drainage:** Renovation and construction of drainage in the village. **Recreation:** Park/open gym facility in the village may be provided. **Community Hall:** Community hall in the village may be constructed.

	village. **Community Hall:** No community hall in the village.		
3.	**Employment:** Lack of employment opportunities. **Drainage:** Open drainage in the village. **Street Light:** No street light facility in the village.	Kamanpur village, Sub district Karimnagar, District Peddapalle Mr. A. Maruti, Panchayat Secretary	**Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given. **Drainage:** Renovation and construction of drainage in the village. **Streetlight:** Street light facility may be provided in the village.
4.	**Employment:** Lack of employment opportunities.	Julapalle Village, Sub district Kamanpur, District Peddapalle Mr. R. V. Ramana,	**Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries

	Drainage: Open drainage in the village. **Health Infrastructure:** Lack of health facilities in the village.	Panchayat Secretary	nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given. **Drainage:** Renovation and construction of drainage in the village. **Health Infrastructure:** Organization of regular health camps in the village.
5.	**Employment:** Lack of employment opportunities.	Village Nagaram & Lingala, Sub district Kamanpur, District Peddapalle Mrs. J. Renuka, Panchayat Secretary	**Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given. **Drainage:** Renovation and construction of drainage in

	Drainage: Open drainage in the village. **Health Infrastructure:** Lack of health facilities in the village.		the village. **Health Infrastructure:** Organization of regular health camps in the village.
6.	**Water:** Water tank pipeline is broken. Lack of pipeline water supply in the houses of the village. **Employment:** Lack of employment opportunities.	Focused Group Discussion at Rompikunta village, Sub district Kamanpur, District Peddapalle Mr. C. H. Gattaya (Ex. Mandal Representative of Gram Panchayat) Mrs. Sharda (Anganwadi Teacher) Mr. G. Srinivas (Villager) Mr. G. Shankar (Villager/farmer) Mr. M. Srinivas (Villager/farmer)	**Water:** Repair/replacement of broken water tank pipe. Providing water pipeline connection to the houses in the village Rompikunta. **Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given. **Health Infrastructure:** Organization of regular health camps in the village.

	Health Infrastructure: Lack of health facilities in the village.		
7.	**Employment:** Lack of employment opportunities. **Health Infrastructure:** Lack of health facilities in the village.	Yellampalle village, Sub District Ramagundam, District Peddapalle Mr. G. Ravinder Mr. Raj Kumar (MPW)	**Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given. **Health Infrastructure:** Organization of regular health camps in the village and improving health facilities in the village. **Sanitation:** Proper sanitation facility with collection of waste may be provided. **Education:** Scholarship can be provided to the meritorious students of the village.

	Sanitation: No vehicle and man power available for collection of waste. **Education:** Lack of educational facility. **Positive Impact:** Furniture like table and chairs have been provided by NTPC in the school and community hall of the village.		
8.	**Streetlight:** No street light facility in the village. **Health Infrastructure:** Lack of health facilities in the village. **Agriculture:** Water supply for agriculture purpose is not sufficient. **Employment:** Lack of employment opportunities.	Murmoor Village, Sub District Ramagundam, District Peddapalle Mr. Vidyakar Rao (Panchayat Karobari)	**Streetlight:** Street light facility may be provided in the village. **Health Infrastructure:** Organization of regular health camps in the village and improving health facilities in the village. **Agriculture:** Rainwater harvesting can be done in the village. **Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to

			the women of the study area can be given.
9.	**Drainage:** Drainage facility is not good in the village. **Pollution:** Dust pollution in the village. **Drinking Water:** Drinking water problem in the village. **Health Infrastructure:** Lack of health facilities in the village. **Agriculture:** Water supply for agriculture purpose is not sufficient.	Village Eklaspur & Akenpalle, Sub District Ramagundam, District Peddapalle Mr. Alluri Boney	**Drainage:** Renovation and construction of drainage in the village. **Pollution**: Avenue plantation and general plantation can be done in the village. **Drinking Water:** R.O. facility to be provided in both the villages. **Health Infrastructure:** Organization of regular health camps in the village and improving health facilities in the village. **Agriculture:** Rainwater harvesting can be done in the village.
10.	**Employment:** Lack of employment opportunities.	Palakurthy, Sub District Ramagundam, District Peddapalle Mr. Mekhala Rajasekhara (Panchayat Secretary)	**Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study

	Health Infrastructure: Lack of health facilities in the village. **Road Infrastructure:** Condition of road is not good. **Note:** Pollution problem in the village due to nearby Kesaram Cement factory.		area can be given. **Health Infrastructure:** Organization of regular health camps in the village and improving health facilities in the village. **Road Infrastructure:** Construction and widening of road is required.
11.	**Health Infrastructure:** Lack of health facilities in the village.	Putnoor Village, Sub District Ramagundam, District Peddapalle Mr. N. Pawan Kumar (Panchayat Secretary)	**Health Infrastructure:** Organization of regular health camps in the village and improving health facilities in the village.
12.	**Health Infrastructure:** Lack of health facilities in the village.	Gudipalle & Jayyaram Village, Sub District Ramagundam, District Peddapalle Mr. Ram Kishore (Panchayat Secretary)	**Health Infrastructure:** Organization of regular health camps in the village and improving health facilities in the village. **Pollution:** The vehicles carrying fly ash should be

	Pollution: Dust pollution in the village due to movement of vehicles carrying fly ash. **Streetlight:** No street light facility in the village. **Agriculture:** Water supply for agriculture purpose is not sufficient. **Employment:** Lack of employment opportunities.		properly covered and the vehicles should be well maintained. Water sprinkling to be strengthened to control fugitive dust emission. **Streetlight:** Street light facility may be provided in the village. **Agriculture:** Rainwater harvesting can be done in the village. **Employment:** Skill Development Training Programs may be given to youth of the study area for getting them employed in NTPC and other industries nearby. Apart from it technical training like mobile repairing etc. can be given and beautician training, sewing training to the women of the study area can be given.

Source: Primary Survey May, 2024

3.15 Focused Group Discussion & Community Consultation

Based on the findings from the field visit and community consultation, it can be inferred that the habitations in the study area lack basic infrastructure facilities such as health care, education, street lighting, and drainage. Employment opportunities are limited in the villages of the study area. In addition to the proposed welfare activities for the villages, incorporating skill development programs could enhance employment opportunities for the villagers.

3.16 Main Points of the Stakeholders Consultation

Consultation with several groups of stake holders, reveal the socio-economic issues, of the targeted villages:

- Lack of health facilities.

- Lack of street light facility in the villages.
- Lack of educational facility within the villages after high school and commute problem for students from their respective villages to the place of higher institution.
- Drinking water problem in the villages.
- Lack of recreation facilities like park, open gym in the villages.
- Road condition in some of the villages were not in good condition in the study area.
- Lack of drainage facility in some of the villages in the study area.
- In some of the surveyed villages water for agriculture purpose was not sufficient.

3.17 Corporate Environment Responsibility (CER)

NTPC has earmarked Rs. 49.4Crores (Rs. 4940 Lakhs) towards CER. The 5-year breakup of the CER amount has been shown in the Table below with all figures being in lakhs.

Table 3.49: Budget Allocation (in Crores) for 5 years under CER

Activity	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Educational Initiatives	0.50	0.30	0.55	1.15	0.20	2.70
Community Health Initiatives	1.30	1.30	1.30	1.30	1.30	6.50
Sustainable Livelihood and Women Empowerment	1.0	1.0	1.0	1.0	1.0	5.00
Community Rural Infrastructure Development	5.50	7.00	6.50	5.50	3.00	27.50
Development of Playgrounds for Sports	0.20	0.20	0.20	0.20	0.20	1.00
Development of local youth & women for various activities at village level	0.70	0.50	0.50	0.20	0.20	2.10
Providing water facilities to PAV's	1.35	1.65	0.85	0.25	-	4.10
Sanitation	0.50	-	-	-	-	0.50
Total (in Crores)	**11.05**	**11.95**	**10.90**	**9.60**	**5.90**	**49.4**

**The amount and year-wise phasing is tentative which shall be finalized after consultation with stakeholders and District Administration.*

NTPC will further carry out development programs in the study area under the head Community Development and Corporate Social Responsibility.

3.18 PUBLIC HEALTH DELIVERY SYSTEM

As a part of the socio-economic survey, information on public health was also collected. The assessment of data on health assessment reveals that there is no specific health hazard in the study area. A protective strategy is recommended to prevent incidence of dust pollution related health problems in the study area. As the study area is not devoid of industries with the presence of SCCL, Cement Factory, and crusher work along with the thermal power plant the possibility of dust pollution cannot be denied.

3.18.1 Impacts on Public Health

The expansion of the thermal power plant will lead to dust pollution in the area because of the movement of the vehicles during the construction phase and because of the ash dyke area during the operation phase of the project. Hence, proper precautionary measures should be taken to avoid the same.

3.18.2 Control on dust pollution

All the loaded vehicles carrying construction materials should be properly covered. There should be regular sprinkling of water on the haulage roads. The temporary labour camps, (if any) should be provided with a common kitchen, washrooms with soak pits toilets to avoid cutting of trees and pollution in the vicinity of the plant area.

3.19 Proposed Health Facilities at Construction sites and Labour camp

It is possible that during the construction work, the technical staff operating different equipment are not only exposed to the physical strain of work but also to the physical effects of the environment in which they are working. The workers and other technical staff may come up with common manifestations such as insect bites, fever, diarrhea, work exhaustion and other diseases. In addition, they may invariably come up with injuries caused by accidents at work sites. Under all circumstances, workers need immediate medical care. A dispensary provision should be made so that workers are immediately attended to in case of an injury or accident.

The dispensary will have the following facilities:

-First aid box with essential medicines including ORS packets

- First aid appliances and dressing materials

- Stretcher, wheelchair, etc.

3.20 Health Extension Activities

The health extension activities will have to be carried out in the villages situated in the nearby areas. There would be possibility of the transmission of communicable diseases due to migration of labour population from other areas at the construction site. The doctors from the dispensary shall make regular visits to these villages and organize health promotional activities with the active participation

of the local village Panchayat, NGO's and available local health functionaries. The health functionaries would undertake the following tasks as a part of health promotional activities:

- Maintain close surveillance on incidence of communicable diseases in the close vicinity villages.

- Maintain close liaison with the community leaders and health functionaries of different departments, so that they can be mobilized in case of an emergency.

3.21 Conclusion

The proposed project activity would be providing employment opportunities to the local population. The benefits of employment to the job seekers are expected to include, at a household and individual level with improvement in their living conditions. All precautionary measures should be taken to reduce the generation of air pollution because of the power plant under operation, and proposed construction. There are other industries in the vicinity like SCCL Mines and Power Plant, Fertilizer Plant, Kesoram Cement Factory, few crushers etc. existing in the 10 km study area. Further, welfare activities can be taken up for the overall development in the field of health and other infrastructure facilities in the study area habitations.

Telangana STPP Phase-I (2x800MW) has been equipped with all the state-of-the-art pollution control facilities like High Efficiency ESPs, Flue Gas Desulfurization, Low NOx burners & Over Fire Air, ETP, STP, Zero Liquid Discharge to ensure compliance with the emission norms. Proposed expansion project Telangana STPP Phase-II (3x800MW) is envisaged to have all these Environmental Measures and there will be no significant adverse impacts on the local environment.



Ambient Air Sampling



Ground water Sampling



Surface water Sampling



Soil Sampling

Figure 3.41: Photographs of Sample collection for baseline monitoring

CHAPTER 4: ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

4.1 IDENTIFICATION OF IMPACTS

Identification of impacts leads to quantification and evaluation of impacts and suggested mitigation measures. Although, in general, number of impacts have been identified while describing existing environmental status, it is necessary at this stage to identify the critical impacts that are likely to occur due to the proposed expansion of Telangana STPP for various components of the environment.

The environmental impacts are categorized as primary or secondary. Primary impacts are those, which are attributed directly to the project and secondary impacts are those, which are indirectly induced and typically include the associated investment and changed pattern of social and economic activities by the proposed action.

The impacts of construction and operational phases of the proposed expansion project comprise various activities each of which may have an impact on some or other environmental parameters. Various impacts during the construction and operation phase on the environment have been studied to estimate the impacts on the environmental attributes and are discussed in the subsequent sections.

As the activities related to development of site and establishment of infrastructure would be minimal, the impacts due to construction of Telangana Super Thermal Power Plant (STPP), Phase-II (3x800 MW) would also be minimum. The various measures proposed to be adopted to minimize the pollution from the project are also discussed in subsequent sections.

4.2 IMPACTS DURING CONSTRUCTION PHASE

The probable impacts during construction phase on various sectors of environment (such as air, water, soil, biotic, socio-economic environment etc. have been identified and listed in Table-4.1. The mitigation measures for significant impacts are also discussed in respective sections.

Table 4-1: Identification of Construction Activities and Probable Impacts

Construction Activities	Sector	Probable Impact
A) Long Term Impact		
Land acquisition	Land	The acquisition of private land leading to change in Land-use pattern / Land-cover.
	Socio-Economics	No displacement is involved. However, loss of land may impact the social economic condition of the affected people.
B) Short Term Impacts		
Site cleaning and leveling (cutting, stripping, excavation, earth movement, compaction)	Air	• Fugitive dust emissions • Noise/ air emissions from construction equipment & machinery
	Water	• Run-off from construction area

		• Run-off from vegetation stripped area
	Land	• Loss of fertile topsoil • Change in drainage pattern
	Ecology	• Loss of vegetation • Topographic transformations
Transportation and storage of construction material/Equipment	Air	• Noise and air emissions from vehicles • Fugitive dust emissions due to traffic movement • Spillage and fugitive emissions of construction materials
	Water	• Run-off from storage areas of construction material • Spillage on Soil
	Soil	• Deposition of spilled construction material on soil
	Public utilities	• Increased flow of traffic • Congestion on roads
Civil construction Activities	Air	• Noise and air emissions from construction machinery • Fugitive dust emissions due to movement of traffic
	Water	• Run-off from construction areas containing construction material
Mech. & Elec. erection activities	Air	• Noise &air emissions from machines/ activities
	Water	• Run-off from erection areas containing oils, paints
Influx of labour & Construction of temp. houses	Socio economics	• Stress on infrastructure • Stress on social relations
	Land	• Change in land use pattern of the area in labour colonies
	Water	• Sanitary effluents from labour colonies
	Public Utilities	• Increased consumption of Water and Electricity
Transportation and disposal of construction debris	Air	• Noise and air emissions from transport vehicles • Fugitive dust emissions due to movement of traffic • Spillage and fugitive emissions of debris materials
	Water	• Run-off from disposal areas
	Soil	• Spillage/ spread/ deposition of debris • Conversion of land into waste land
	Public Utilities	• Increased flow of traffic • Congestion on roads

4.2.1 Impact on Topography & Land use

The topography of the site is plain. The main plant of Telangana Phase-II (3 x 800 MW) shall be accommodated within the existing main plant area only. For ash disposal approx. 246.858 hectares (610 Acres) of land is identified nearby ash pond land of RSTPS on the western side.

Part of plant area is having general slope towards West. The major change in the topographical feature of area would be due to erection of power plant structures and land diversion for ash dyke. There will be a permanent change in topography and land use of the land to be acquired for ash dyke. Additional land requirement is shown in Table 4.2;

Table 4-2:Land details break-up for existing Telangana Phase-I & proposed Phase-II

Land Use Description		Area under Phase–I (Ha.)	Area under Phase–II (Ha.)	Total Area (Ha.)
A	Main Plant & Associated Facilities	94.9000	127.8800	226.6230
B	Ash Pond Area	80.9370	246.8580	327.7950
C	Total Area considered for Greenbelt (A+B)	175.8370	374.7380	550.5750
D	Green Belt	81.1380	106.8373	187.9753
E	Total Area (C+D)	256.9750	481.5753	738.5503

Land Category		**Telangana STPP (4000MW)**
Non-Forest land (In Ha.)	Existing (Phase-I)	256.9750
	Proposed (Phase-II)	481.5753
Forest Land (In Ha.)	Existing & Proposed	0
Total (Ha)		**738.5503**

Out of the proposed 481.5759 Ha of land for expansion project, only 246.858 Ha land is proposed to be acquired for ash pond. Remaining land for main plant and associated facilities is already available with NTPC.

This change will occur due to the activities related to leveling of the site, construction of main plant and other related structures, erection of boilers, turbines and other equipment. Further, the magnitude of the impacts is envisaged to be low, as the site and infrastructural facilities are fully developed under Phase-I.

4.2.2 Impact on Soil

Construction activities involving removal of existing vegetation, excavation and leveling would invariably disturb the soil of the area. The impacts on soil during construction phase shall be mainly due to loss of topsoil from the construction areas and contamination of the soils of surrounding area due to construction materials such as cement, sand etc. The disturbances would be more pronounced during the summer and monsoon seasons with strong wind and rain.

However, as the construction is carried out on the flat terrain, the soil losses will be negligible. Moreover, it shall be temporary and shall be confined to the areas of construction only. Generally, such disturbances are confined to the area of activity i.e. the main plant. Appropriate soil conservation measures associated with improved construction techniques would minimize such impacts. Water sprinkling at all construction areas will be done during summer and post monsoon seasons would also contribute positively towards controlling fugitive emission & soil conservation.

In view of the above, no adverse impacts are envisaged on soil in surrounding area beside localized construction place.

4.2.3 Impact on Air Quality

The main sources of emission during the construction period are the movement of vehicles/equipment at site and dust emitted during the leveling, grading, earthwork and foundation works. The dust emitted during the above-mentioned activities depend upon the type of soil being excavated and the ambient temperature and wind speed. Dust will be generated during excavation and handling of earth and movement of vehicles and other equipment. Water sprinkling on roads and construction sites will prevent fugitive dust.

Therefore, the impact will be for a short duration and confined locally to the construction site. The composition of dust in this kind of activity is, however, mostly inorganic and non-toxic in nature. The impact will be confined within the project boundary and is expected to be negligible outside the plant boundaries.

Exhaust emissions from vehicles and equipment deployed during the construction phase is also likely to result in marginal increase in the levels of NOx, PM and CO. Proper maintenance of vehicles and construction equipment will help in controlling the gaseous emissions.

However, the impact will be reversible, marginal and temporary in nature.

4.2.4 Impact on Water Quality

All the water required during construction phase will be drawn from existing source of water i.e. Sreepada Yellampalli Barrage and no groundwater is proposed to be utilized for the project during construction and operations and hence no quantitative impact is envisaged on the ground water resources.

The present surface and ground water resources may be contaminated due to nonpoint discharges of solids from soil loss and sewage generated from the construction work force stationed at the site. The

effluent from the construction area shall be channelized through temporary sedimentation tank to arrest solids. Further, it should be ensured that the construction agency is providing temporary proper sanitary facilities for sewage.

Temporary sanitation facilities will be set up for disposal of sanitary sewage generated by the work force. Sewage treatment and Effluent treatment plant is available at the existing plant. The overall impact on the water environment during construction will be insignificant and can be controlled with proper mitigation measures.

4.2.5 Impact on Hydrology

Waste water from construction site will pass through a sedimentation tank to arrest sediments and treated water will be reused in water sprinkling. No discharge from construction site will be allowed. As the construction activities will be confined to the existing project site only, no significant impact on the hydrology is envisaged.

4.2.6 Impact on Noise Levels

The major sources of noise during the construction phase are vehicular traffic, construction equipment like dozers, scrapers, concrete mixers, cranes, generators, pumps, compressors, rock drills, pneumatic tools, saws, vibrators etc. The operation of these equipment will generate noise. The construction equipment may have high noise levels, which can affect the hearing of personnel operating the machines. Use of proper personal protective equipment will mitigate the impact of the noise generated by such equipment. Similarly, as the major work will be carried out during the daytime, the impact on the surrounding area due to the activity will be negligible.

4.2.7 Impact on Terrestrial Ecology

The initial construction phase of the project entails clearing the land, which may disturb vegetation during the process, though the extent of this disturbance is deemed insignificant. The effects of construction will mainly be localized to the Phase-II site, which is relatively small. Earthwork activities like excavation and filling may generate fugitive dust emissions, potentially depositing on nearby vegetation's young, growing leaves and temporarily inhibiting photosynthesis. However, these effects are anticipated to be mostly limited to the early stages of construction and can be mitigated by implementing measures such as paving, surface treatment, water spraying, and tree planting initiatives. Furthermore, these impacts are expected to be contained within the plant's boundaries, resulting in marginal overall impact from the construction activities.

4.2.8 Impact on Aquatic Ecology

The drainage from construction sites can cause a temporary rise in suspended solids and a drop in dissolved oxygen levels near where it enters a body of water. This could result in a temporary reduction in the photosynthetic capacity of phytoplankton, an increase in anaerobic conditions, and alterations in the food chain due to the decrease in dissolved oxygen levels. Construction water will pass through a sedimentation tank to arrest sediments and treated water will be reused in water sprinkling and there will be no discharge of this water into outside water bodies. As the construction

activities will be confined to the existing project site only, no significant impact on the aquatic ecology as part of the study area envisaged.

4.2.9 Impact on Local Infrastructure due to Construction labors

A significant number of workers comprising of skilled, semi-skilled and unskilled labors, shall be employed by various contractors at site during the peak period of construction phase. As most of the jobs will be done by contractors, it will be ensured that the contractor's workers are provided with proper facilities including sanitation and drinking water supply. During the construction phase, temporary labour colony will be constructed at the earmarked space for the labour force. Also, mobile toilets will be constructed to maintain sanitation and hygiene. As occupancy grows in the region so close to the project site, numerous local food stalls may be established by local people.

4.2.10 Impact on Demography and Socioeconomics

The social impact during the construction stage will be beneficial in nature. Most of the construction work is labour intensive. During construction of the project, large number of people from neighborhood will be engaged by contractors on daily wages basis. Local people would be preferred for secondary employment with contracting agencies, depending upon their skill and experience. During construction, economic activities in surrounding areas will be increased.

The construction material like stone chips and sand may be procured locally. Thus, there is possibility of generation of local trading opportunities for limited period.

4.3 IMPACTS DURING OPERATION PHASE

After the proposed expansion of the coal-based power plant, operation will involve 4000 MW (Phase-I & Phase-II) of thermal power generation. The following activities related to the operational phase will have varying impacts on the environment and are considered for impact assessment:

- Land use;
- Soil quality;
- Topography and climate;
- Air quality;
- Water resources and quality;
- Solid waste;
- Noise levels;
- Terrestrial and aquatic ecology;
- Demography and socio-economics; and
- Infrastructural facilities.

Probable impacts on various sectors of environment during operation phase are given in Table-4.3. Further, the significance of these impacts is discussed in the subsequent sections.

Table 4-3: Identification of Operation and Maintenance Activities and Probable Impacts

Operation and Maintenance Activities	Sector	Probable Impacts
Transportation of coal/ oil	Air	• Noise and air emissions from vehicles • Fugitive dust emissions due to traffic movement • Spillage and fugitive emissions of coal/ oil
	Water	• Spillage of coal/ oil and flow into streams
	Public utilities	• Increased flow of traffic • Congestion on roads
Unloading, crushing and storage of crushed coal/ unloading and storage of oil	Air	• Noise and air emissions from vehicles • Fugitive dust emissions from coal handling areas
	Water	• Effluents from CHP/ oil storage areas • Run-off from coal stock yard
Burning of fuel	Air	• Stack emissions (PM, SO_2 and NO_x)
Withdrawal of water	Water	• Reduced availability to downstream users
	Ecology	• Entrapment/ Impingement of organisms
Water & Wastewater Treatment plant for various uses	Water	• Generation of effluents and sludge from treatment plant • Clarifier sludge • Filter backwash • DM plant regeneration waste • Tube settler sludge
Power cycle	Water	• Discharge of blowdown
Equipment cooling	Water/ Ecology	• Discharge of hot water containing chemicals/ biocide
Transportation, storage & use of chemicals	Air/ Water/ Soil	• Risks of Accidental spillage/ waste of chemicals
Operation of transformers and switchyard	Water	• Generation of effluents containing oil
Maintenance (cleaning, over-haul, oil change, lubrication etc.)	Water	• Generation of effluents containing oil/ chemicals
Domestic use of water in plant and township	Water	• Generation of sanitary effluents
Transportation & Storage of Ash	Air/Water/ Soil	• Generation of effluents • Fugitive Dust Emission
Handling, Storage & Disposal of Ash	Air/Water/ Soil	• Fugitive Dust Emission • Generation of Effluents

		• Increase in vehicle movement and vehicular emissions
Domestic Consumptions and maintenance works in plant and townships	Air/Water/ Soil	• Generation of solid waste (biodegradable/ non-biodegradable/e-waste/plastic waste/C&D wastes etc.) • Generation of biomedical wastes from health center/hospital

4.3.1 Impact on Land use

The main plant of Telangana Phase-II (3 x 800 MW) shall be accommodated within the existing main plant area only. For ash disposal approx. 246.858 hectares (610 Acres) of land is identified on the western side nearby existing ash ponds of Ramagundam STPS. It will lead to conversion of private land to industrial use (ash disposal). Provision of air and water pollution control measures like lining of ash ponds, ash water recirculation system, sprinklers for dust suppression, tarpaulin covered vehicles for ash transportation etc. will ensure that there is no significant impact on outside environment. However, since Phase-I of the project is already in operation it is anticipated that this impact shall be marginal.

4.3.2 Impact on Soil

The impact on soil during operation of the project could result due to deposition of particulate matter and gaseous emissions on the soil. The soil within the deposition zone of pollutants may undergo physico-chemical changes due to deposition of PM (ash particles) and washout of gases (SO_2 and NOx) during the rains. The impacts on soil due to operation of the power plant are likely to be negligible as the incremental concentration of particulate matter (PM), SO_2, & NOx levels are observed within limit.

The emission of particulate will be dispersed through tall chimneys (275 meter) over wider area occurring negligible impact on soil.

The impact on the topsoil will be confined to the proposed main plant area and ash pond area. The probable sources of degradation of soil quality will be only due to generation of ash. The ash arrested through ESP will be led to ash pond. The ash pond will be designed in such a way that water will always cover the deposited ash to prevent fugitive dust.

Although there would be negligible impact on soil, however, it is proposed to undertake periodic monitoring of soils in the ash dyke area.

4.3.3 Impact on Air Quality

The emissions from point sources at TPS are very important for impact assessment as these sources are comparatively large, continuous in nature and are released at higher elevations above ground level. The impacts on air environment from stacks depend on the quality of coal used and can extend to far distances depending on prevailing meteorological conditions.

The impacts of air pollution from a coal based thermal power plant (TPP) on air quality depend upon various factors, viz. design capacity, process technology, quality of fuel (coal) used for combustion,

operation & maintenance of process units and air pollution control equipment installed. The severities of impacts on air environment from any thermal power project are also governed by terrain conditions around the project site and the prevailing micro-meteorological conditions in the project region. Generally, thermal power project besides the main units like boilers, turbines also has several onsite and offsite facilities, viz. coal yard, conveyor system, coal crusher/pulverizes, coal handling (loading/unloading) etc. which also contribute to air pollution in the form of fugitive emissions.

The major air pollutants from a TPP are Particulate Matter (PM), SO_2, NOx and CO which are emitted continuously from the stacks (point sources), attached with coal combustion boilers. The fugitive emission from thermal power station is coal dust.

Prediction of impacts on air environment has been carried out employing mathematical model based on a steady state Gaussian plume dispersion model. In the present case, AERMOD Version 8.8.9 dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from point sources.

Model Set-up

The model set-up details are presented in Table-4.4.

Table 4-4: Model Set-Up

Sr. No.	Parameter	Details
1	Model Name	AERMOD (Version 8.8.9)
2	Model Type	Steady state Gaussian plume air dispersion model
3	Topography	Rural, Flat
4	Averaging Time	24 hours
5	Source Type	Point source
6	Boundary Limits	10 km radius
7	Co-ordinate System	Uniform Cartesian Grid
8	Receptor Height	3-6 m
9	Anemometer	10 m
10	Surface meteorological data	Site Specific data processed by AERMET
11	Upper air Data	Upper air Estimator using AERMET processor

Model Input Data

For the modeling purpose, pollutants like PM, SO_2 and NO_2 are considered. Their net emissions have been calculated for modeling purposes. The details of the emissions considered from the proposed expansion project are presented in Table-4.5.

Table 4-5: Details of Emission

Sr. No.	Parameters	Units	Proposed for Telangana Phase-II (3x 800 MW) per unit data
1	Stack Height	m	275
2	No. of flue per stack	No.	U#1-1 no. and U#2&3- 2 nos.
3	Number of stacks	no	Total 02 nos. (01 for U#1 and 01 common for U#2&3)
4	Flue internal diameter at top	m	Approx 8.1*
5	Flue Gas velocity (at Exit)	m/sec	25.0 (max.) *
6	Flue Gas temperature (at Exit)	^{o}C	131*
7	Flue Gas Flow rate (at Exit)	Nm^3/sec	802$
8	Rate of coal consumption	TPH	534$
9	Sulphur in coal (maximum)	%wt/wt	0.35$
10	GCV of Coal	Kcal/kg	3300$
11	Ash Content	%	45$
12	**Emission Load**		
A	Particulate matter (PM)	g/s (mg/Nm^3)	24.1$ (30)
B	Sulphur dioxide (SO_2)	g/s (mg/Nm^3)	1037.3$ (1294)
C	Oxide of Nitrogen (NO_2)	g/s (mg/Nm^3)	80.2 (100)
	Oxide of Nitrogen (NO_2)	g/s (mg/Nm^3)	240.6 (300)

- *Considering single flue for each unit
- $ Data with design coal
- Above data may vary slightly based actual coal
- Data is common for all units of Telangana STPP Phase-II.

Meteorological Data

The hourly meteorological data recorded at site is converted to the mean meteorological hourly data as specified by CPCB and the same has been used in the model. In absence of site-specific mixing heights, IMD publication has been referred for the mixing heights and the same is used in the model.

Table 4.6: Scenario I- Air Quality Impact Assessment for Proposed Telangana STPP Phase-II (3x800MW)

Ambient Air Quality Locations	Baseline (98 percentile)				Phase–II (3x800) Incremental Concentration (µg/m³)					Resultant Concentration (µg/m³)					NAAQS Standards (µg/m³)		
	PM_{10}	$PM_{2.5}$	SO_2	NO_x	PM_{10}	$PM_{2.5}$	SO_2	*NOx (100)	*NOx (300)	PM_{10}	$PM_{2.5}$	SO_2	*NOx (100)	*NOx (300)	PM_{10}	SO_2	NO_x
AAQ1	82.96	49.48	14.48	29.48	0.22	0.14	9.50	0.72	2.24	83.18	49.62	23.98	30.2	31.72	100	80	80
AAQ2	64.96	37.48	12.23	25.96	0.16	0.12	8.00	0.64	1.80	65.12	37.6	20.23	26.6	27.76	100	80	80
AAQ3	57.48	35.48	12.48	24.48	0.32	0.22	10.26	1.00	3.22	57.8	35.7	22.74	25.48	27.7	100	80	80
AAQ4	86.96	48.96	16.48	30.96	0.38	0.26	10.12	1.28	3.80	87.34	49.22	26.6	32.24	34.76	100	80	80
AAQ5	84.44	44.40	14.48	24.96	0.20	0.14	8.50	0.65	2.00	84.64	44.54	22.98	25.61	26.96	100	80	80
AAQ6	77.50	42.50	14.50	26.50	0.18	0.10	7.00	0.54	1.80	77.68	42.60	21.5	27.04	28.3	100	80	80
AAQ7	85.50	48.50	14.50	27.00	0.40	0.22	12.00	1.40	4.00	85.9	48.72	26.5	28.4	31	100	80	80
AAQ8	60.5	36.50	12.50	24.50	0.14	0.09	7.00	0.55	1.86	60.64	36.59	19.5	25.05	26.36	100	80	80
AAQ9	63.00	37.50	13.50	23.50	0.26	0.16	10.20	0.80	2.60	63.26	37.66	23.7	24.3	26.1	100	80	80
AAQ10	89.00	49.00	14.50	26.00	0.28	0.18	10.5	0.84	2.80	89.28	49.18	25	26.84	28.8	100	80	80

*Emissions of Oxide of Nitrogen (NO_2) considered at 100 mg/NM^3& 300 mg/MN^3

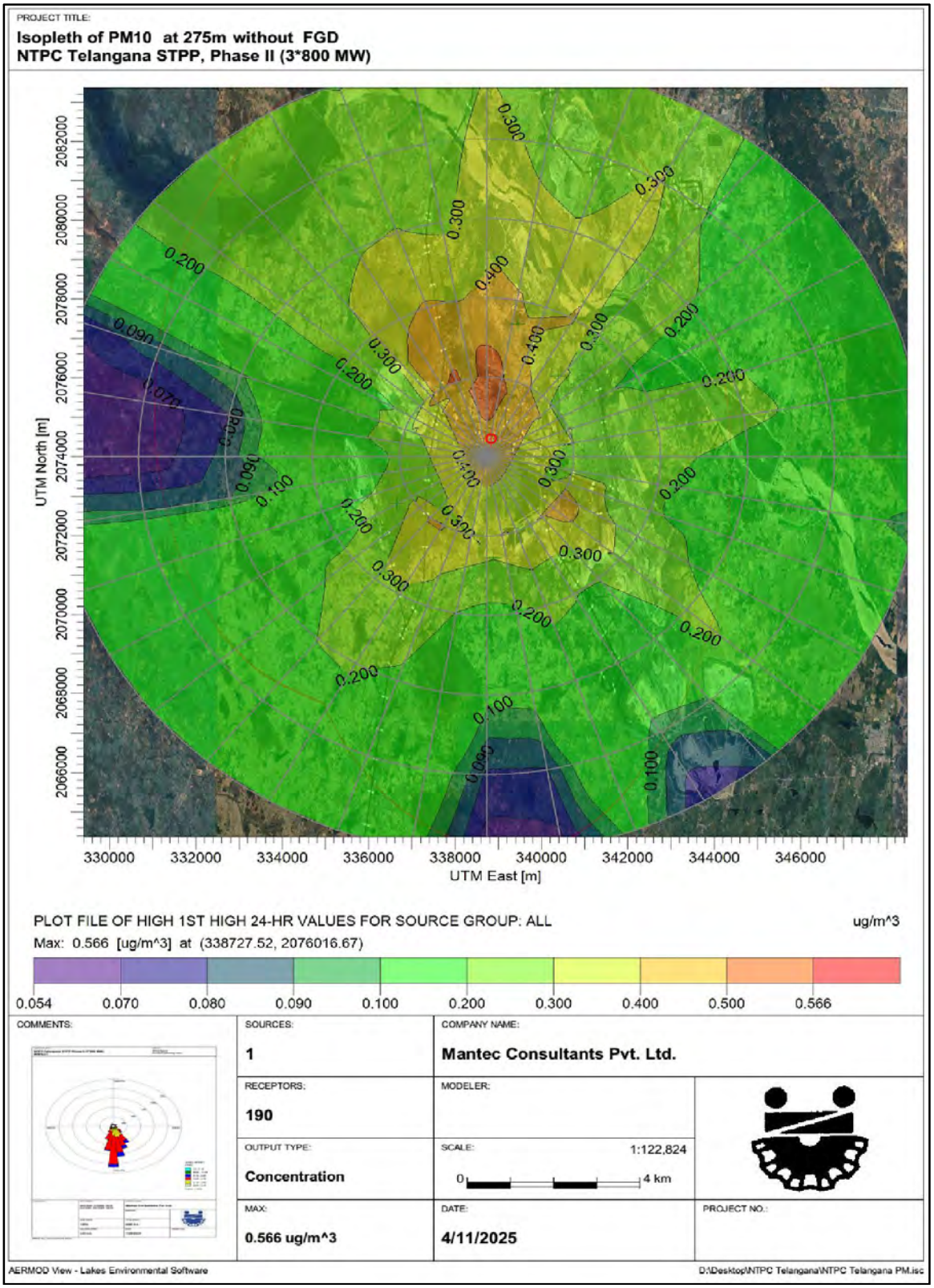


Figure 4-1: Isopleths of PM_{10} for Phase-II

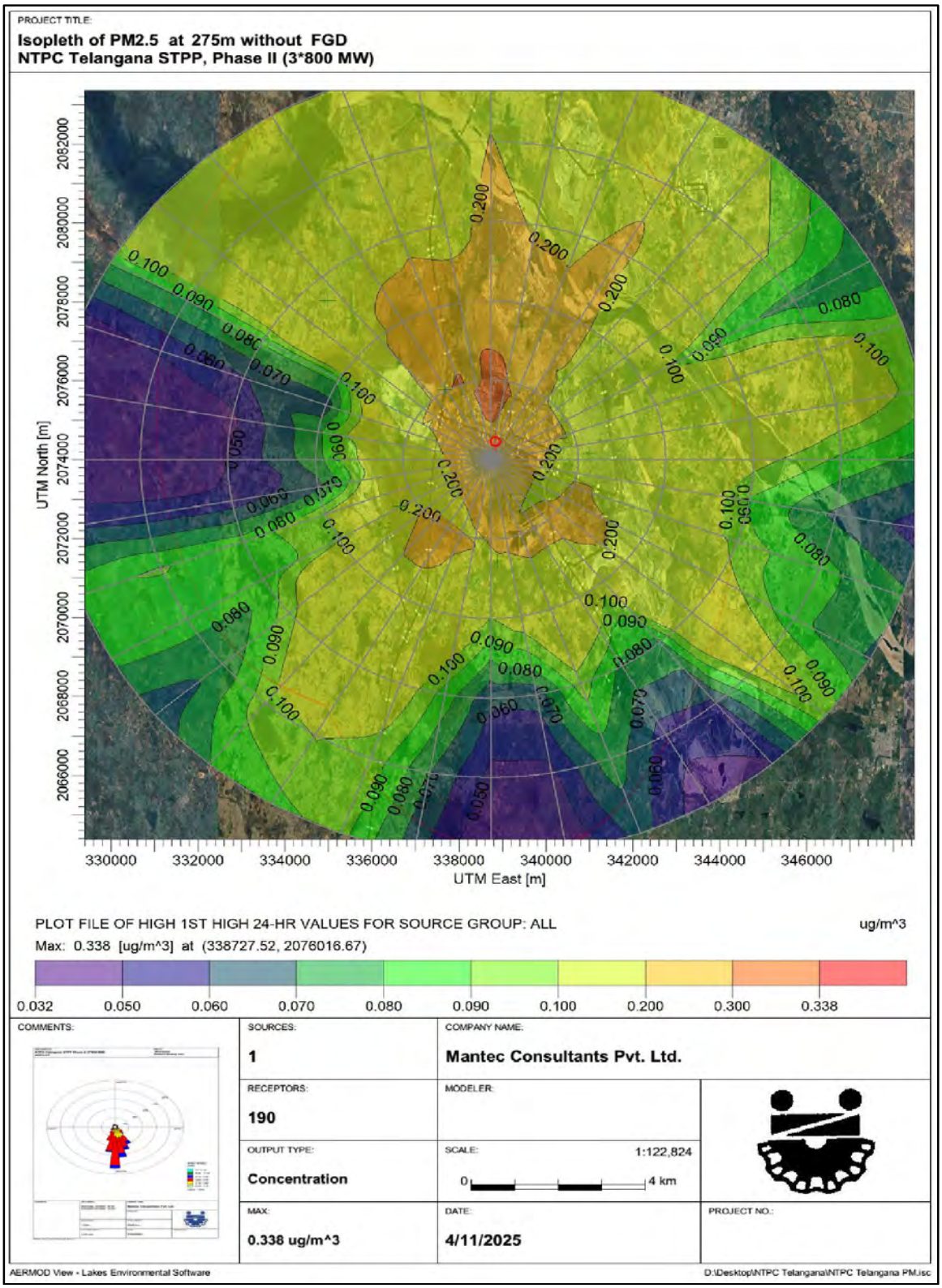


Figure 4-2: Isopleths of $PM_{2.5}$ for Phase-II

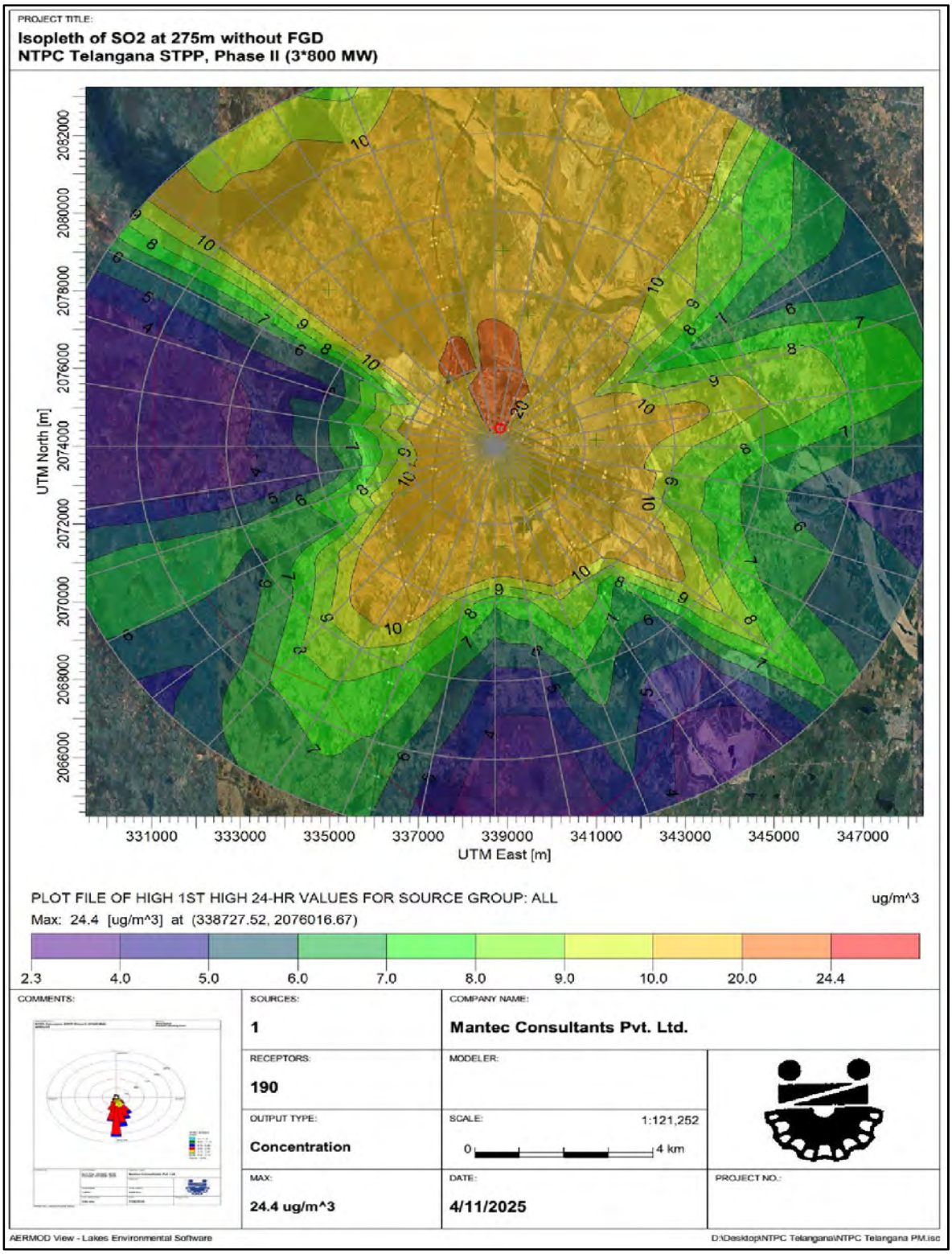


Figure 4-3: Isopleths of SO_2 for Phase-II

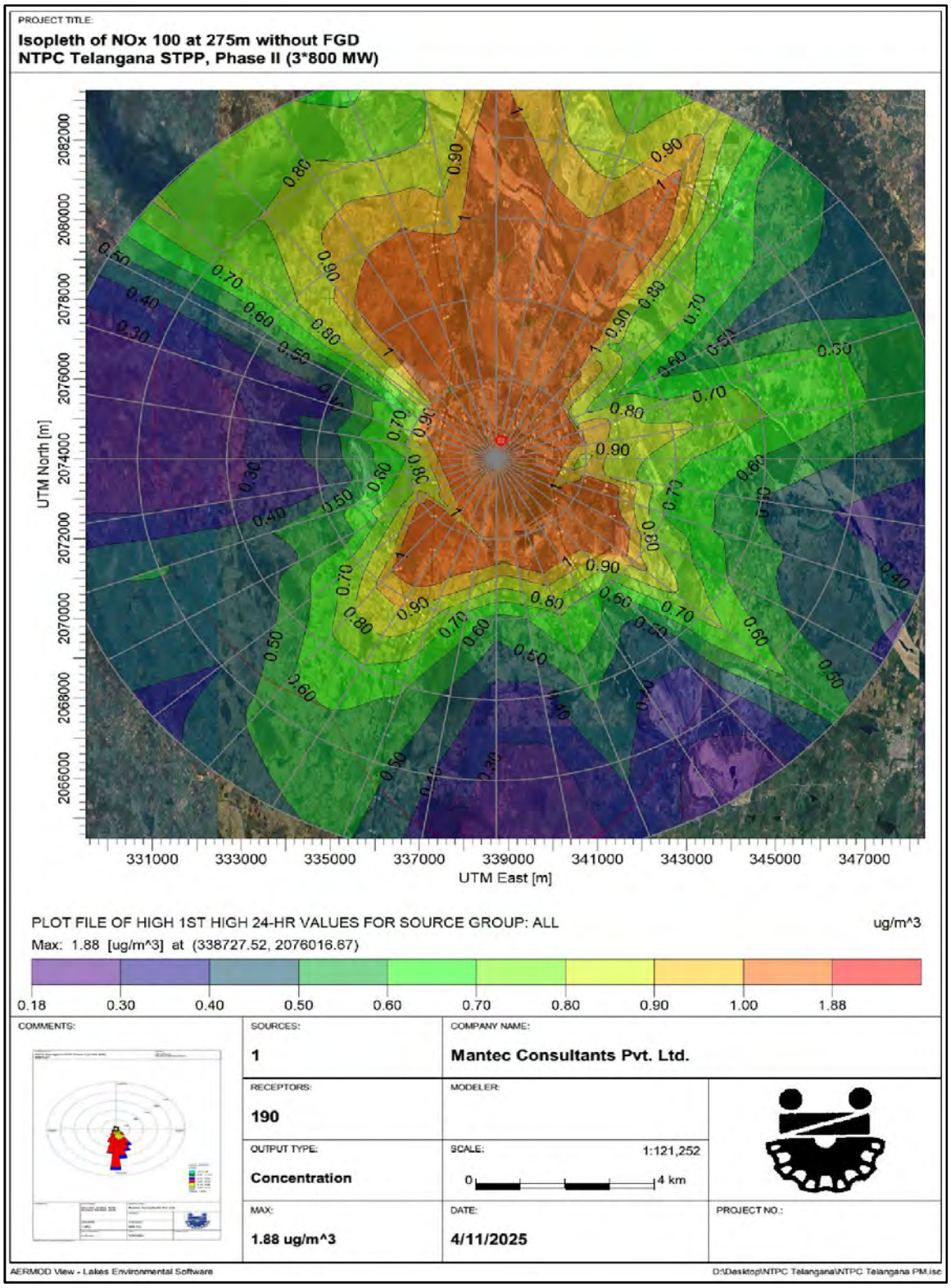


Figure 4-4: Isopleths of NO_x (100 mg/NM^3) for Phase-II

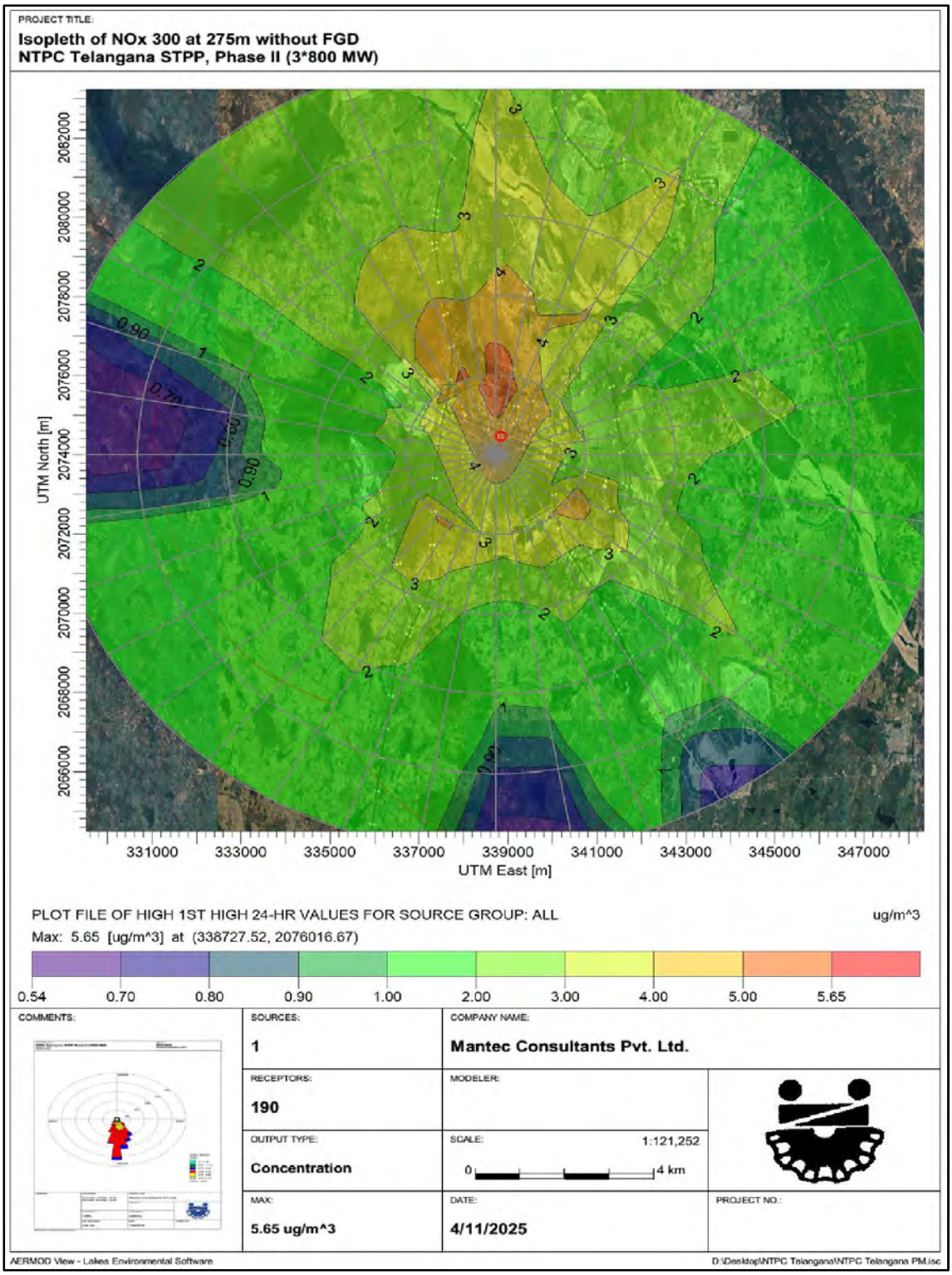


Figure 4-5: Isopleths of NO_x (300 mg/NM^3) for Phase-II

Table 4.7: Scenario II- Cumulative Air Quality Impact Assessment for Proposed Telangana STPP Phase-II (3x800MW)

Ambient Air Quality Locations	Baseline (98 percentile)				Cumulative Incremental Concentration (µg/m³)					Resultant Concentration (µg/m³)					NAAQS Standards (µg/m³)		
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	PM_{10}	$PM_{2.5}$	SO_2	*NOx (100)	*NOx (300)	PM_{10}	$PM_{2.5}$	SO_2	*NOx (100)	*NOx (300)	PM	SO_2	NO_2
AAQ1	82.96	49.48	14.48	29.48	0.54	0.32	18.00	1.74	3.72	83.5	49.80	32.48	31.22	33.2	100	80	80
AAQ2	64.96	37.48	12.23	25.96	0.45	0.27	12.00	1.37	3.54	65.41	37.75	24.23	27.33	29.5	100	80	80
AAQ3	57.48	35.48	12.48	24.48	0.42	0.25	11.00	1.00	2.60	57.9	35.73	23.48	25.48	27.08	100	80	80
AAQ4	86.96	48.96	16.48	30.96	0.75	0.45	13.00	2.20	4.08	87.71	49.41	29.48	33.16	35.04	100	80	80
AAQ5	84.44	44.40	14.48	24.96	0.58	0.34	15.00	1.44	3.65	85.02	44.74	29.48	26.4	28.61	100	80	80
AAQ6	77.50	42.50	14.50	26.50	0.73	0.43	8.00	1.11	3.00	78.23	42.93	22.5	27.61	29.5	100	80	80
AAQ7	85.50	48.50	14.50	27.00	0.46	0.28	9.50	1.34	3.58	85.96	48.78	24	28.34	30.58	100	80	80
AAQ8	60.50	36.50	12.50	24.50	0.28	0.16	5.80	0.80	1.41	60.78	36.66	18.3	25.3	25.91	100	80	80
AAQ9	63.00	37.50	13.50	23.50	0.36	0.21	7.20	1.06	2.08	63.36	37.71	20.7	24.56	25.58	100	80	80
AAQ10	89.00	49.00	14.50	26.00	0.60	0.36	20.40	1.42	4.82	89.6	49.36	34.9	27.42	30.82	100	80	80

*Emissions of Oxide of Nitrogen (NO_2) considered at 100 mg/NM^3& 300 mg/MN^3

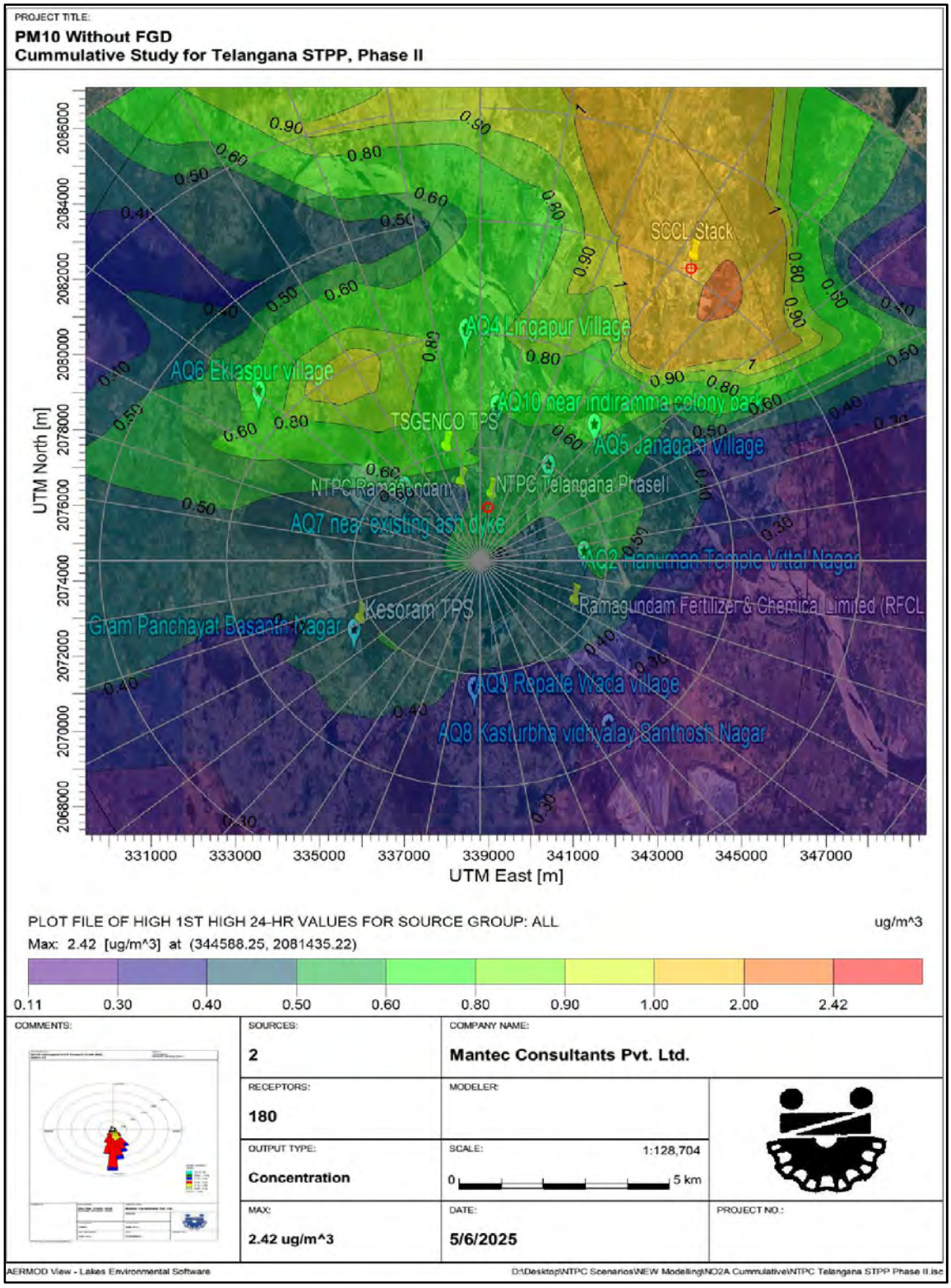


Figure 4-6: Isopleths of PM_{10} for Cumulative Impact Assessment for Phase-II

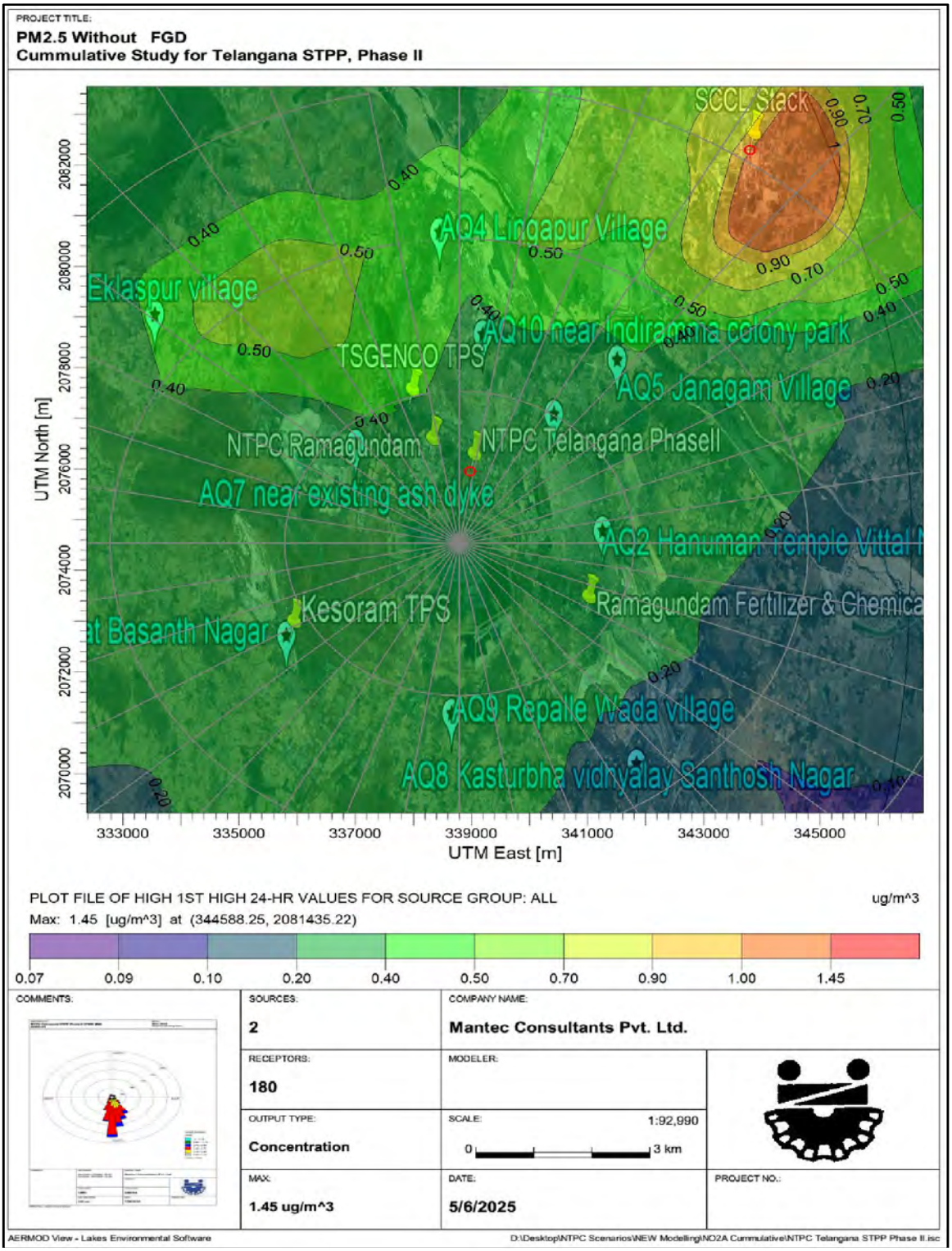


Figure 4-7: Isopleths of $PM_{2.5}$ for Cumulative Impact Assessment for Phase – II

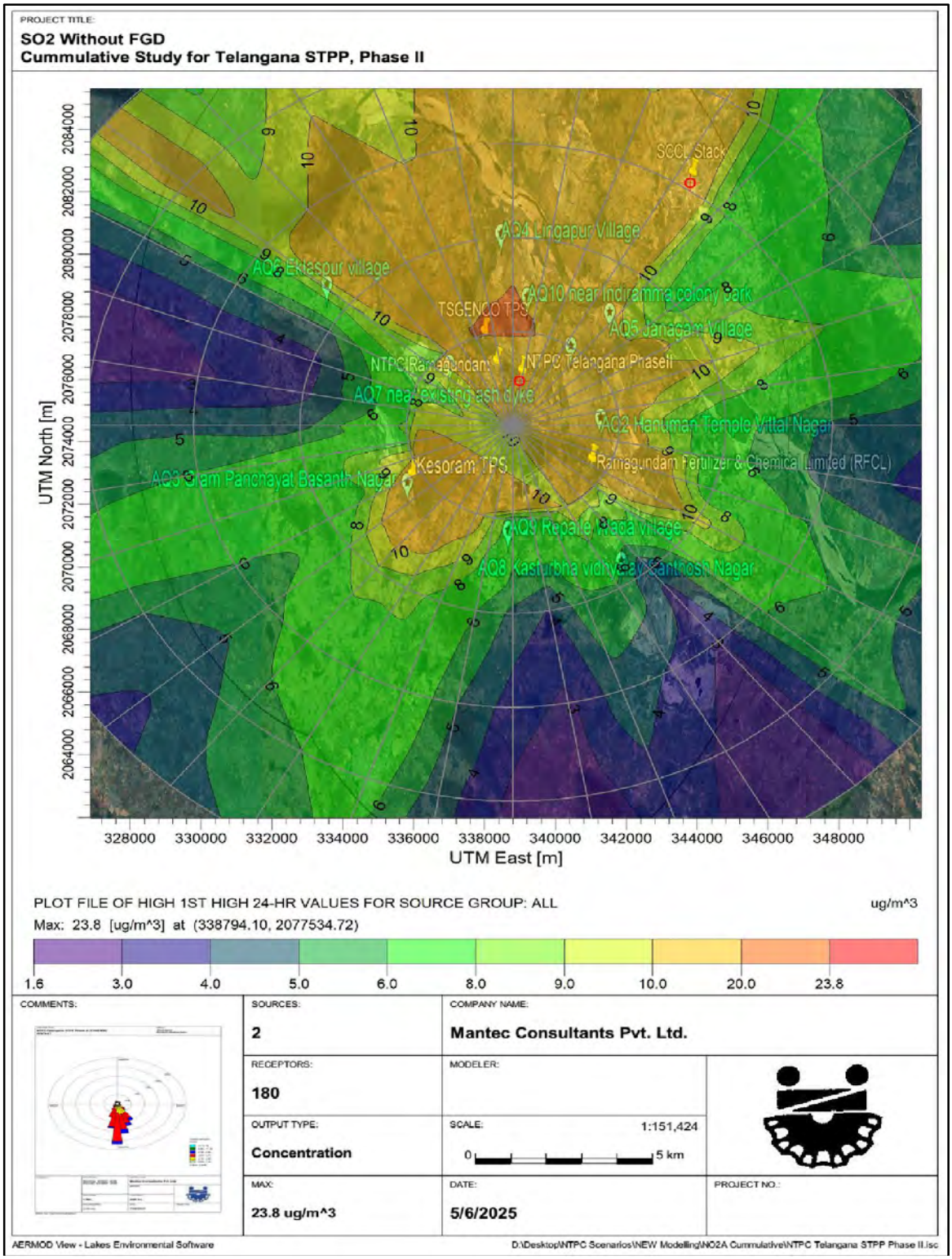


Figure 4-8: Isopleths of SO_2 for Cumulative Impact Assessment for Phase – II

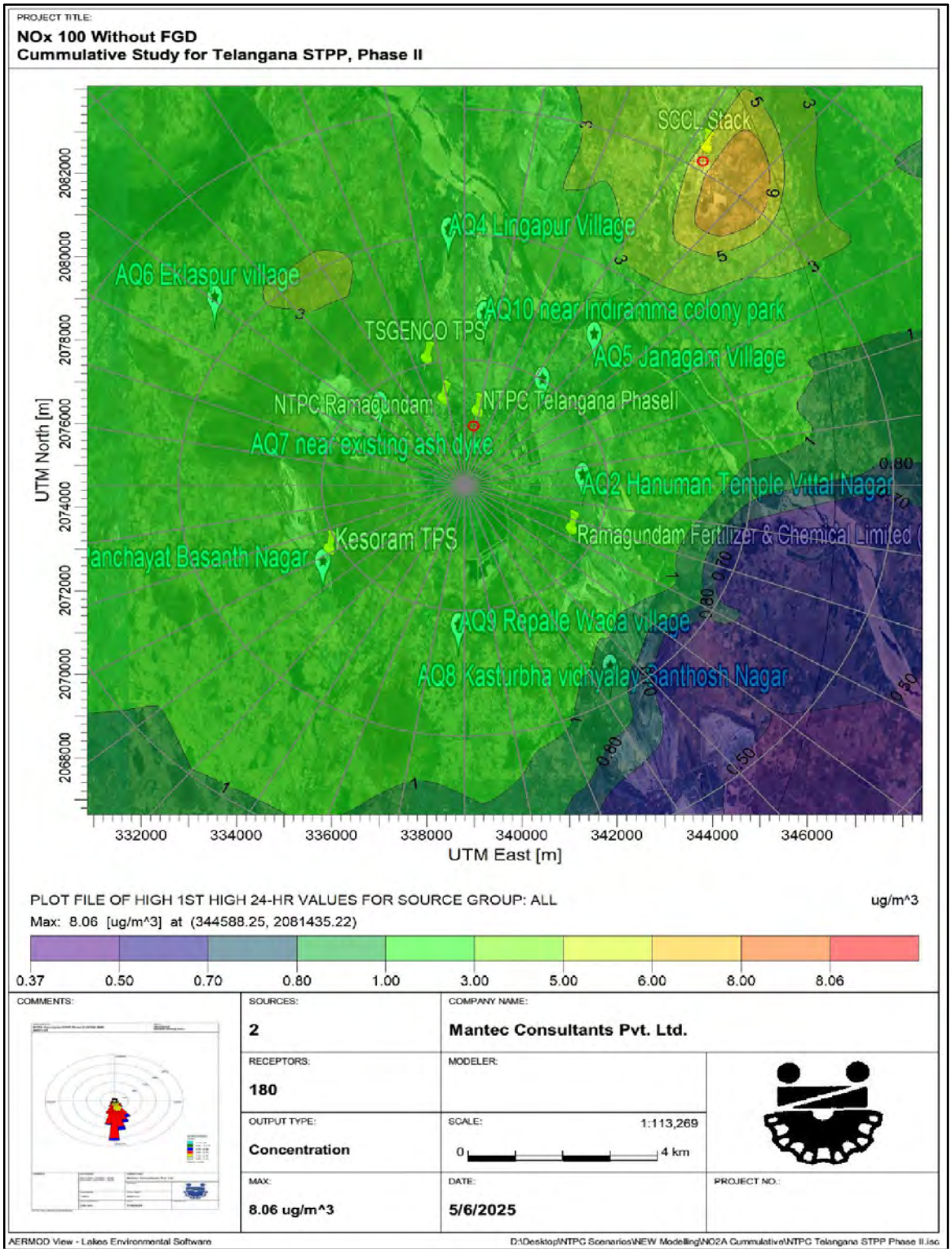


Figure 4-9: Isopleths of NO_x (100 mg/NM^3) for Cumulative Impact Assessment for Phase – II

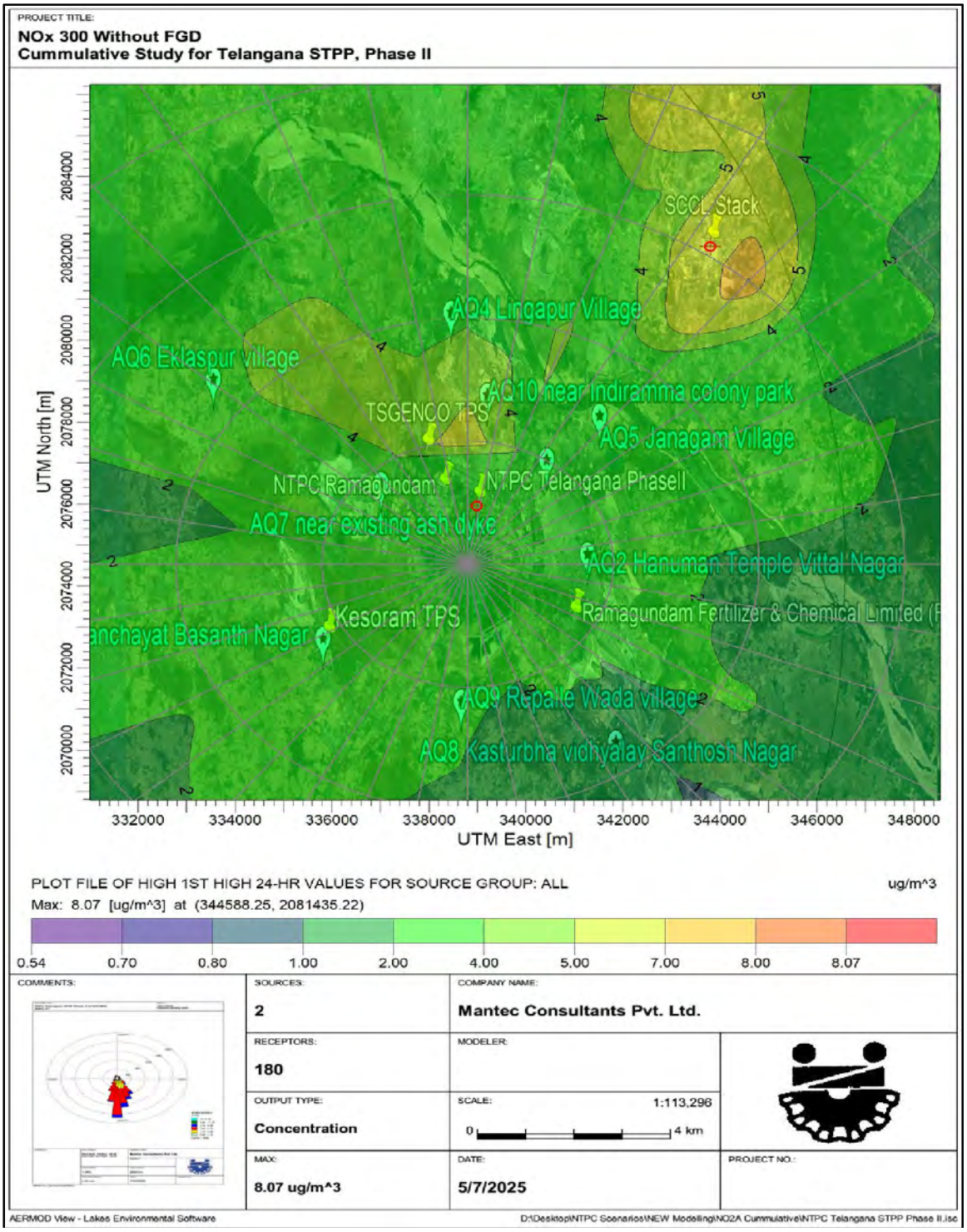


Figure 4-10: Isopleths of NO_x (300 mg/NM^3) for Cumulative Impact Assessment for Phase – II

Conclusion

The maximum resultant GLCs (Ground Level Concentrations) for the parameters PM_{10}, $PM_{2.5}$, SO_2, and NO_x (@100 mg/Nm^3 and @300 mg/Nm^3) are observed as 89.6 µg/m^{3}at AAQ10, 49.80, at AQ1, 34.9 µg/m^3 at AQ10,33.16 µg/m^3 and 35.04 µg/m^{3}at AAQ4 respectively .

After superimposing the incremental GLCs over the baseline concentrations, the resultant concentrations remain well within the stipulated limits of the NAAQS 2009 standards.

The proposed project envisages following measures for prevention and control of Air Pollution and Fugitive Dust control:

- High Efficiency Electrostatic Precipitators
- NOx Control System
- Stacks of 275m will be provided for the proper dispersion of pollutants.
- Motorable roads in the plant area will be paved to reduce dust emission.
- Greenbelt/Plantation in and around the plant premises
- Afforestation and plantation outside plant premises
- Dust suppression measures at coal handling plant, stock yards, ash handling and ash dykes

Cumulative Impact

The list of major industries within 15 km from the boundary of Telangana STPP plant is as follows;

1. NTPC Ramagundam Thermal Power Plant (2600MW)
2. Telangana STPP Phase-I (1600MW)
3. Ramagundam Fertilizers & Chemical Limited
4. TS Genco Thermal Power Plant (62.5 MW)
5. Singareni Thermal Power Plant (18 MW)
6. Singareni Collieries Company Ltd. OCP-IV
7. Singareni Collieries Company Ltd. OCP-III
8. Kesoram Cements Limited
9. Singareni Thermal Power Plant (1200 MW) (Existing)
10. Singareni Thermal Power Plant (800 MW) (Proposed)

A cumulative impact assessment study has been done covering 15 km of the study area for the existing and proposed industries.

4.3.4 Impact on Air Quality – Fugitive Emissions

The fugitive dust emissions is expected from coal storage yards, coal conveyor belt area, ash dumping areas, transportation of fuel and solid waste. The dust emissions, if any, from the above areas will be fugitive in nature. The dust emissions are likely to be confined to the place of generation only.

In the proposed project, coal handling plant will be properly operated with control measures such as dust extraction and dust suppression system. Similarly, HCSD system of ash disposal will be practiced

and hence, no dust emissions are envisaged from ash dump areas. The fuel will be received through rail line and the solid waste will be sent to dyke areas in slurry form through pipeline. Hence, very minimal amount of fugitive dust emissions from transportation are envisaged. Further, internal roads are to be asphalted to reduce fugitive dust emissions.

The quantification of these fugitive emissions from the area sources is difficult as it depends on lot of factors such as dust particle size, specific gravity of dust particles, wind velocity, moisture content of the material and ambient temperatures etc. Also, there is a high level of variability in these factors. Hence, these are not amenable for mathematical dispersion modeling. However, by proper usage of dust suppression measures, dust generation and dispersions will be reduced.

4.3.5 Impacts on Terrestrial Ecology

The initial construction phase of the project entails clearing the land, which may disturb vegetation during the process, though the extent of this disturbance is deemed insignificant. The effects of construction will mainly be localized to the Phase-II site, which is relatively small. Earthwork activities like excavation and filling may generate fugitive dust emissions, potentially depositing on nearby vegetation's young, growing leaves and temporarily inhibiting photosynthesis. However, these effects are anticipated to be mostly limited to the early stages of construction and can be mitigated by implementing measures such as paving, surface treatment, water spraying, and tree planting initiatives. Furthermore, these impacts are expected to be contained within the plant's boundaries, resulting in marginal overall impact from the construction activities.

4.3.6 Impact on aquatic ecology during operation phase:

The drainage from construction sites can cause a temporary rise in suspended solids and a drop in dissolved oxygen levels near where it enters a body of water. This could result in a temporary reduction in the photosynthetic capacity of phytoplankton, an increase in anaerobic conditions, and alterations in the food chain due to the decrease in dissolved oxygen levels. The proposed expansion project is envisaged with water & wastewater treatment plants, sewage treatment plant and Zero Liquid Discharge system. Hence, there will be no discharge into the water bodies and there will be no negative impact on aquatic ecology.

4.3.7 Impact on Water Environment

Water Uses

Make up water requirement for this expansion project would be about 2,355 m^3/hr. Telangana STPP will abstract its entire water requirement from Sreepada Yellampalli Barrage. Necessary permission/ commitment is given by the Water Authority after considering all aspects of other users. Hence it is anticipated that the impacts on downstream users will be insignificant. To optimize water requirement, Air-Cooled Condenser, ETP, STP, Rainwater Harvesting and ZLD system etc. provisions are envisaged for the project.

Impact on Ground Water

As no ground water is proposed to be extracted for plant during operation phase, there will be no impact on hydrology/ground water resources during operation of the plant.

Wastewater Generation

Wastewater will be generated from ash handling plant, DM plant, boilers & filters from water treatment plant, and domestic waste. Besides, domestic wastewater from the canteen and employees wash area will also be generated.

The wastewater in Phase-I is being treated in ETP plant; and MBBR based STP plant with Zero Liquid Discharge (ZLD) and the same practice will be followed during the operational phase of the expansion Phase-II project, hence impact on water environment due to wastewater generation is not envisaged.

Air cooled condenser is envisaged for Telangana Stage-II (3x800 MW) units. The total makeup water requirement for Telangana Stage-II (3x800 MW) is ~2355 m^3/hr out of which 2325 m^3/hr will be used for industrial purposes and about 30 m^3/hr for domestic purposes.

The water system for the project has been developed with an aim to minimise the quantity of effluents generated and recycle and reuse the effluent at various stages to meet plant process requirements after necessary treatment. The project is Zero Liquid Discharge (ZLD) compliant. The proposed expansion project is expected to generate 1335 m^3/hr effluent through different sources and the same shall be completely recycled/reused within plant. The domestic wastewater generated from the plant and township shall be treated in STP and utilized in development of green cover and horticulture.

The effluent generated from the project shall be suitably treated, meeting the re-use requirement in the various systems. Treatment and disposal of the wastewater generated from the proposed expansion unit is provided in following Table:

Effluent Source	Qty.before Treatment, m^3/hr	Treatment envisaged	Qty. after Treatment, m^3/hr	Net Qty. Discharged, m^3/hr	Remarks
Clarifier Sludge from CW clarifier	35	Thickener	35	Nil	Total quantity shall be treated and utilized in thickener/ ash slurry disposal system.
Clarifier Sludge from DM clarifier	10	Thickener	10	Nil	
ETP sludge	10	Thickener/ AHP	10	Nil	
DM Plant regeneration waste	15	Neutralization	15	Nil	Total treated quantity shall be utilized in ash slurry disposal system.

Effluent Source	Qty.before Treatment, m^3/hr	Treatment envisaged	Qty. after Treatment, m^3/hr	Net Qty. Discharged, m^3/hr	Remarks
Power Cycle Blowdown	30	None	30	Nil	Total quantity shall be used in Aux. Cooling makeup system.
Aux C.T.Blowdown	50	None	50	Nil	Entire quantity shall be used in ash slurry disposal system.
Plant Service Water Effluent	150	Clarification in Tube settler & Wastewater RO system	150	Nil	Treated water after clarification shall be recycled in plant service water system, remaining water shall be treated in WW-RO system/re-used in AHP/thickener. Tube settler sludge shall be utilized in ash slurry disposal system.
AWRS water	900	Settling Pond	900	Nil	Total Water quantity shall be recycled and re-used in ash handling system.
Coal Stockpile run-off water	120	Settling Pond & Clarification	110		Coal Decanted water shall be recycled / re-used in CHP dust suppression. Remaining water quantity (after evaporation loss) shall be treated in CSSP clarifier and recycled in Aux Cooling water Make-up system.
Waste service water RO Reject	5	None	5	Nil	RO reject shall be re-used in CHP
Mill Reject effluent	10		10	Nil	Total Water quantity shall be re-used in CHP
Total	**1335**	-	**1325**	**Nil**	ZLD complied

IMPACT OF WATER WITHDRAWL FROM SREEPADA YELLAMPALLI RESERVOIR ON FISHERIES

Introduction

The Godavari River, often referred to as the "Dakshin Ganga" or the Ganges of the South, is the second-longest river in India and a lifeline for millions of people. It supports diverse ecosystems, agricultural activities, and industrial operations across several states. The Telangana Super Thermal Power Project (STPP) Phase-II by NTPC, located near Ramagundam in Telangana, relies on the river as a key water source for its operations. The large-scale withdrawal of water from the Godavari, raises concerns about the ecological and hydrological impacts on the river. The proposed project is envisaged to have Air-Cooled Condenser based cooling system which requires very less amount of water as compared to conventional water-cooled condenser. This section examines the potential consequences of water withdrawal on the river's aquatic ecosystem, especially the fish population, and suggests strategies to manage these impacts.

The Telangana Super Thermal Power Project (STPP) Phase-II proposes to withdraw an addition of 56,520 KLD (2,355 m^3/hr) of water from the Yellampalli Barrage on the Godavari River, along with 115,200 KLD (4800 m^3/hr) required for Phase-I. The project incorporates a Zero Liquid Discharge (ZLD) system, designed to treat and recycle water within the plant, thus minimizing the reliance on fresh water and impact of effluent water on fish diversity. However, the large-scale withdrawal of water from the Godavari, particularly from the Yellampalli Barrage, raises concerns about the ecological and hydrological impacts on the river. This report examines the potential consequences of waterwithdrawal on the river's aquatic ecosystem, especially the fish population, and suggests strategies to manage these impacts.

Water Balance Analysis

Water Availability of Kaleshwaram Project:

It was noted that the project involves (i) diversion of 180 TMC water from Godavari river, (ii) additional 20 TMC water will be drawn from Yellampally barrage, (iii) 10 TMC of water from self-yield tanks and (iv) 25 TMC of water from utilizable groundwater; put together 225 TMC of net water availability. Out of this, 30 TMC of water will be used for providing drinking water facility for twin cities of Hyderabad and Secunderabad, 10 TMC of water to en-route villages, 16 TMC of water for industrial purpose, 134.5 TMC for irrigation facility in 7, 38,851 ha of new command area and 34.5 TMC of water for stabilization of 7, 62,028 ha of area. The CWC has cleared water availability vide letter No. 6-231/2017-PA(S)/1327-28 dated 30.10.2017 for the project.

The Godavari River has an extensive catchment area and receives substantial inflows during the monsoon season, making it a significant source of water for various needs, including agriculture, industry, and domestic use. However, the availability of water is highly seasonal, with peak flows during the monsoon and significantly reduced levels during the dry season. The river's water balance is influenced by several factors, including rainfall patterns, upstream withdrawals, evaporation rates, and return flows from agricultural and industrial activities.

Sreepada Yellampally Barrage has 20.176 TMC capacity which draws water from Kadam project with capacity of 7.69 TMC and Sriram Sagar Project with capacity of 90.31 TMC. If all the barrage hasavailability of sufficient water, then there will be very less impact of withdraw of 2.73 TMC water by NTPC Telangana project.

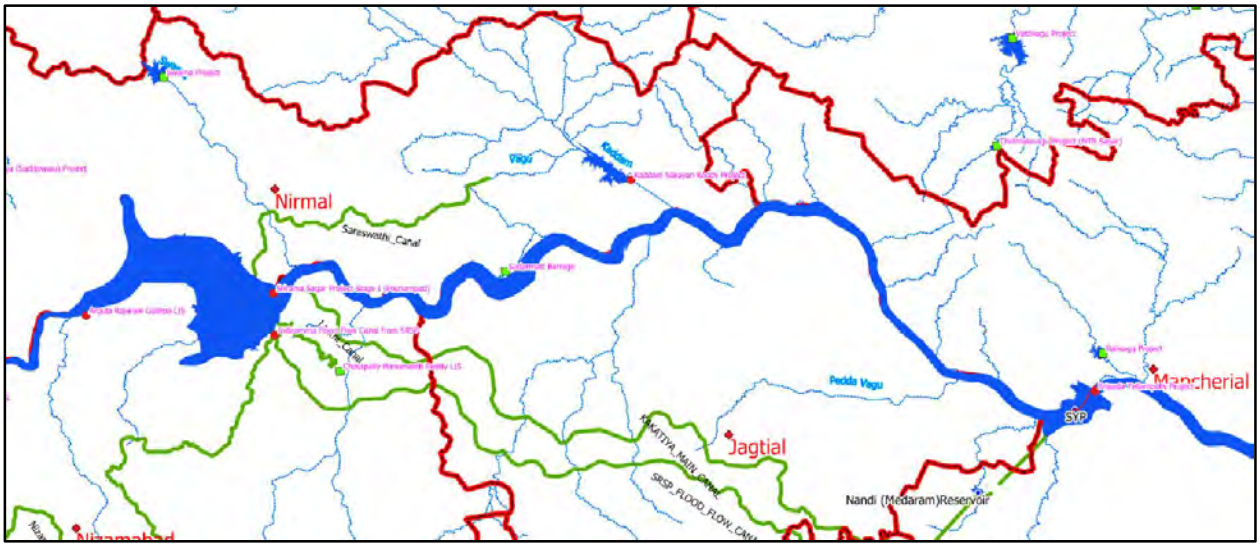


Figure 4-11: Major projects of Godavari River near Sreepada Yellampally Project. (Source: Irrigation and CAD department Telangana)

Water Demand

NTPC's Telangana STPP Phase-II has envisaged provisions like Ultra Super Critical Technology, Air Cooled Condensers, HCSD and Dry Ash Handling systems, Ash Water Recirculation System, ETP & STP, Zero Liquid Discharge Systems to ensure minimum water consumption as per the stipulated norms. The cumulative demand from multiple sectors can strain the river's ability to meet all needs, especially during periods of low flow.

The Sreepada Yellampally Barrage has a capacity of 20.176 TMC and draws water from the Kadam project, which has a capacity of 7.69 TMC, and the Sriram Sagar Project, which has a capacity of 90.31 TMC and rest from Godavari River. If all these reservoirs have sufficient water availability, the withdrawal of 2.73 TMC of water for the NTPC Telangana project will have a minimal impact.

Water Balance Implications

The withdrawal of water by NTPC must be carefully managed to maintain a sustainable water balance in the Godavari River. Excessive withdrawal, particularly during the dry season, can lead to a negative water balance, where the outflow exceeds the inflow. This imbalance can result in reduced river flow, lower water levels, and diminished water quality, with severe consequences for the river's aquatic life and the livelihoods of those who depend on the river. This situation typically occurs during the lean period and is also dependent on rainfall in Maharashtra, as the Sriram Sagar project relies on reservoirs in that region.

Impact on Water Levels and Habitat

Habitat Loss

The withdrawal of substantial volumes of water can lower water levels in the river, reducing the available habitat for fish. This can lead to overcrowding and increased competition for resources among aquatic species. Reduced water levels may also expose riverbeds, altering the natural habitats of various fish species and potentially leading to a decline in their populations.

Spawning Disruption

Many fish species depend on specific water levels for successful spawning. Significant or sudden drops in water levels caused by large-scale withdrawals can disrupt these breeding cycles, negatively impacting fish reproduction and leading to a decrease in fish numbers over time.

Impact on Water Quality

Increased Temperature

Lower water volumes due to withdrawals can result in higher water temperatures, which can stress fish populations. Higher temperatures can make fish more susceptible to diseases, reduce dissolved oxygen levels, and create an inhospitable environment for temperature-sensitive species.

Oxygen Depletion

As water levels decrease, the amount of dissolved oxygen in the water can drop, particularly in deeper layers. This oxygen depletion can harm aquatic life, especially species that are less tolerant of low oxygen conditions, leading to potential fish mortality.

Disruption of Ecological Balance

Food Web Disruption

Changes in water levels and quality can disrupt the aquatic food web. For example, a decrease in water volume can reduce the availability of phytoplankton and other food sources for fish, impacting the entire aquatic ecosystem. Such disruptions can lead to the decline of certain fish species that are crucial to maintaining the ecological balance of the river.

Migration Barriers

Water withdrawal can create physical barriers in the river that hinder fish migration. Many fish species require different habitats during various stages of their life cycle, such as breeding or feeding grounds. Reduced water flow can make it difficult for fish to access these critical areas, affecting their ability to thrive and reproduce.

4.3.8 Impact of Solid Waste

Ash generated due to combustion of coal will be the main industrial/ solid waste generated from the project. About 80% of the ash shall be generated as fly ash while 20% of the ash shall be generated as

bottom ash. With average annual coal requirement of proposed project will be 11.7 MTPA and average 38-43 %(Max) ash in coal.

The ash, if not stored/ handled / treated properly may lead to air & water pollutions and impact the environment. However suitable mitigation measures shall be taken to be taken to control the same as described in subsequent section.

4.3.9 Impact on Noise Levels

The main sources of noise and vibration during operations are:

- Operation of generators and turbine
- Operation of various pump, fans and motors,
- Transfer of coal through railway line & CHP and other rotating machines.
- Delivery of equipment & raw materials by trucks**.**

Scheduling deliveries to daytime as much as possible would minimize noise generation by truck movement. Turbines, cooling towers, transformers, compressors, pumps, and other equipment during plant operation, will generate noise. However, proper acoustic enclosures would be provided to control the noise level within 80 dB (A), as per the requirement of Occupational Safety and Health Administration Standard (OSHA). The adoption of modern building design and the use of sound-absorbing materials will minimize noise and vibration from the powerhouse.

Noise Modeling for Plant Machinery

Noise modeling was carried out using Dhwani Pro software version 9.8.312. The software considers the point, line and areas type noise generating sources, and surrounding environment temperature, humidity and frequency, and also barriers if any such as vegetation, water bodies and buildings. Geo-referenced based map downloadable future, and gridding of study region facility is available in Dhwani Pro. The model simulation results determine the impact zones to develop the mitigation measures in compliance with noise emissions from multiple noise sources.

The impact from a continuous stationary noise source at observer's place, considering the hemispherical propagation of sound waves is represented by the following equation:

LR = LS + DI – 20 Log(r) – Ae – 8

where,

LR: Sound pressure level at a receptor located at radial 'r', dB (A)
LS: Sound pressure level at the source, dB (A)
DI: Directivity index of the source (for hemispherical radiation DI = 3dB (A)
R: Radial distance of the receptor from the source, m
Ae: represents excess attenuation of sound caused by the environmental conditions such as:

- Absorption in air;
- Effect of rain, snow and fog;

- Reflections and refractions at barriers and buildings;
- Effect of the terrain, grass, shrubs, trees etc.; and
- Effect of wind and temperature gradient.

The absorption of the sound is generally a complex phenomenon. In general, for homogeneous loss free atmosphere Ae = 0.

The cumulative impact of multiple stationary noise sources (through hemispherical wave propagation) at a particular place can be calculated by:

N Lp (Total) = 10 Log [_ 10(Lpi/10)]
i=1

Lp (Total) is the resultant cumulative sound pressure level due to N separate sources. The cumulative impact from different stationary noise sources at proposed project site has been predicted at 1m distance using the above model.

The major noise generating sources from the proposed plant are identified and listed in Table-4.8. These are considered as input to the noise model Dhwani Pro version-4.

Table 4-8: Major Noise Generating Sources

Sr. No.	Sources	Noise Level in dB(A) [1-m away]	Nature of Noise
1	Turbine units	85	Continuous
2	Cooling tower	75	Continuous
3	Air compressors	85	Continuous
4	Transformer	75	Continuous
5	Boilers	85	Continuous

These are considered as input to the noise model.

Presentation of Results:

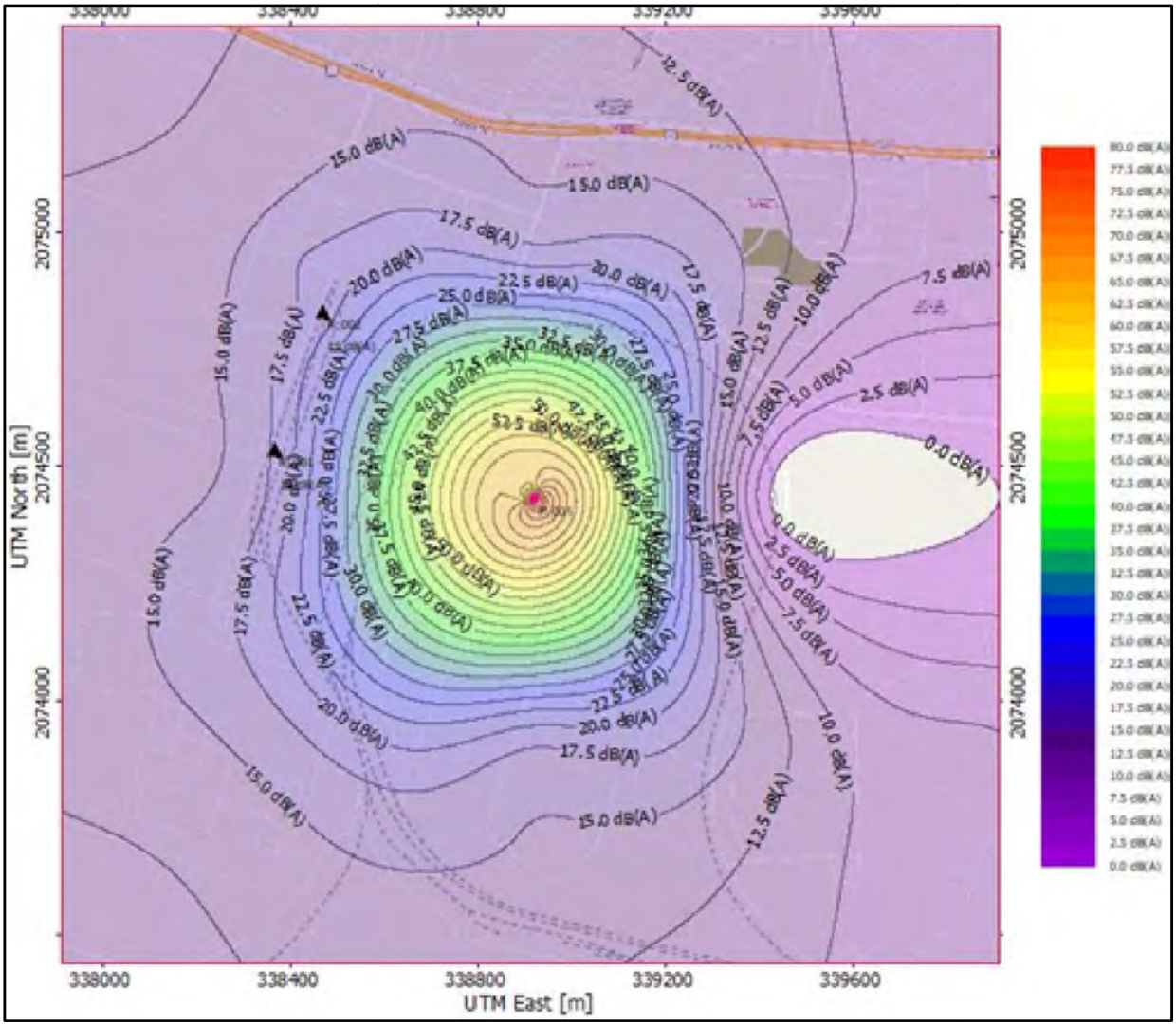


Figure 4-12: Noise Impact Assessment

4.3.10 Impact of Noise on Work Zone and Occupational Health

Modern power plants are highly automated, which means lesser manpower near the equipment will be exposed, that too intermittently with suitable protection equipment for working in noisy area. The occupational noise exposure to the workers in the form of 8 hourly time weighted average will be maintained well within the prescribed OSHA standards [<90 dB (A)]. Workers will be provided with necessary personal protection devices, such as Ear plugs, Earmuffs etc. Hence, the impact on occupational health of workers would be insignificant.

Vehicular movement is another potential source of noise. The major noise generating vehicular movement actions with annoying characteristics to ear (e.g. tonality, impulsiveness) are wheel squeal, brake squeal, and the noise from track joints and turnouts as they generally evoke a

community reaction. The noise mitigation that reduces these annoying characteristics shall be followed to provide a noise free environment to the local community.

4.3.11 Impacts due to Transportation

Since coal will be transported using rail, no significant road traffic movement due to this is envisaged in the proposed project on existing public road network. The various material like fuel oil, chemicals, spares etc. will be brought periodically by road network due to which vehicular traffic will increase intermittently.

Effective implementation of the pollution emission compliance prescribed under Motor Vehicles Act by the transport authorities will minimize the vehicular pollution impact.

4.3.12 Impacts on Socio-Economics

Impact on Demographic Composition

There will be no significant increase in overall population of the study area as preferably local people will be recruited for employment. Hence, there will be no significant impact on the population composition in the study area. Since, there will be no significant change in population, the overall sex ratio will remain more or less the same.

Impact on Employment Opportunities

The project will generate direct and indirect employment opportunities as well as opportunities for self-employment.

The permanent number of NTPC employes during construction and operation phases are 96 and 216 respectively. The workforce employed during the construction phase by the EPC contractors would be much higher (about 3500-4000 during peak deployment).In addition to the people directly involved in construction and operation of the power project, employment opportunities in subsidiary industries and service sectors as well as self-employment opportunities shall also be generated. The benefits of employment to the job seekers are expected to include, at a household and individual level, with improvement in socio-economic and health status, improvement in their living condition, and the benefits from greater household expenditure on education & healthcare resources.

Impact on Law & Order

No major law & order problem is envisaged due to the proposed project. It is expected that the workers will attend to their duties from their residences and return to their homes after the day's work. However, during peak deployment period by Contractors all nearby Police Stations and Check Post should be informed in order to be alert to face any undue situation during their time of stay (if deployed from outside the district) during the construction phase.

Impacts on Public Health

The expansion of the thermal power plant will lead to dust pollution in the area because of the movement of the vehicles during the construction phase and because of the ash dyke area during the operation phase of the project. Measures like Dust Extraction and Suppression, Water Sprinklers, use of bulkers for fly ash and tarpaulin covered vehicles etc. will result into very minimal dust generation. Hence, proper precautionary measures should be taken to avoid the same.

4.3.13 Conclusion

The proposed project activity would be providing employment opportunities. The benefits of employment to the job seekers are expected to include, at a household and individual level with improvement in their living condition. The welfare activities with respect to education, society, development, environment etc. have been carried out by the project proponent that was appreciated by the villagers especially the development of the school girls in the summer camp under Girl Empowerment Mission (GEM). Further, welfare activities can be taken up for the overall development in the field of health and other infrastructure facilities in the study area habitations.

4.4 MITIGATION MEASURES DURING CONSTRUCTION PHASE

During construction phase, the construction activities like site levelling, grading, transportation of the construction material, erection of main plant machines and other auxiliary facilities cause various impacts on the surrounding environment. However, the construction phase impacts are temporary and localized phenomena except the permanent change in local landscape and land use pattern of the project site.

4.4.1 Land Environment

Grading will be done to achieve required levels. The earthen material generated during excavations and site grading periods shall be properly dumped and slope stabilization shall be taken. The topsoil generated during construction shall be preserved and reused for plantations.

Natural drainage pattern will not be disturbed since no water streams are passing through the project area.

4.4.2 Air Quality Management

The activities like site development, grading and vehicular traffic contribute to increase in PM and NOx concentrations. The mitigation measures recommended to minimize the impacts are:

- Water sprinkling in construction area
- Asphalting the main approach road
- Proper maintenance of vehicles and construction equipment
- Additional tree plantation in the area earmarked for greenbelt development
- Covering of trucks/dumpers with tarpaulin

4.5 Water Quality Management

During construction period, the water quality is likely to be affected due to the construction work and loosening of topsoil. This is likely to increase the suspended solids in the run-off during heavy precipitation. In order to reduce the impact on water quality, temporary sedimentation tanks shall be constructed for the settlement of the suspended matter. There is no likelihood of ground water contamination as there will not be any process effluents during construction.

4.5.1 Noise Level Management

The following control and mitigation measures shall be implemented:

- Provision of insulating caps for noise source on the machinery
- The use of damping materials such as thin rubber/lead sheet
- Shielding the workplaces like compressors, generator shed
- Adoption of shock absorbing techniques to reduce impact
- Provision of inlet and outlet mufflers; and
- Provision of ear plugs/earmuffs to the workers and enforcement of its use by the workers.

The noise impact on the surrounding population during the construction phase will be within the acceptable limits. Community noise levels are not likely to be affected because of the greenbelt already developed during Phase-I and likely attenuation due to the physical barriers.

4.5.2 Greenbelt Development

Plantation and Greenbelt development has been carried out at various locations under Telangana STPP (Phase-I). Miyawaki method of plantation has also been adopted at project site for the first time in 2019-20. About 187.975 Ha land has been identified for development of plantation/Greenbelt covering Telangana Phase-I & Phase-II. Out of this, greenbelt/plantation development has been completed on 125.95 Ha. by plantation of approx. 3.10 lakh trees at various locations. Further, development of plantation/Greenbelt is proposed on 62 Ha. area during as per detailed action plan.

Overall, greenbelt/plantation has been developed on approx. 215 Ha area which also covers plantation within Telangana STPP and peripheral greenbelt/plantation under Ramagundam Super Thermal Power Station.

Miyawaki plantation method was adopted in Ramagundam Municipal Areas by planting 17,840 plants. It created a mini forest, which are acting as a carbon sink.

4.5.3 Ecological Management

During construction activities vegetation may get disturbed. However, since the main plant equipment will be erected within existing plant premises, loss of vegetation would be insignificant. Greenbelt will be developed to increase the green cover and to improve the aesthetic environment of the area by screening out the industrial complex and fugitive dust.

The Water requirement for proposed project will be met from Sreepada Yellampalli Barrage. Since, the water will not be drawn from the local water bodies and also the treated water will not be released into the water bodies, the aquatic life in the study area will not be affected.

MITIGATION MEASURES DURING OPERATION PHASE

During operation phase, the impacts on the various environmental attributes will be mitigated using appropriate pollution control equipment. The environment management plan prepared for the proposed expansion (Phase-II) aims at minimizing the pollution at source.

4.5.4 Air Pollution Mitigation Measures

The unit (3x800 MW) shall be designed to meet the emission norms notified by MOEF&CC vide notification dated 07.12.2015 and its amendment dated 26.06.2018 and shall be provided with the following systems. The mitigation measures to be adopted for control of air pollution in the plant are:

Electrostatic Precipitators:

High efficiency Electrostatic precipitators (ESP) would be installed to control the emission of ash particles. The precipitators would be designed to limit the particulate emission to 30 mg/Nm^3. To facilitate wider dispersion of emissions, chimneys of suitable height (275 m) as per MoEF&CC notification dated 28.06.2018 will be constructed. The chimneys would be provided with personal access for regular monitoring of stack emissions.

Fugitive dust control

For the control of fugitive dust emission within and around the coal handling plant, coal dust extraction and suppression systems would be provided. Dust suppression system would be installed at all requisite points in CHP and coal stack yard.

Ash handling plant

Proposed Telangana STPP Phase-II envisaged with separate ash dyke. The fly ash is proposed to be disposed-off through High Concentration Slurry Disposal (HCSD) system. The bottom ash and economizer ash shall be extracted and disposed of in dry form. From the bottom ash hopper of boiler, the sole mode of ash extraction shall be in the form of dry bottom ash. In case of non-utilization of bottom ash and coarse ash, it shall be disposed of from bottom ash IM silos in lean slurry form to new ash dyke.

The fly ash shall be conveyed in dry form from electrostatic precipitator hoppers. This dry ash is taken to buffer hoppers or intermediate silos for its onward transportation in dry form to storage silos near plant boundary for utilization. Facility of fine ash collection and classifier & bagging of ash is also envisaged.

In case of non-utilization of fly ash, fly ash is conveyed to HCSD silos for onward disposal through HCSD (High Concentration Slurry Disposal). The HCSD slurry further disposed off to new ash dyke.

Ash collected from Air pre-heater, Economizer; Air pre-heater & Economizer Duct Hopper shall be conveyed in dry form pneumatically up to BA Intermediate silo for further transportation to Bottom

Ash silo. In case of non-utilization of ash in dry form, it shall be further disposed in lean slurry into ash dyke.

NO_X Control System:

NOx emission from the steam generator shall be controlled by employing low NOx burners (LNB), combustion staging and reducing NOx in the tail flue gas. Suitable technology, taking into consideration the boiler furnace conditions and high ash Indian coals.

Chimney:

To facilitate wider dispersal of emissions, one single-flue and one twin-flue chimneys of 275 m height are envisaged. The chimneys would be provided with personal access for regular monitoring of stack emissions. Environmental monitoring instruments such as SO_2, NOx & Opacity (PM) shall also be provided at Chimney.

4.5.5 Water Pollution Mitigation Measures

Make up water requirement for this project would be about 2,355m^3/hr. An effluent management scheme would be implemented with the objective of optimization of various water systems so as to reduce water intake requirement which would result in zero wastewater discharge. The effluent management scheme would essentially involve collection, treatment and recirculation/ disposal of various effluents. Adequate treatment facilities would be provided to all the waste streams emanating from the power plant to control water pollution. This would include physico-chemical and biological treatment for all effluents as described below:

- The filter backwash water of PT Plant shall be collected and recycled back to the respective system clarifier.
- The sludge from clarifiers of Water PT plants shall be collected in a sump/pit for further treatment and disposal as per statutory norms/ consent conditions.
- The waste effluents from neutralization pits of DM plant and Condensate Polishing Plant shall be collected in the respective neutralization pits and neutralized before pumping to bottom ash slurry tank for use in Ash Handling.
- Coal slurry settling ponds/sumps shall be provided to remove coal particles from coal handling plant waste. Decanted water shall be pumped back to the coal dust suppression system.
- To receive & treat excess storm water (considering rainstorm conditions), Clarifier feed pumps, reactor clarifiers, belt filter press, Clarified Water Transfer Pumps and required chemical storage & dosing system shall also be provided.
- Service water effluent drains from various areas shall be separately routed to a sump. From the sump the service water shall be pumped up to lamella clarifier / tube settler for treatment of suspended solids. Treated service water shall be sent back to service water tank for re-use through CMB cum treated water tank.
- By efficient operation of treatment plants, the treated effluent would be recycled & reused to achieve ZLD.

Strategies for Managing Water Withdrawal

To minimize the ecological impact of water withdrawal by NTPC from the Godavari River, the following strategies should be implemented:

Regulated Water Withdrawal

- **Scheduled Withdrawals:**Implement a withdrawal schedule that considers seasonal variations and river levels to minimize ecological disruption. This approach ensures that withdrawals occur during periods when the river can sustain them without significant ecological damage.
- **Minimum Water Levels:**Establish and enforce minimum water levels that must be maintained in the river to protect aquatic habitats and ensure the sustainability of fish populations.

Demand Management

- **Prioritized Water Use:**Allocate water resources based on priority needs, such as drinking water, agricultural use, and environmental conservation. This prioritization helps avoid unnecessary withdrawals that could further strain the river's ecosystem.
- **Water-Efficient Technologies:**Promote the adoption of water-efficient technologies in industries and agriculture to reduce overall demand on the river's water resources.

Adaptive Management

- **Real-Time Monitoring:**Utilize real-time data on river levels and water quality to make informed decisions regarding water withdrawals. This data-driven approach enables adaptive management that can respond to changing environmental conditions.
- **Stakeholder Engagement:** Involve local communities, industries, environmental groups, and other stakeholders in the decision-making process to ensure that water withdrawal practices are equitable and sustainable.

Environmental Flow Maintenance

- **Maintain Flow Regimes:**Ensure that withdrawal practices do not compromise the environmental flow requirements necessary to support aquatic life, sediment transport, and water quality.
- **Buffer Zones:** Establish buffer zones around the river to reduce runoff and pollution, thereby maintaining water quality and reducing the need for excessive withdrawals.

Long-Term Planning

- **Climate Change Considerations:** Incorporate climate change projections into water management plans to anticipate changes in rainfall patterns and river inflows, ensuring the sustainability of water resources.

- **Infrastructure Improvements:** Invest in infrastructure that enhances water storage and distribution efficiency, such as lining canals to reduce seepage and upgrading systems to prevent leaks.

Conclusion

Proposed project is envisaged with Ultra Super Critical Technology and Air-Cooled Condenser which requires approx. 60% less water compared to Water Cooled Condenser. In addition, provision of ETP/STP, AWRS, ZLD and reuse/recycling systems have been envisaged to maximize the use of treated water and reducing freshwater requirement. Due to this there will be minimum impact of water withdrawal by NTPC. Rainwater Harvesting, Water Shed Development in the area will further improve the water availability in the region.

Storm Water Management& Rainwater Harvesting

Collecting and storing of rainwater for productive use in future need is rainwater harvesting. This involves collecting the rainwater from localized catchment surface from roof top, plain/sloping surface by directly or recharging into the ground to augment the groundwater resources. The selection of Rainwater Harvesting technique is based on soil property & groundwater table of the project area.

Rainwater harvesting system is also provided at Telangana STPP, Phase-I for collecting rainwater through the localized catchment areas like paved, unpaved areas and roof top buildings. Collected water shall be used for recharging the ground water table and stored in pond for gardening purpose.

- A recharge pit is proposed for the buildings and overflow water diverted to storm water drain.
- Recharge basins at three outfall points are connected with the nearest storm water drain and overflow water from the recharge basins are diverted to the nallah.
- Two rain harvesting ponds are proposed to conserve the runoff and for utilization in green belt /horticulture development.
- The approximate quantity of runoff for recharge from the plant site is 43,105 m^3/year.
- From the two rainwater harvesting ponds, the quantum of water is to be utilized for green belt /horticulture development

4.5.6 Solid Waste Management

Municipal Waste Management

There is a common single solid waste management for both the township, i.e., CISF Township and NTPC Township. The organic waste will be processed in the vermi-composting pits. The inorganic waste like plastics is collected and kept in sacks which are kept in an earmarked area with concrete flooring to prevent soil contamination. All the recyclable wastes shall be sold/ disposed off through authorized recyclers/ re-processors or local vendors as per applicable standards.

Industrial waste and Fly Ash Management

Ash shall be the major solid waste to be generated from Telangana STPP Phase-II.

The ash management scheme involves dry collection of fly ash and bottom ash, supply of ash to entrepreneurs for utilization, promoting ash utilization and safe disposal of unused ash (if any). NTPC shall make maximum efforts to utilize the ash for various purposes. Unused fly ash and bottom ash shall be disposed-off through combined High Concentration Slurry Disposal System (HCSD) in the ash pond, in case of emergency. A blanket of water shall be maintained over the entire ash pond to control fugitive dust emission.

4.5.7 Fly ash Generation

The Ministry of Environment, Forests and Climate Change (MOEF&CC) has issued a Gazette Notification dated 31-12-2021.

The notification stipulates that every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall be primarily responsible to ensure 100 per cent utilization of ash (fly ash, and bottom ash) generated by it in an eco-friendly manner.

The ash generated from coal or lignite based thermal power plants shall be utilized only for the following eco-friendly purposes, namely: -

- Fly ash-based products viz. bricks, blocks, tiles, fiber cement sheets, pipes, boards, panels
- Cement manufacturing, ready mix concrete
- Construction of road and fly over embankment, Ash and Geo-polymer-based construction material
- Construction of dam
- Filling up of low-lying area
- Filling of mine voids
- Manufacturing of sintered or cold bonded ash aggregate
- Agriculture in a controlled manner based on soil testing
- Construction of shoreline protection structures in coastal districts.
- Export of ash to other countries.
- Any other eco-friendly purpose as notified from time to time.

Every coal or lignite based thermal power plant shall be responsible to utilize 100% ash (fly ash and bottom ash) generated during that year, however, in no case shall utilization fall below 80% in any year, and the thermal power plant shall achieve average ash utilization of 100% in a three-year cycle. 20% of ash generated in the final year of compliance cycle may be carried forward to the next cycle which shall be utilized in the next three years cycle along with the ash generated during that cycle.

Provided that the three years cycle applicable for the first time is extendable by one year for the thermal power plants where ash utilization is in the range of 60-80%, and two years where ash utilization is below 60% and for the purpose of calculation of percentage of ash utilization, the percentage quantity of utilization in the year 2021- 2022 shall be taken into account as per the table 4.9 below:

Table 4-9: Utilization of Fly Ash

Utilization % of thermal power plants	First compliance Cycle to meet 100 % utilization	Second compliance cycle onwards, to meet 100 % utilization
>80 per cent	3 years	3 years
60-80 per cent	4 years	3 years
<60 per cent	5 years	3 years

The un-utilized accumulated ash i.e., legacy ash, which is stored before the publication of this notification, shall be utilized progressively by the thermal power plants in such a manner that the utilization of legacy ash shall be completed fully within ten years from the date of publication of this notification and this will be over and above the utilization targets prescribed for ash generation through current operations of that particular year.

Provided that the minimum quantity of legacy ash in percentages as mentioned below shall be utilized during the corresponding year and the minimum quantity of legacy ash is to be calculated based on the annual ash generation as per installed capacity of thermal power plant.

Table 4.10: Utilization of legacy ash

Year from date of publication	1st	2nd	3rd -10th
Utilization of legacy ash (in % of Annual ash)	At least 20 %	At least 35 %	At least 50 %

In order to utilize ash in these areas and also to comply the stipulations of MOEF&CC's Gazette Notification on fly ash dated 31-12-2021 following actions would be taken up by NTPC:

NTPC shall provide a system for 100% extraction of dry fly ash along with dedicated dry ash silos for storage of at least sixteen hours of ash based on installed capacity having separate access roads so as to ease the delivery of fly ash. Provision shall also be kept for segregation of coarse and fine ash, loading this ash to closed/ open trucks and also for loading fly ash into rail wagons. This will ensure

availability of dry fly ash required for manufacture of Fly Ash based Portland Pozzolana Cement (FAPPC) for cement plants and Ready-Mix Concrete plants.
NTPC shall also promote, adopt and set up the ash-based product manufacturing facilities within its premises & fly ash brick thus produced shall be utilized in in-house construction works as well as for supply in the market on price.

NTPC shall make efforts to motivate and encourage entrepreneurs to set up ash-based building products such as fly ash bricks, blocks tiles, fly ash-based aggregate etc., in the vicinity of proposed power plant.

To promote use of ash in agriculture/ low lying areas/ wasteland development-show case project shall be taken up in the vicinity of proposed thermal power station.
NTPC shall make efforts with authorities of coal mines and other minerals mines for use of ash in reclamation of mines located within 300 km of proposed power station.

All government/ private agencies responsible for construction/ design of buildings, road embankment, flyover bridges and reclamation/ development of low-lying areas within 300 km of the plant areas shall be persuaded to use ash and ash-based products in compliance of MOEF&CC's Gazette Notification on fly ash.

With all the efforts mentioned above, it is expected that fly ash generated at proposed thermal power station shall be utilized in the areas of cement, concrete & building products manufacturing, road embankment construction, land development, mine filling, shoreline protection structure, agriculture etc.

During plant operation, various equipments like pumps, cooling towers, compressors and boilers, turbine etc will generate the noise. Greenbelt, landscaping with horticulture at power block areas to reduce noise impacts has already been implemented.

Further, control measures will be adopted to mitigate higher noise levels:

- Equipment will be designed to conform to noise levels prescribed by regulatory authorities,
- Provision of acoustic barriers in noisy workplaces
- Provision of hoods to noise generating equipment's like pumps
- Provision of thick greenbelt to attenuate the noise levels; and
- Provision of personal protective equipment (PPE) such as earplugs and earmuffs to the workers working in high noise level area.

4.5.8 Mitigation Measures for Biological Environment:

An elaborated mitigation plan has been envisaged during implementation and operation of Phase-II of the project. The salient features of the mitigation measures are given below:

- The excavated soil from the project site should be kept separately and can be used to boost restoration and green plantation activity.

- Planting fruit bearing tree for avifauna and other faunal species.
- River Godavari is flowing near the project site. Utmost precaution should be taken, so that no natural habitat and organisms in and near water bodies would get affected.
- Wastewater and solid waste from the ash pond site and effluents should not be disposed of without proper treatment. Treated wastewater should be reused & recycled and Zero Liquid Discharge should be maintained.
- All vehicles that is coming inside the project site should maintain speed limit and will not blow horn unless it is required.
- ETP, STP and Zero Liquid Discharge must be maintained and regularly monitored.
- Water sprinklers should be used for suppression of fugitive dust pollution.
- Awareness will be given to workers about the importance and conservation of terrestrial ecology and biodiversity.

To reduce air pollution, it is recommended to increase the green cover near the canal and around the project site. The plantation should include native plants. To reduce air pollution, it is recommended to increase the green cover near the canal and project site. The plantation should include native plants. Approx. 3.10 lakhs trees have been planted inside and around plant and township premises including Miyawaki Method Plantation also. Further, phase-wise plantation shall be undertaken as part of EMP for Phase-II also.

4.6 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES DURING CONSTRUCTION AND OPERATION PHASE

A brief summary of impacts and control and mitigation measures are given in Table 4-11 below:

Table 4-11: Summary of anticipated environmental Impacts and Mitigation Measures during Construction & Operation Phase

Discipline	Potential Negative Impacts	Probable Source	Mitigation Measures	Remarks
Construction Phase				
Water Quality	Increase in suspended solids due to soil run-off during heavy precipitation	Loose soil at construction site	During monsoon season run off from construction site will be routed to a temporary sedimentation Tank for settlement of Suspended solids.	Decanted water will be utilized for dust suppression.

Discipline	Potential Negative Impacts	Probable Source	Mitigation Measures	Remarks
Air Quality	Increase in dust and NO_2 concentration	Site leveling activity and heavy Vehicular movement	Sprinkling of water in the construction area and on unpaved roads. Proper maintenance of vehicles will be done.	The impact will be low, as the main approach road will be tarred.
Noise	Increase in noise level	Construction equipment	Equipment will be kept in good condition to keep the noise level within 90dB (A).	Workers will be provided necessary protective equipment e.g. ear plug, earmuffs.
Terrestrial Ecology	Clearing of vegetation	Soil enabling activities	Landscaping and extensive plantation will be done	-
Socio-economics	Influx of people	No displacements and loss of livelihood	Increase in employment opportunities for local people. During construction, due to influx of labour, economic activities in surrounding areas will be increased.	-
Operation Phase				
Air Quality	Increase in PM, SO_2 and NOx levels in ambient air	Stack emissions and fugitive dust emissions from coal stockyards at Coal Handling Plant (CHP).	• High Efficiency Electrostatic Precipitators • NOx Control System • Stacks of 275m will be provided for the proper dispersion of pollutants. • Motorable roads in the plant area will be paved to reduce dust emission. • Afforestation programs will be undertaken around the plant area. • Dust suppression measures will be implemented in the coal handling plant and stock yards.	The resultant air quality will conform to the stipulated standards. Particulate emission from stack will be kept below 30mg/Nm^3, and SO_2 mg/Nm^3 and NO_x will be maintained as per applicable norms.
Water Quality	Deterioration of surface Water quality	Discharge from various plant units	Adequate treatment facilities will be provided to effluent stream and treated effluents will be recycled/reused for	

Discipline	Potential Negative Impacts	Probable Source	Mitigation Measures	Remarks
			different purposes. The system will be designed with ZLD concept.	
Solid Waste	Fly ash and bottom ash	Burning of coal	Fly ash will be supplied to cement industries and brick manufacturing units & rest will be disposed in ash pond. Pond ash will be utilized in road projects and other usages as per demand.	Govt. Notifications of Fly Ash Utilization will be followed.
Terrestrial Ecology	Impact on plant species	Emissions from stack	Emission will be controlled as well as dispersed through appropriate design.	As ambient air quality will be within limits, no active injury to the vegetation is expected.
Aquatic Ecology	Impact on water bodies	Treated wastewater from plant	The wastewater will be provided with adequate treatment and diluted in Central monitoring basin the treated wastewater will be used for horticulture and dust suppression	As all the effluents will be treated to conform to prescribed limits, no significant impact on aquatic life is expected
Noise	Increase in noise levels in the plant area.	Equipment's of main plant and auxiliaries' systems.	Equipment will be designed to conform to noise levels prescribed by the regulatory body. Provision of greenbelt and plantation would further help in attenuating noise.	Employees working in high noise areas would be provided earplugs/ earmuffs as protective device.
Demography and socio-economics	Strain on amenities like housing, water sources and sanitation, medical and infrastructure facilities.	Influx of people of proposed power plant employees as well as contractor's employees/ labourers.	The local population will be given preference in employment and awarding petty works. No significant impact is envisaged.	Overall socio-economic status of the area is expected to improve.

CHAPTER 5: ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

5.1 INTRODUCTION

The existing site for Telangana STPP, Phase-I (2x800 MW) was selected based on the following considerations:

- Availability of suitable and adequate land;
- Adequate distance from source of coal;
- Reliable source of water;
- Road and railway access;
- Facility for interconnection with transmission system for evacuation of power;
- Availability of infrastructural facilities; and
- Environmental aspects: No ecological sensitive area, more than 500m distance from water body, etc.

The Phase-II expansion project will be accommodated within existing premises. Hence no alternate site was analyzed for main plant facilities. However, additional land would be required for ash disposal for which alternative sites have been analyzed.

5.2 ALTERNATIVE SITES FOR ASH POND

The Telangana Super Thermal Power Plant (STPP) with a capacity of 4000MW is being developed on the land originally acquired under Ramagundam Super Thermal Power Station (STPS). The development of Telangana STPP (400MW) is being carried out in two phases: Phase-I (2x800MW) and Phase-II (3x800MW).

Both the units of Telangana STPP Phase-I (2x800MW) have been commissioned and are under commercial operation. The main plant and associated facilities for Phase-II will be situated within the current land area allocated for the project, eliminating the need to seek alternative sites. However, an additional 246.858 hectares (610 acres) of land is required for constructing Ash Dykes. This land is proposed to be acquired near the existing Ash Dykes of the Ramagundam STPS.

However, the following three alternative sites were considered for ash disposal from proposed Telangana STPP Phase-II (3x800MW).

1. Medipalli Mine void

Medipalli Mine Void of Singereni Collieries Company Limited (SCCL) was proposed for disposal of ash from existing NTPC Telangana STPP (Phase-I). The proposal was put up for consideration of the Expert Appraisal Committee. A sub-committee of EAC conducted site visit of the proposed mine void and Telangana STPP. The sub-committee observed that the ash disposal in mine void is environmentally not sustainable in the long term and asked NTPC to explore Alternate Avenue for ash disposal. Subsequently, during the EAC meeting it was stated that using a part of the water body for ash disposal is not advisable due to the fragile ecology and sensitive aquatic environment. Hence, this alternative is not being pursued further.

2. Area Near Existing Ash Dyke area of Telangana STPP Phase-I (2x800MW)

NTPC had proposed for construction of ash dykes on 400 Acres of area near balancing reservoir area for Telangana STPP Phase-I (2x800MW). However, due to nearness to the water body (NTPC balancing reservoir), later on the EAC directed that the ash pond area shall be reduced by 50%, reduced area (200 acre) of Ash pond shall be used for Greenbelt development, out of which 30 acres land shall be used for creating plantation barrier (50m width) between water storage area and ash pond so as to avoid mixing of pollutants in the water body. Plantation shall be done by Miyawaki technique with 90% survival rate.

Due to the above restrictions, area near balancing reservoir is not being considered suitable for disposal of ash from proposed expansion project.

3. Proposed area towards south-west of existing ash dykes of Ramagundam STPS

Approx. 246.858 Ha (610 Acres) of land has been identified towards south-west of existing ash dykes of Ramagundam STPS. The land does not involve any forest area. Resettlement and Rehabilitation for the Mogalpahad village has already been done. The area was earlier considered for acquisition and concerned administration of the state govt. has initiated action in this regard.

Based on analysis of all the above-mentioned alternatives, option no. 3 has been found to be most suitable for construction of the ash dyke for the proposed expansion project Telangana STPP Phase-II (3x800MW).

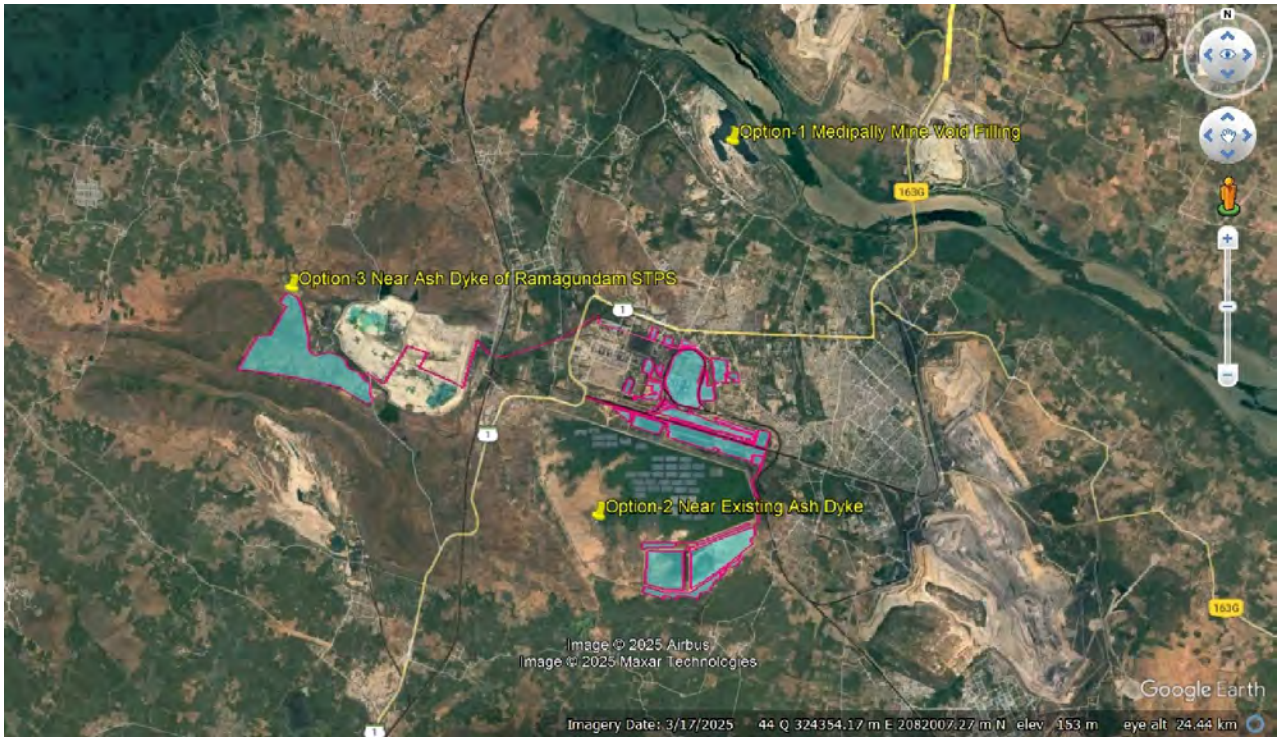


Figure 5.1: Map showing all the three locations

5.3 POWER PLANT TECHNOLOGY AND ALTERNATIVES

Coal-fired power generation is achieved by coal combustion through a boiler, heating high-pressure water in a heat-transfer pipe by high-temperature combustion gas to produce steam that runs a turbine. The principle of thermodynamics states that power generation efficiency becomes higher as steam temperature and steam pressure increase. High-temperature, high-pressure steam is utilized to generate power is key to higher power-generation efficiency. Once it boils, water changes into steam. As pressure gets higher, the boiling point also increases. Once pressure reaches a critical point (374ºC, 22.1 MPa), water is turned into a supercritical fluid without boiling. A power-generation system utilizing a boiling phenomenon at a temperature lower than the critical point is called a subcritical pressure unit, and another utilizing the conditions exceeding the critical point is called a supercritical (SC) pressure unit; the latter system ensures higher efficiency.

The technology's developments in the past decades have primarily involved increasing plant thermal efficiencies by raising the steam pressure and temperature. Based on the differences in temperature and pressure, the technology is categorized into three tiers:

1. Sub- Critical; and
2. Super-Critical
3. Ultra Super-Critical

Sub-Critical Units

Sub-Critical conditions occur when the steam pressure is below 221.2 bar (a) where mixture of steam and water co-exists. Typical steam pressures for sub critical units will be about 170 kg/cm^2 (a).
Subcritical power plant units in India operate at steam conditions 170 kg/cm^2 (a) main steam pressure and at 540°C main steam and reheat steam parameters at turbine inlet.

Super-Critical Units

Super-critical conditions occur when the boiler steam pressure increases above the critical pressure of 221.2 bar (a). Above this point, two phase mixtures of water and steam cease to exist and are replaced by a single supercritical fluid. This eliminates the need for water/steam separation in drums during operation and allows a simpler separator to be employed during start-up conditions. Supercritical technology operates above steam/water critical pressure of 221.2 bar (a) and 374°C.

Supercritical steam parameters:

Steam pressures up to 250 kg/cm^2 (a) and steam temperatures ranging from 538°C to 593°C at turbine inlet.

Ultra Super Critical

An Ultra-super critical plant uses Ultra-super critical (USC) steam parameters at the super heater outlet. Ultra-super critical technology has steam parameters higher than supercritical/ sub-critical technology. In preliminary design consideration, main steam pressure will be 281 kg/cm^2 (a) at superheater outlet, main steam temperature at superheater outlet will be 603^{o}C. Considering the

advantages like better efficiency, lower carbon emissions NTPC has moved forward in adopting Ultra-super critical technology.

5.4 ADVANTAGES OF ULTRA SUPER CRITICAL TECHNOLOGY

The ultra-super-critical technology based thermal power plants have the following advantages.

I- Higher Efficiency

Ultra Supercritical steam conditions improve the turbine cycle heat rate significantly over subcritical steam conditions. The extent of improvement depends on the main steam and reheats steam temperature for the given supercritical pressure.

A typical ultra-supercritical cycle having turbine throttle pressure of 270 kg/cm^2 with Turbine throttle Main steam/ Reheat Steam temperature of 600°C, will improve station heat rate resulting into fuel savings. Overall supercritical power plant efficiency of 42% is achievable with current supercritical parameters.

Higher efficiency ultra-supercritical plants require less water per unit of electricity generated, which is crucial in regions facing water scarcity.

II- Lower Emissions

Improved heat rate results in reduction in fuel consumption and hence reduction in CO_2 emissions per MWh energy output.

III- Operational Flexibility

Ultra-Supercritical technology units also offer flexibility of plant operation such as shorter start-up times, faster load change flexibility and better temperature control, better efficiency even at part load due to variable pressure operation and high reliability and availability of power plant.

Ultra-Supercritical plants can generate more power from the same amount of fuel compared to older technologies, thereby increasing the overall capacity and reliability of electricity supply.

Ultra-Supercritical technology often incorporates advanced materials and designs that enhance durability and reduce maintenance requirements, thereby extending the operational lifespan of the power plant.

Taking into consideration the above environmental and technical advantages, and the existing units are based on ultra-supercritical technology; the proposed expansion project would also be adopting Ultra Supercritical technology.

5.5 CONDENSER COOLING TECHNOLOGY & ALTERNATIVES

Condenser cooling technology in thermal power plants refers to the methods used to remove heat from the steam that has passed through the turbine and convert it back into liquid form (water) for re-use in the boiler. There are primarily two types of condenser cooling technologies:

1. Water Cooled Condensers
2. Air Cooled Condensers

I. Water cooled condensers

Water-cooled condensers (WCC) are vital components in thermal power plants, playing a crucial role in the efficient conversion of steam back into water after it has passed through the turbine. Water-cooled condensers serve to condense the exhaust steam from the turbine into liquid water, which is then returned to the boiler to be reheated and reused in the steam cycle. This process maximizes the efficiency of the power plant by ensuring that as much energy as possible is extracted from the steam.

II. Air Cooled Condenser

Air-cooled condensers (ACC) represent an innovative approach to cooling in thermal power plants, particularly in regions where water resources are limited, or environmental regulations restrict the use of water-cooled systems. Unlike water-cooled condensers that rely on water from natural sources, ACCs utilize ambient air as the cooling medium. These condensers consist of finned tubes through which the hot exhaust steam passes. As air is blown over the finned tubes, heat is transferred from the steam to the ambient air, causing the steam to condense back into liquid water. The condensed water is then collected and returned to the boiler for reheating, completing the steam cycle.
Taking into account the benefits of air-cooled condensers (ACC), NTPC is embracing this technology as an alternative for Telangana STPP Phase-II expansion project.

Following are some of the advantages of Air Cooled Condensers:

i. **Water Conservation**: ACCs significantly reduce or eliminate the need for cooling water from external sources, conserving precious water resources, especially in water-scarce regions.
ii. **Environmental Impact:** They mitigate environmental concerns related to thermal pollution and potential impacts on aquatic ecosystems, as no water discharge is required.
iii. **Operational Flexibility:** ACCs can be installed in locations where water availability is limited or where environmental regulations restrict the use of water-cooled systems.
iv. **Reduced Infrastructure Costs:** They lower costs associated with water intake structures, treatment facilities, and discharge systems, contributing to overall cost savings in plant construction and operation.

v. **Adaptability to Climate:** While less efficient in very hot climates, modern ACC designs are improving to maintain effective cooling performance across a range of ambient temperatures.

vi. **Long-Term Sustainability**: ACCs offer a sustainable cooling solution that aligns with global trends towards water conservation and environmental stewardship in power generation.

These advantages make air-cooled condensers a viable and increasingly preferred choice for thermal power plants, especially in regions facing water scarcity or stringent environmental regulations.

CHAPTER 6: ENVIRONMENTAL MONITORING PROGRAM

6.1 INTRODUCTION

Regular monitoring of environmental parameters is of immense importance to assess the status of environment during project operation. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator for any deterioration in environmental conditions due to construction and operation of the project, to enable taking up suitable mitigation steps in time to safeguard the environment. Environment Monitoring is as important as that of control of pollution since the efficiency of control measures can only be determined by regular monitoring.

Generally, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality.

6.2 OBJECTIVE OF MONITORING

Monitoring and recording of quantitative information such as quantity and concentrations of discharges, emissions and wastes helps in assessing environmental conditions against statutory standards, consent limits or targets. The objectives of environmental post-project monitoring are to:

- Verify effectiveness of planning decisions
- Measure effectiveness of operational procedures
- Confirm compliance to statutory and corporate guidelines and
- Identify unexpected changes

6.3 MONITORING SCHEDULE

Environmental monitoring schedules are prepared covering various phases of project advancement, such as construction phase and regular operational phase.

I- Monitoring Schedule during Construction Phase

As the proposed project is expansion of existing project, the monitoring mechanism and schedule of existing Ambient Air Quality, Noise and water quality monitoring will cater the requirements during construction phase of proposed expansion. Ambient air quality, noise levels will be monitored regularly within the project site as per CPCB guidelines.

The ambient air quality monitoring shall be conducted at the construction site and downwind location to assess the efficacy of the mitigation measures undertaken during construction phase to control fugitive emissions. The air quality parameters of PM10, PM2.5, SO2, NOx etc. shall be monitored twice every week. The noise levels shall be monitored at the construction site and at the plant boundary once a month till completion of construction activity.

II- Monitoring Schedule during Operational Phase

During operational phase, continuous air emissions from power plant stack, effluent from wastewater treatment plant, non-hazardous & hazardous waste such as used oil shall be required to be monitored.

The following attributes which merit regular monitoring based on the environment setting and nature of project activities are listed below:

- Source emission i.e., Stack emissions
- Ambient Air Quality
- Noise levels (Equipment & machinery noise levels, occupational exposures and ambient noise levels)
- Waste Water Quality (Effluent & Sewage)
- Groundwater Quality
- Surface Water Quality
- Soil Quality
- Ecological preservation and plantation activity
- Socio economics survey of nearby villages
- Solid and Hazardous waste characterization (Fly ash, Bottom ash & other wastes etc.)

In addition to the monitoring, the compliances to all Environment Clearance conditions of MoEF&CC and consent to operate conditions from Telangana State Pollution Control Board shall be monitored and reported periodically.The following routine monitoring programme as detailed in Table-6.1 shall be implemented during operational phase of the project.

Table 6-1: Environment Monitoring during Operation of Phase – I & Phase - II

Sr. No.	Monitoring Requirement		Parameters for Monitoring	Frequency of Monitoring	Location to be covered
1	Stack emissions	On-line continuous emission monitoring system (OCEMS) shall be installed.	PM, SO_2, NOx	Continuous Monitoring and real-time data transmission to SPCB/CPCB	Stacks of each unit
		Manual Stack monitoring shall be carried out. Adequate provisions like Port Holes, Platform, Power Supply etc. shall be made as per CPCB/ SPCB guidelines.	PM, SO_2, NOx, Hg, O_2, CO_2, Flue Gas Velocity, Flow & Temperature etc.	Twice in a month through MoEF&CC recognized laboratory	Stacks of each unit
2	Ambient Air Quality	Continuous Ambient Air Quality Monitoring within the project premises and real-time data transmission to SPCB/CPCB	PM_{10}, $PM_{2.5}$, SO_2, NO_2	Continuous Monitoring and real-time data transmission to SPCB/CPCB	4 Nos. of existing CAAQMS stations
		Manual AAQ monitoring inside plant premises and at nearby habitations / villages	PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, Hg and other parameters as per NAAQS-2009 / CPCB guidelines/ notifications	As per CPCB/ SPCB direction or twice a week through MoEF&CC recognized laboratory	6 locations in & around the project
3	Meteorology	Meteorological station at project premises	Wind Speed, Wind Direction, Relative Humidity, Rainfall, Temperature, Solar Radiation	Continuous Monitoring	One location at the project site
4	Ambient Noise levels	Ambient Noise levels within plant and nearby habitations	L_{day}, $L_{night,}$ dB(A) Leq	Once in a month for nearby habitations and one in three months for work zones or as per CPCB/ SPCB requirement through MoEF&CC recognized laboratory	Plant boundary, nearby habitations
5	Wastewater Quality	Online monitoring of Treated Effluent and real-time data transmission to SPCB/CPCB	As per CTE/CTO conditions, Effluent discharge standards including Physico-Chemical, and Heavy metal parameters	On-line continuous monitoring of pH, temperature, conductivity	ETP outlet
		Offline Monitoring of Different wastewater streams		Once in a month through MoEF&CC recognized	ETP, STP, AWRS etc.

				laboratory	
6	Water Quality	Water quality monitoring in the surrounding of the plant site	Surface water and ground water quality as per IS-10500:2012	Once in a month	Ground water around ash pond, surface water quality of Godavari River and ponds
7	Soil Characteristics	To assess the fertility & nutrient status of the soil	Physico-chemical parameters and metals.	Once in six months	Plantation area within plant, Surrounding agricultural fields, forests and plantations.
8	Occupational Health	Health checkups of Employees and Contract workers	All relevant health parameters	Annual / or as per statutory norms for Occupational Health checkups	Employees and Contract workers
9	Emergency preparedness such as fire fighting	Disaster Management Plan, Fire protection and safety measures to take care of fire and explosion hazards, to be assessed and steps taken for their prevention.	Mock drill & it's records, on-site & off-site emergency plan, evacuation plan	Periodic during operation phase	Plant premises and vicinity
10	Maintenance of flora and fauna	Horticulture, greenbelt/ green cover development, Miyawaki Plantation	Number of plants, species, diversity & density of plant species.	Regular/ As per requirement	Greenbelt within and around the plant premises
11	Water Balance Audit	Assessment of Water consumption for various uses and optimization of the same	Water consumption	Regular/ Online flow meters	Raw water intake, consumption in various systems, reuse/recycle etc.
12	Socio-economic status	Need based assessment survey /Social Impact Evaluation	Living standards / CSR-Community development (CD)/CER Benefits	As per requirement	Nearby villages

6.4 MONITORING METHODS

I- Air Quality Monitoring and Data Analysis

- **Stack Monitoring**

The emissions from all the stacks shall be monitored regularly. The exit gas temperature, velocity and pollutant concentrations shall be measured. Any unacceptable deviation from the design values shall be thoroughly examined and appropriate action shall be taken. Air blowers shall be checked for any drop in exit gas velocity.

Continuous Emission Monitoring Systems (CEMS) are already in place in Phase-I to monitor flue gases and to provide information for combustion control. The same will be implemented for Telangana STPP Phase-II also. Online monitoring data shall be transmitted to CPCB/TSPCB.



Figure 6.1: Continuous Stack Emissions Monitoring System (CEMS)

- **Fugitive Dust Monitoring**

The concentration of air borne pollutants in the workspace/work zone environment shall be monitored periodically. If concentrations higher than threshold limit values are observed, the source of fugitive emissions shall be identified, and necessary measures will be taken.

- **Ambient Air Quality Monitoring**

The ground level concentrations of PM_{10}, $PM_{2.5}$, SO_2, NO_2 and Hg in the ambient air shall be monitored at regular intervals. Any abnormal rise shall be investigated to identify the causes and appropriate action shall be initiated. Greenbelt shall be developed for minimising dust propagation. The ambient air quality data generated through Continuous Ambient Air quality monitoring system (CAAQMS) shall be transferred and processed in a centralised computer facility equipped with required software. Manual Ambient Air Quality monitoring will be done at nearby area. Trend and statistical analysis shall be done, and corrective measures will be taken accordingly.

Ambient air quality monitoring is being already carried out for Telangana STPP Phase-I to monitor the level of pollutants. The same will be implemented and further strengthened for Telangana STPP Phase-II also.

NTPC Telangana has already installed four nos. Online AAQMS stations at locations finalized with consent of TGPCB for continuous monitoring of prominent Parameters PM_{10}, $PM_{2.5}$, SO_2, NO_2 along with meteorological station at One of the AAQMS. The locations are as given below:

1. CISF Colony

2. Laxmipuram Colony

3. Annapurna Colony

4. Solar (Near Balancing Reservoir).



Figure 6.2: Ambient Air Quality Monitoring Stations

II- Water and Wastewater Quality Monitoring

To ensure a strict control over the water consumption, flow meters shall be installed for all major consumption sources. All leakages and excess shall be identified and rectified timely. In addition, periodic water audits shall be conducted to explore further possibilities for water conservation. Methods prescribed in "Standard Methods for Examination of Water and Wastewater" prepared and published jointly by American Public Health Association (APHA), American Water Works Association (AWWA) are recommended.



Figure 6.3: Effluent Quality Monitoring Station)

Monitoring of Wastewater Streams

All the wastewater streams in the project area shall be regularly analysed for flow rate and physical and chemical characteristics. Such analysis is carried out for wastewater at the source of generation or at the point of entry into the wastewater treatment plant and at the point of final storage for recycling/reuse. These data shall be properly documented and compared against the design values for any necessary corrective action.

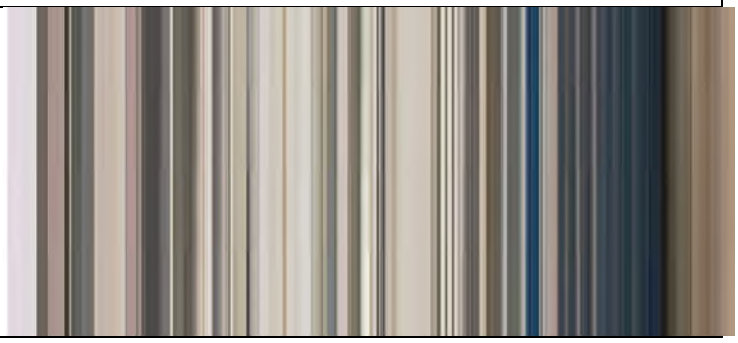
Monitoring of Groundwater

The monitoring of groundwater nearby ash pond is the most important tool to test the efficiency of ash pond performance. This is indispensable as it provides detection of the presence of waste constituents in groundwater in case of leachate permeation through soil. In this programme, water samples are taken at a predetermined interval and analysed for specific pollutant expected to be in the leachate. For early detection of leachate permeation, if any, it is suggested to construct piezometers around the ash pond site.

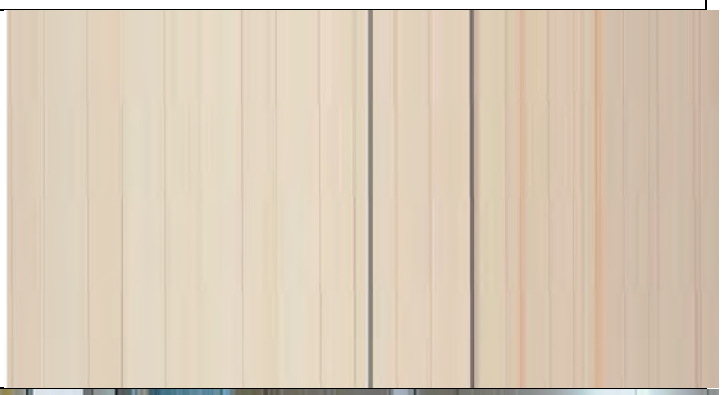
In addition to piezometers, monitoring wells should be installed/identified to a depth of at least 3-m below the maximum historic groundwater depth. Based on assumptions and data about the characteristics of leachate to be generated, approximate permeability of soils in the zone of aeration and direction and velocities of groundwater flow, the maximum probable aerial extent of contaminant migration can be estimated as a basis for establishing the position of monitoring wells. A minimum of two ground monitoring wells should be typically installed at ash disposal facility: one up-gradient well and one down-gradient well. It is suggested to collect water samples and analyse. Records of analysis should be maintained for the trend analysis in future.



Figure 6.4: Laboratory for Water and Wastewater Testing

Testing Parameter	Testing Equipment
pH Analyzer	
Conductivity Analyser	
Turbidity Analyser	

TSS Analyser	
Oil & Grease Analyser	
Ion Chromatograph Anion & Cation	
COD Analyser	

BOD Analyser	
TOC Analyser	
Flame Photometer Analyser	
Jar Test Analyser	

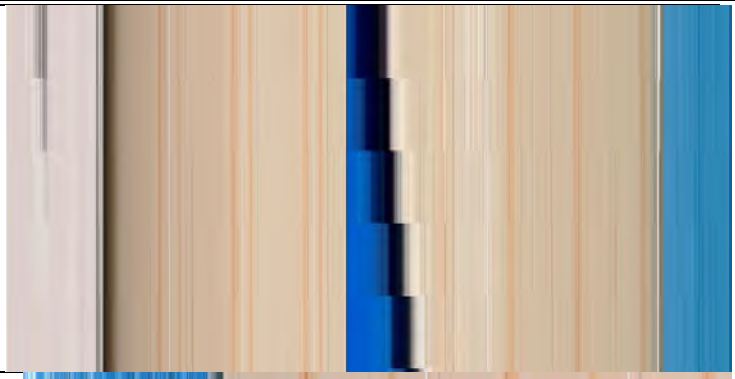
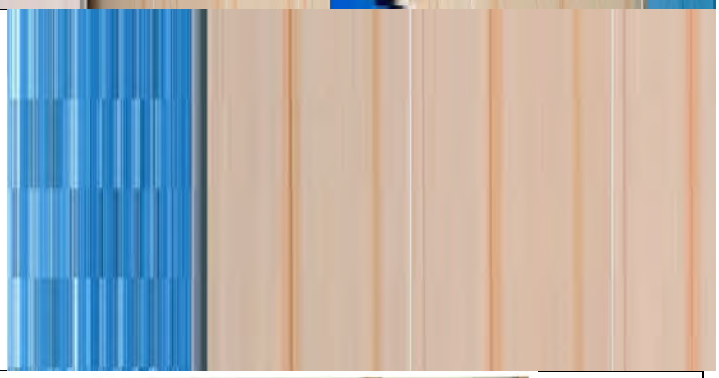
Milli-Q Water Purifier System Analyzer	
Electrical Balance	
Stack Emissions Monitoring Kit	
Ambient Air Quality Monitoring Samplers	

Figure 6.5: Laboratory Facilities for Environmental Testing

III. Noise Levels

Noise levels in the work zone environment such as boiler house, cooling towers area, TG house and compressors area shall be monitored. The frequency shall be once in three months in the work zone. Similarly, ambient noise levels at boundary & near habitations shall also be monitored once in a month. Audiometric tests should be conducted periodically for the employees working close to the high noise sources.

6.5 REPORTING SCHEDULES OF THE MONITORING DATA

All environmental monitoring and relevant operational data will be stored in a dedicated database. This will enable efficient retrieval, storage and interpretation of the data. Regular data extracts and interpretive reports will be sent to the regulator. Real-time data transmission will be implemented as per SPCB/CPCB guidelines.

It is proposed that voluntary reporting of environmental performance with reference to the EMP should be undertaken.

The Environmental Management Group shall co-ordinate all monitoring programmes at site and data thus generated shall be regularly furnished to the state & central regulatory agencies as per statutory requirements.

The frequency of reporting shall be as per consent conditions and Environmental Clearance conditions to the Telangana State Pollution Control Board and to the Integrated Regional Office of MoEF&CC. The environmental statement reports shall be prepared for the entire year of operations and shall be regularly submitted to regulatory authorities.

6.6 ENVIRONMENTAL MANAGEMENT GROUP

An Environmental Management Group (EMG) has been established at existing Telangana STPP (Phase-I). EMG has experienced, trained & environment qualified manpower, equipments for compliance monitoring and reporting and other environmental related activities to ensure compliance of statutory requirements. It collects all monitoring reports, compiles and submits regularly to Telangana State Pollution Control Board (TSPCB) and Integrated Regional Office of MoEF&CC. Existing EMG setup would be further strengthened for the proposed Phase-II project, as per requirement.

The structure of EMG, responsible for implementation and monitoring of environmental activities at the plant site is given below as Figure 6.6.

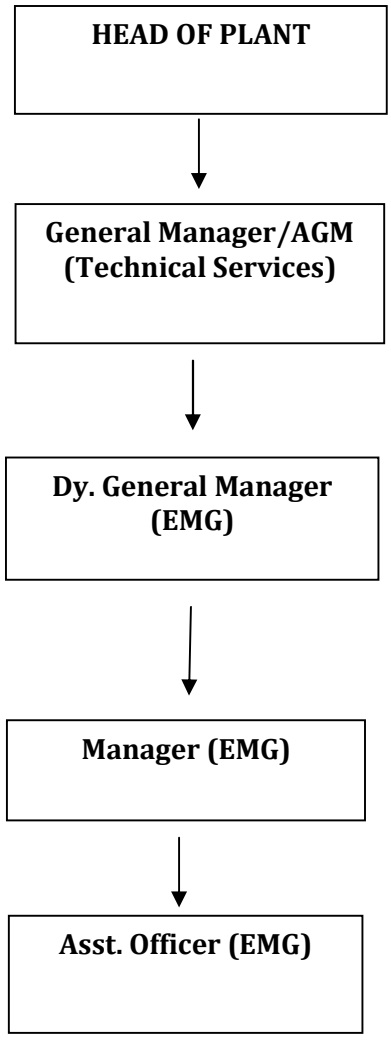


Figure 6-6: Present Organization Structure of Environment Management Group at NTPC Telangana STPP

6.7 ENVIRONMENTAL COST TOWARDS MONITORING SETUP

The estimated expenditure for establishing online monitoring systems for stack emissions, ambient air quality, effluent quality and environmental laboratory to regularly monitor various environmental parameters will be approximately Rs. 6.90 Crores.

Photographs showing existing Environmental Monitoring systems and Pollution Control Measures are given below:



Figure 6.7-Ambient Air Quality Monitoring System



Figure 6.8-Effluent Quality Monitoring System



Figure 6.9- Continuous Emission Monitoring System



Figure 6.10- Dry Fog Dust Suppression System





Figure 6.11- Fugitive Dust Control by Water Sprinkling



Figure 6.12- Fugitive Dust Control by Tanker washing facility



Figure 6.13- Fugitive Dust Control by Tarpaulin covering on open body trucks



Figure 6.14- Sewage Treatment Plant of 3.5 MLD capacity



Figure 6.15- Liquid Waste Treatment Plant (LWTP)



Figure 6.16- Greenery around Plant Premises



Figure 6.17- Plantation on sides of MGR





Figure 6.18- Miyawaki Plantation near Reservoir



Figure 6.19- Green Belt / Plantation Inside and Around Plant Premises

CHAPTER 7: ADDITIONAL STUDIES

Based on the TOR specified by the Ministry of Environment, Forest, and Climate Change (MoEF&CC) issued vide letter no. J-13012/112/2010-IA.II(T) dated 10.04.2024 for preparation of EIA&EMP report for the proposed expansion project, NTPC, Telangana is carrying out several additional studies regarding hydrogeology study, Wildlife conservation plan, Occupational Health Management, Watershed Management Plan etc. which will help in the understanding the environmental impact of the expansion project in better ways. Summary of all the additional studies are presented in this chapter with the detailed reports incorporated in Annexures of Final EIA & EMP report.

7.1 PUBLIC CONSULTATION

Public hearing is a significant part of the public participation process envisaged under the EIA Notification, 2006, issued by the MoEF&CC. The public hearing for Telangana STPP, Phase-II (3x800 MW) was initially scheduled for 29.11.2024 at Zila Parishad High School, NTPC-Jyotinagar. However, due to unforeseen circumstances, it was postponed and rescheduled for 19.12.2024 at the same venue. Unfortunately, the public hearing was postponed once again. Finally, the environmental public hearing was conducted successfully conducted on 28.01.2025.Comprehensive details along with the action plan are furnished below.

Details of Public Hearing held at District- Peddapalli	
Name of Newspaper (advertisement)	Eenadu Telugu News Paper 23.10.2024, 02.12.2024, 08.01.2025 Deccan Chronicle English News Paper 23.10.2024, 02.12.2024, 08.01.2025
Date and Time	28.01.2025 at 11:00 A.M.
Venue	Zila Parishad High School, NTPC-Jyotinagar, Ramagundam Mandal, District- Peddapalli
Govt. Representatives	1. Sri K. Sree Harsha-Collector & District Magistrate, Pedaapalli District 2. Sri B. Bhikashapathi Environmental Engineer, Telangana Pollution Control Board, Regional Office, Ramagundam
No. of people attended	228 Nos.

Total 49 nos. people presented their views in physical while 51 nos. written represantations were given to SPCB. However, morethan 1000 nos. of people had attended the public hearing. Detailed proceedings of the Environmental Public Hearing have been incorporated into the Final EIA Report which is enclosed as Annexure-XXV Copies of newspaper advertisements regarding Environmental Public Hearing and timebound action plan with physical targets and budget provisions are given below:



TELANGANA POLLUTION CONTROL BOARD
REGIONAL OFFICE, RAMAGUNDAM - 505 215
Peddapalli District, Ph No. 08728-272597, Email: ee-rgm-tspcb@telangana.gov.in

ENVIRONMENTAL PUBLIC HEARING NOTIFICAITON

In accordance with the Notification No.S.O.1533(E), Dated 14.09.2006 of Ministry of Environment & Forests, Government of India, it is hereby notified that M/s. Telangana Super Thermal Power Project has proposed for expansion from 1600 MW (Phase I : 2x800 MW) to 4000 MW (Phase II : 2400 (3x800 MW) in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State to obtain Environmental Clearance from MoEF & CC, GoI. The details of the proposed project activities as given by the proponent are as follows:

1. **Name of the Project:** Expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I : 2x800 MW) to 4000 MW (Phase II : 2400 (3x800 MW) in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc., District Peddapalli, Telangana State.
2. **Location of the project:** M/s.Telangana Super Thermal Power Project (M/s.TSTPP) village Ramagundam, Kundanpalli, Ranapur and etc., District Peddapalli.
3. **Name of the authorized person to be contacted:** Sri Kedar Ranjan Pandu, Executive Director (R&T), M/s.Telangana Super Thermal Power Project (M/s.TSTPP) Jyothinagar, Ramagundam Mandal, Peddapalli District, Ph No: 08728-272505 (O) Fax: 08728-272122, Cell: 7995913759, Email: emgtelangana@ntpc.co.in
4. **Name of the Project consultant / Environment consultant:** M/s.MANTEC CONSULTANTS PVT. LTD. (NABET Accredited EIA Consultant, MoEF&CC and NABL approved Laboratory) Environment Division, D-36, Sector-6, Noida-201301, U.P.
5. **Capital Cost:** Estimated Cost of the proposed expansion project (phase-II): Rs.21000 Cr.
6. **Line of activity and Capacity:** Thermal Power Generation - 2400 MW (Phase II: 2400 (3x800 MW)
7. **Date/Time/Venue of Public Hearing: Date: 29-11-2024 (Friday) Time: 11:00 AM. Venue:** Zilla Parishad High School, NTPC-Jyothinagar (T.T.S), Ramagundam Mandal, Peddapalli District.
8. Places of availability of Excutive Summary (Telugu & English) & Draft Environment Impact Assessment report (EIA) report in English of the proposed project.
   i. O/o. Ministry of Environment, Forests & Climate Change, Integrated Regional Office, Hyderabad 3rd Floor, Aranya Bhavan, Opp. RBI, Saifabad, Hyderabad-500004.
   ii. O/o Member Secretary, Telangana Pollution Control Board, Board Office, A-3, Industrial Estate, Paryavaran Bhavan, Sanathnagar, Hyderabad-500018.
   iii. O/o Collector & District Magistrate, Peddapalli District.
   iv. O/o Joint Chief Environmental Engineer, Telangana Pollution Control Board, Zonal Office, H.No.8-3-1219, Block-C, Ward No.91, Near Country Club, Uma Nagar, Begumpet, Hyderabad.
   v. O/o Environmental Engineer, Telangana Pollution Control Board, Regional Office, Ramagundam.
   vi. O/o Chief Executive Officer, Zilla Praja Parishad, Peddapalli, Peddapalli District.
   vii. O/o General Manager, District Industries Centre, Peddapalli, Peddapalli District.
   viii. O/o. Revenue Divisional Officer (RDO), Peddapalli, Peddapalli District.
   ix. O/o Municipal Commissioner, Ramagundam Municipal Corporation, Ramagundam (M), Peddapalli District.
   x. O/o Tahasildar, Ramagundam Mandal of Peddapalli District.
   xi. O/o Tahasildar, Anthargaon Mandal of Peddapalli District.
   xii. O/o Tahasildar, Palakurthy Mandal of Peddapalli District.
   xiii. O/o Tahasildar, Kamanpur Mandal of Peddapalli District.
   xiv. O/o GramPanchayath of Ranapur, Kamrula & Lingapur of Palakurthy Mandal, Peddapalli District.
   xv. O/o Gram Panchayath of Kundanpalli, Anthargaon of Anthargaon Mandal, Peddapalli District.
   xvi. O/o Gram Panchayath of Penchikalpet, Julapalli of Kamanpur Mandal, Peddapalli District.
   xvii. O/o Gram Panchayath of Elkalapalli of Ramagundam Mandal, Peddapalli District.

Suggestions, views, comments and objections of the public on Environmental issues, if any, are invited on the above project within **30 days** from the date of publication of the notification from all persons including bonafide residents, environmental groups, others located at project site/sites of displacement/sites likely to be affected. All the above persons can also submit written suggestions to the undersigned of the Telangana Pollution Control Board or sent to E-mail ID: **ee-rgm-tspcb@telangana.gov.in**. The interested persons can take part in the proceedings of the Public Hearing on the date and venue specified above. The draft EIA (in English) & Executive Summary (in English & Telugu) are uploaded in TGPCB website. This notice of public hearing is issued as per the Appendix IV of EIA Notification 2006 and its cost is borne by the project proponent.

Sd/-
ENVIRONMENTAL ENGINEER,
Telangana Pollution Control Board,
Regional Office, Ramagundam.

Place: Ramagundam
Date: 23.10.2024
R.O. No.:564-PP/CL-AGENCY/ADVT/1/2024-25, Dt:23.10.2024



తెలంగాణ కాలుష్య నియంత్రణ మండలి
ప్రాంతీయ కార్యాలయం, రామగుండం- 505 215
పెద్దపల్లి జిల్లా, ఫోన్ నెం. 08728-272597
ఇ-మెయిల్: ee-rgm-tspcb@telangana.gov.in

పర్యావరణ ప్రజాభిప్రాయ సేకరణ ప్రకటన

తెలంగాణ ప్రభుత్వ పర్యావరణ, అటవీ మరియు వాతావరణ మార్పు మంత్రిత్వశాఖ యొక్క S.O.1533(E), తేదీ: 14.09.2006 మేరకు తెలంగాణ రాష్ట్ర కాలుష్య నియంత్రణ మండలి (TSPCB) ద్వారా తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ వారు 1600 MW (ఫేజ్ I: 2x800 MW) నుండి 4000 MW (ఫేజ్ II: 2400 (3X800 MW)) 738.5509 హెక్టార్ల విస్తీర్ణంలో (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం 481.57 Ha హెక్టార్లు) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాల, పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్ర

1	ప్రతిపాదిత ప్రాజెక్ట్ పేరు	పెద్దపల్లి తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ వారు 1600 MW (ఫేజ్ I: 2x800 MW) నుండి 4000 MW (ఫేజ్ II: 2400 (3X800 MW)) 738.5509 హెక్టార్ల విస్తీర్ణంలో (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం 481.57 Ha హెక్టార్లు) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాల, పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్ర
2	ప్రాజెక్ట్ స్థల వివరాలు	పెద్దపల్లి తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s TSTPP) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాల పెద్దపల్లి జిల్లా. మొత్తం ప్రాజెక్ట్ విస్తీర్ణం 738.5509 హెక్టార్ల (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్ల మరియు ప్రతిపాదిత విస్తీర్ణం 481.57 Ha హెక్టార్లు)
3	ప్రాజెక్ట్‌కు సంబంధించి సంప్రదించవలసిన అధికారుల్లో పేరు, చిరునామా, ఫోన్ నెంబరు మరియు ఇమెయిల్	శ్రీ. కేదార్ రంజన్ పాండు, ఎగ్జిక్యూటివ్ డైరెక్టర్ (R&T), M/s.తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s TSTPP) జ్యోతినగర్, రామగుండం మండలం, పెద్దపల్లి జిల్లా టెలిఫోన్ నెంబర్: 08728-272505 (O) ఫ్యాక్స్: 08728-272122 సెల్ఫోన్ నంబర్: 7995913759 E-mail: emgtelangana@ntpc.co.in
4	EIA తయారీదారి యొక్క పేరు మరియు చిరునామా	మెంటెక్ కన్సల్టెంట్స్ ప్రైవేట్ లిమిటెడ్, (NABET గుర్తింపు పొందిన EIA కన్సల్టెంట్, MoEF&CC మరియు NABL ఆమోదం పొందిన ప్రయోగశాల), ఎంవైరాన్ మెంగ్, D-36, సెక్టార్-6, నోయిడా-201301, ఉత్తర ప్రదేశ్.
5	ప్రతిపాదిత వ్యయం	ప్రతిపాదిత విస్తరణ ప్రాజెక్ట్ యొక్క అంచనా వ్యయం (ఫేజ్ -II) రూ.21000 కోట్లు
6	కార్యాచరణ	థర్మల్ పవర్ ఉత్పత్తి : 2400 MW (ఫేజ్ II: 2400 (3x800 MW))
7	కార్యాచరణ ప్రజాభిప్రాయ సేకరణ సమయ తేదీ/సమయం/వేదిక	తేదీ: 29.11.2024 (శుక్రవారం), సమయం: ఉదయం 11:00 గంటలకు, వేదిక: NTPC-జ్యోతినగర్ (T.T.S), రామగుండం మండలం, పెద్దపల్లి జిల్లా
8	ప్రజలు పరిశీలించి సమీక్షా ప్రాజెక్ట్ యొక్క ముఖ్యమైన వివరాలు మరియు ప్రాజెక్ట్ పరిధిలో ఉన్న కార్యాలయాల్లో ప్రజాభిప్రాయ సేకరణ ప్రకటన కార్యాలయాలు	1. పర్యావరణ, అటవీ మరియు వాతావరణ మార్పుల మంత్రిత్వ శాఖ ప్రాంతీయ కార్యాలయం, ఏ-3 ఆవరణ, ఆర్థర్‌పూర్ RBI ఎదురుగా, సైఫాబాద్, హైదరాబాద్-500004 2. మెంబర్ సెక్రటరీ, తెలంగాణ కాలుష్య నియంత్రణ మండలి, పర్యావరణ భవన్, A-3, ఇండస్ట్రియల్ ఎస్టేట్, సనత్ నగర్, హైదరాబాద్. 3. జిల్లా కలెక్టర్ కార్యాలయం, పెద్దపల్లి, పెద్దపల్లి జిల్లా 4. జాయింట్ చీఫ్ ఎన్విరాన్‌మెంటల్ ఇంజనీర్, తెలంగాణ కాలుష్య నియంత్రణ మండలి, జోనల్ కార్యాలయం, ఇం.నం.8-3-1219, బ్లాక్ C, వార్డ్ నం.91, దగ్గరలో కంట్రీ క్లబ్, ఉమానగర్, బేగంపేట, హైదరాబాద్. 5. ఎన్విరాన్‌మెంటల్ ఇంజనీర్, తెలంగాణ కాలుష్య నియంత్రణ మండలి, ప్రాంతీయ కార్యాలయం, రామగుండం. 6. ముఖ్య కార్యనిర్వాహక అధికారి, జిల్లా పరిషత్ కార్యాలయం, పెద్దపల్లి పెద్దపల్లి జిల్లా 7. జిల్లా పరిశ్రమల కేంద్రం, పెద్దపల్లి, పెద్దపల్లి జిల్లా. 8. రెవెన్యూ డివిజనల్ అధికారి కార్యాలయం (RDO), పెద్దపల్లి, పెద్దపల్లి జిల్లా. 9. మున్సిపల్ కమిషనర్ కార్యాలయం రామగుండం మున్సిపల్ కార్పొరేషన్, పెద్దపల్లి జిల్లా 10. తహసీల్దార్ కార్యాలయం, రామగుండం మండలం, పెద్దపల్లి జిల్లా 11. తహసీల్దార్ కార్యాలయం, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా 12. తహసీల్దార్ కార్యాలయం పాలకుర్తి మండలం పెద్దపల్లి జిల్లా 13. తహసీల్దార్ కార్యాలయం కమాన్ పూర్ మండలం, పెద్దపల్లి జిల్లా 14. గ్రామ పంచాయతీ కార్యాలయం రాణాపూర్, కాంరుల మరియు లింగాపూర్ గ్రామాలు, పాలకుర్తి మండలం, పెద్దపల్లి జిల్లా 15. గ్రామ పంచాయతీ కార్యాలయం కుందనపల్లి మరియు అంతర్గాం గ్రామాలు, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా 16. గ్రామ పంచాయతీ కార్యాలయం పెంచికల్‌పేట్ మరియు జూలపల్లి గ్రామాలు, కమాన్‌పూర్ మండలం, పెద్దపల్లి జిల్లా 17. గ్రామ పంచాయతీ కార్యాలయం, ఎల్కలపల్లి, రామగుండం మండలం, పెద్దపల్లి జిల్లా

పైన పేర్కొన్న ప్రజలు ప్రాజెక్టుపై రేపటి నుండి 30 రోజులలోపు ప్రాజెక్ట్ ప్రాంత నివాసులు, పర్యావరణ ఔత్సాహిక మరియు ఎవరైనా ప్రజా సమస్యలపై పాల్గొనే సంస్థలు, అభిప్రాయాలు, వ్యాఖ్యలు మరియు అభ్యంతరాలు ఏమైనా ఉంటే ఇవ్వవచ్చు. ఇవ్వదలచిన వారు ఈ-మెయిల్ ఐడి ee-rgm-tspcb@telangana.gov.in కు లేదా తెలంగాణ రాష్ట్ర కాలుష్య నియంత్రణ మండలి, ప్రాంతీయ కార్యాలయం, రామగుండం, పెద్దపల్లి జిల్లా వారికి రాతపూర్వకంగా పంపవచ్చు. ఆసక్తి ఉన్నవారు పైన పేర్కొనబడిన సమయం మరియు వేదికలో పాల్గొనవచ్చు. ప్రతిపాదిత ప్రాజెక్ట్ యొక్క సారాంశం (ఇంగ్లీషు మరియు తెలుగులో) తెలంగాణ రాష్ట్ర కాలుష్య నియంత్రణ మండలి అధికారిక వెబ్‌సైట్‌లో పొందుపరచబడింది. ప్రతిపాదిత ప్రాజెక్ట్ యొక్క ముఖ్య ప్రమాద EIA నోటిఫికేషన్, 2006 యొక్క అనుబంధం - IV ప్రకారం ఈ ప్రజాభిప్రాయ సేకరణ నోటీసు జారీ చేయబడింది మరియు ఈ ప్రజాభిప్రాయ సేకరణ కార్యక్రమానికి అయ్యే ఖర్చును ప్రాజెక్ట్ ప్రతిపాదకులు భరిస్తారు.

స్థలము: రామగుండం
తేదీ: 23.10.2024
DIPR R.O.No. 5750-PP/CL/ADVT/1/2024-25, Dt: 23.10.2024

సం/- పర్యావరణ ఇంజినీర్,
తెలంగాణ కాలుష్య నియంత్రణ మండలి,
ప్రాంతీయ కార్యాలయం, రామగుండం.



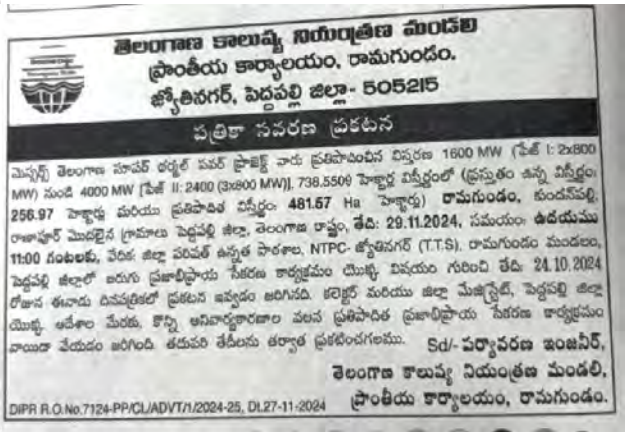
TELANGANA POLLUTION CONTROL BOARD
REGIONAL OFFICE, RAMAGUNDAM
Quarter No. Special C-3, NTPC - TTS, Near Zilla Parishad High School, Jyothinagar - 505 215, Peddapalli District
B.BHIKSHAPATHI, M.Tech Phone No: 08728 - 272597
ENVIRONMENTAL ENGINEER E-mail: ee-rgm-tspcb@telangana.gov.in

CORRIGENDUM

The Telangana Pollution Conirol Board, Regional Office, Ramagundam has issued a press notification on 24.10.2024 in "Deccan Chronicle" English daily news Paper regarding Environmental Public Hearing for proposed expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW [Phase II: 2400 (3x800 MW)] in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State is scheduled on 29.11.2024 Time: 11.00 AM, Venue: Zilla Parishad High School, NTPC-Jyothinagar (T.T.S), Ramagundam Mandal, Peddapalli District. As per the orders of the Collector & District Magistrate, Peddapalli District the Environmental Public Hearing is postponed due to unavoidable circumstances. The next date of hearing will be notified later.

Sd/- **Environmental Engineer,**
Telangana Pollution Control Board
Regional Office, Ramagundam

DIPR R.O. No. : 709-PP/CL-AGENCY/ADVT/1/2024-25,
Date: 27-11-2024.



తెలంగాణ కాలుష్య నియంత్రణ మండలి
ప్రాంతీయ కార్యాలయం, రామగుండం.
జ్యోతినగర్, పెద్దపల్లి జిల్లా- 505215

పత్రికా సవరణ ప్రకటన

మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ వారు ప్రతిపాదించిన విస్తరణ 1600 MW (ఫేజ్ I: 2x800 MW) నుండి 4000 MW (ఫేజ్ II: 2400 (3x800 MW)), 738.5509 హెక్టార్ల విస్తీర్ణంలో (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం 481.57 Ha హెక్టార్లు) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాలు పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్రం, తేదీ: 29.11.2024, సమయం: ఉదయము 11:00 గంటలకు, వేదిక: జిల్లా పరిషత్ ఉన్నత పాఠశాల, NTPC- జ్యోతినగర్ (T.T.S), రామగుండం మండలం, పెద్దపల్లి జిల్లాలో జరుగు ప్రజాభిప్రాయ సేకరణ కార్యక్రమం యొక్క విషయం గురించి తేదీ: 24.10.2024 రోజున ఈనాడు దినపత్రికలో ప్రకటన ఇవ్వడం జరిగినది. కలెక్టర్ మరియు జిల్లా మేజిస్ట్రేట్, పెద్దపల్లి జిల్లా యొక్క ఆదేశం మేరకు, కొన్ని అనివార్యకారణాల వలన ప్రతిపాదిత ప్రజాభిప్రాయ సేకరణ కార్యక్రమం వాయిదా వేయడం జరిగింది. తదుపరి తేదీలను తర్వాత ప్రకటించగలము.

Sd/- పర్యావరణ ఇంజినీర్,
తెలంగాణ కాలుష్య నియంత్రణ మండలి,
ప్రాంతీయ కార్యాలయం, రామగుండం.

DIPR R.O.No.7124-PP/CL/ADVT/1/2024-25, Dt.27-11-2024

Figure7.1: Environmental Public Hearing Advertisement for 29.11.2024

TELANGANA POLLUTION CONTROL BOARD
REGIONAL OFFICE, RAMAGUNDAM-505 215
Peddapalli District. Ph No.08728-272597
Email: ee-rgm-tspcb@telangana.gov.in

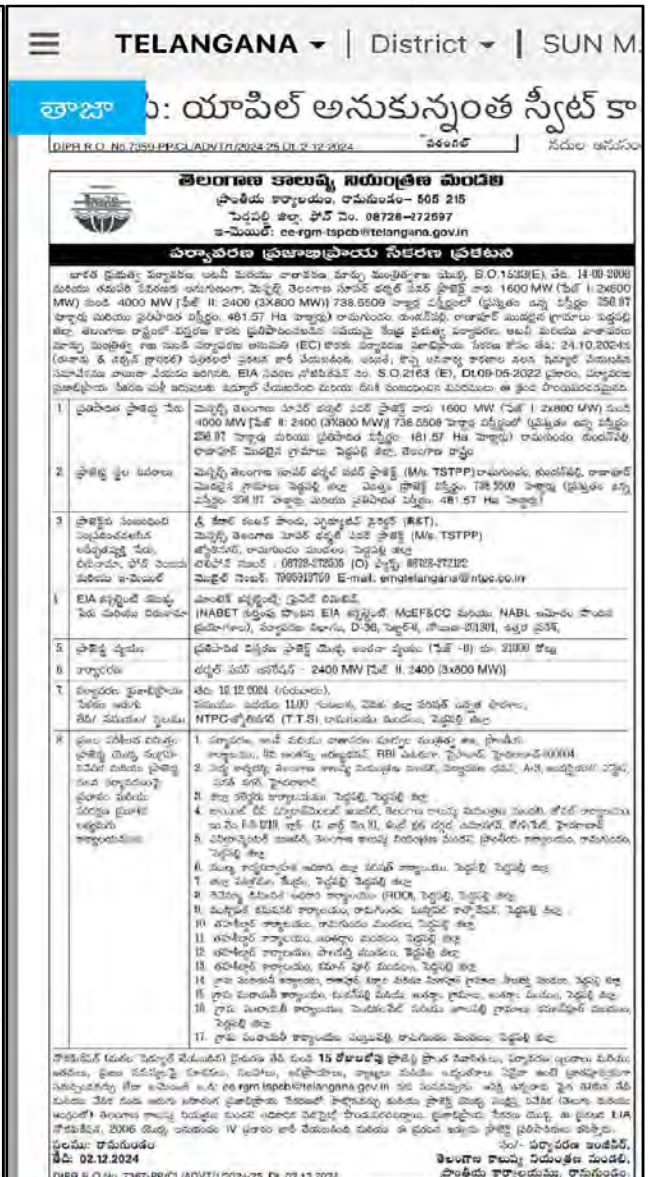
ENVIRONMENTAL PUBLIC HEARING NOTIFICATION

In accordance with the Notification No. S.O.1533 Dt.14th September, 2006 of Ministry of Environment and Forests, Government of India, press notifications were issued on 24.10.2024 (in Deccan Chronicle & Eenadu) for conducting Environmental Public Hearing for proposed expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW [Phase II: 2400 (3x800 MW)] in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State to obtain Environmental Clearance from MOEF & CC, GoI. However, due to unavoidable circumstances, the scheduled Environmental Public Hearing (EPH) was postponed. In accordance with EIA Amendment Notification No. S.O.2163 (E), Dt:09-05-2022, the Environmental Public Hearing is re-scheduled and it is hereby notified to conduct Environmental Public Hearing and the details of the project activities given by the project authorities are as follows:

1	Name of the project	Expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW [Phase II: 2400 (3x800 MW)] in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State.
2	Location of the project	M/s. Telangana Super Thermal Power Project (M/s. TSTPP) village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli.
3	Name of the authorized person to be contacted.	Sri Kedar Ranjan Panidu, Executive Director (R&T), M/s. Telangana Super Thermal Power Project (M/s. TSTPP) Jyothinagar, Ramagundam Mandal, Peddapalli District Ph No: 08728-272505 (O) Fax: 08728-272122 Cell: 7995913759 E-mail: emgtelangana@ntpc.co.in
4	Name of the Project consultant/ Environment consultant	M/s MANTEC CONSULTANTS PVT. LTD. (NABET Accredited EIA Consultant, MoEF&CC and NABL approved Laboratory) Environment Division, D-36, Sector-6, Noida-201301, U.P.
5	Capital Cost	Estimated cost of the proposed expansion project (phase-II): Rs.21000 Cr.
6	Line of activity and Capacity	Thermal Power Generation-2400 MW (Phase II: 2400 (3x800 MW)]
7	Date/ Time/ Venue of Public Hearing	**Date:** 19.12.2024 (Thursday), **Time:** 11:00 AM **Venue:** Zilla Parishad High School, NTPC - Jyothinagar (T.T.S), Ramagundam Mandal, Peddapalli District.
8	Places of availability of Executive Summary (Telugu & English) & Draft Environment Impact Assessment report (EIA) report in English of the proposed project: i. O/o. Ministry of Environment, Forests & Climate Change, Integrated Regional Office, Hyderabad 3rd Floor, Aranya Bhawan, Opp. RBI, Saifabad, HYDERABAD - 500004. ii. O/o. Member Secretary, Telangana Pollution Control Board, Board office, A-3, Industrial Estate, Paryavarana Bhavan, Sanathnagar, Hyderabad - 500 018. iii. O/o. Collector & District Magistrate, Peddapalli District. iv. O/o. Joint Chief Environmental Engineer, Telangana Pollution Control Board, Zonal Office, H No.6-3-1219, Block-C, Ward No.91, Near Country Club, Uma Nagar, Begumpet, Hyderabad. v. O/o. Environmental Engineer, Telangana Pollution Control Board, Regional Office, Ramagundam. vi. O/o. Chief Executive Officer, Zilla Praja Parishad, Peddapalli, Peddapalli District. vii. O/o. General Manager, District Industries Centre, Peddapalli, Peddapalli District. viii. O/o. Revenue Divisional Officer (RDO), Peddapalli, Peddapalli District. ix. O/o. Municipal Commissioner, Ramagundam Municipal Corporation, Ramagundam (M), Peddapalli District. x. O/o. Tahasildar, Ramagundam Mandal of Peddapalli District. xi. O/o. Tahasildar, Anthargaon Mandal of Peddapalli District. xii. O/o. Tahasildar, Palakurthy Mandal of Peddapalli District. xiii. O/o. Tahasildar, Kamanpur Mandal of Peddapalli District. xiv. O/o. Gram Panchayath of Ramagiri, Kannala and Lingapur of Palakurthy Mandal, Peddapalli District. Xv. O/o. Gram Panchayath of Kundanpalli, Anthargaon of Anthargaon Mandal, Peddapalli District. xvi. O/o. Gram Panchayath of Penchikalpet, Julapalli of Kamanpur Mandal, Peddapalli District xvii. O/o. Gram Panchayath of Elkalapalli of Ramagundam Mandal, Peddapalli District.	

Suggestions, views, comments and objections of the public on Environmental issues, if any, are invited on the above project **within 15 days** from the date of publication of the re-scheduled notification from all persons including bonafide residents, environmental groups, others located at project site /sites of displacement/sites likely to be affected. All the above persons can also submit written suggestions to the undersigned of the Telangana Pollution Control Board or sent to **E-mail ID: ee-rgm- tspcb@telangana.gov.in**. The interested persons can take part in the proceedings of the Public Hearing on the date and venue specified above. The draft EIA (In English) & Executive Summary (In English & Telugu) are uploaded in TGPCB Website. This notice of public hearing is issued as per the Appendix IV of EIA Notification 2006 and its cost is borne by the project proponent.

Sd/-
Place: Ramagundam. ENVIRONMENTAL ENGINEER,
Date : 02.12.2024 Telangana Pollution Control Board,
DIPR R.O. No. : 740-PP/CL-AGENCY/ADVT/1/2024-25 Regional Office, Ramagundam


TELANGANA ▾ | District ▾ | SUN M...

ఖాజా ...: యాపిల్ అనుకున్నంత స్వీట్ కా...

DIPR R.O. No.7359-PP/CL/ADVT/1/2024-25 Dt. 2-12-2024 పరిశీలన నిమిత్తం అనుమతి

తెలంగాణ కాలుష్య నియంత్రణ మండలి
ప్రాంతీయ కార్యాలయం, రామగుండం – 505 215
పెద్దపల్లి జిల్లా. ఫోన్ నెం. 08728–272597
ఇ-మెయిల్: ee-rgm-tspcb@telangana.gov.in

పర్యావరణ ప్రజాభిప్రాయ సేకరణ ప్రకటన

భారత ప్రభుత్వ పర్యావరణ, అటవీ మరియు వాతావరణ మార్పు మంత్రిత్వశాఖ యొక్క, S.O.1533(E), తేదీ. 14-09-2006 యొక్క తదుపరి సవరణల ప్రకారం తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ వారు 1600 MW (ఫేజ్ I: 2x800 MW) నుండి 4000 MW [ఫేజ్ II: 2400 (3X800 MW)] 738.5509 హెక్టార్ల విస్తీర్ణంలో (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం: 481.57 Ha హెక్టార్లు) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాల పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్రం

1	ప్రతిపాదిత ప్రాజెక్టు పేరు	మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ వారు 1600 MW (ఫేజ్ I: 2x800 MW) నుండి 4000 MW [ఫేజ్ II: 2400 (3X800 MW)] 738.5509 హెక్టార్ల విస్తీర్ణంలో (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం: 481.57 Ha హెక్టార్లు) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాల పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్రం
2	ప్రాజెక్ట్ స్థల వివరాలు	మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s. TSTPP) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాల పెద్దపల్లి జిల్లా మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s. TSTPP) village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli.
3	ప్రాజెక్టుకు సంబంధించి సంప్రదింపులకోసం అధీకృతవ్యక్తి పేరు, డెసిగ్నేషన్, ఫోన్ నెంబరు మరియు ఇ-మెయిల్	శ్రీ కేదార్ రంజన్ పాండు, ఎగ్జిక్యూటివ్ డైరెక్టర్ (R&T), మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s. TSTPP) జ్యోతినగర్, రామగుండం మండలం, పెద్దపల్లి జిల్లా టెలిఫోన్ నెంబర్ : 08728-272505 (O) ఫ్యాక్స్: 08728-272122 మొబైల్ నెంబర్: 7995913759 E-mail: emgtelangana@ntpc.co.in
4	EIA తయారీదారి మొత్తం పేరు మరియు చిరునామా	మాంటెక్ కన్సల్టెంట్స్ ప్రైవేట్ లిమిటెడ్, (NABET గుర్తింపు కలిగిన EIA తయారీదారి, MoEF&CC మరియు NABL ఆమోదం పొందిన ప్రయోగశాల), మాంటెక్ హౌస్, D-36, సెక్టార్-6, నోయిడా-201301, ఉత్తర ప్రదేశ్,
5	ప్రతిపాదిత విస్తరణ	ప్రతిపాదిత విస్తరణ ప్రాజెక్ట్ మొత్తం అంచనా వ్యయం (ఫేజ్ -II): రూ. 21000 కోట్లు
6	కార్యాచరణ	థర్మల్ పవర్ జనరేషన్ - 2400 MW [ఫేజ్ II: 2400 (3x800 MW)]
7	పబ్లిక్ హియరింగ్ యొక్క తేదీ/ సమయం/ స్థలము	తేదీ: 19.12.2024 (గురువారం), సమయము: ఉదయం 11:00 గంటలకు, వేదిక: జిల్లా పరిషత్ ఉన్నత పాఠశాల, NTPC-జ్యోతినగర్ (T.T.S), రామగుండం మండలం, పెద్దపల్లి జిల్లా
8	ప్రతిపాదిత విస్తరణ ప్రాజెక్టు యొక్క సంగ్రహ వివరాలు మరియు ప్రాజెక్టు యొక్క పర్యావరణ ప్రభావ అంచనా నివేదిక (EIA) నివేదిక యొక్క ఆంగ్లంలో ప్రతిపాదనలు అందుబాటులో ఉన్న ప్రదేశాలు:	1. మంత్రిత్వశాఖ, అటవీ మరియు వాతావరణ మార్పుల యొక్క ఇంటిగ్రేటెడ్ ప్రాంతీయ కార్యాలయం, 3వ అంతస్తు, అరణ్య భవన్, ఎదురుగా RBI, సైఫాబాద్, హైదరాబాద్-500004. 2. మెంబర్ సెక్రటరీ, తెలంగాణ కాలుష్య నియంత్రణ మండలి, పర్యావరణ భవన్, A-3, ఇండస్ట్రియల్ ఎస్టేట్, సనత్ నగర్, హైదరాబాద్. 3. జిల్లా కలెక్టర్ & జిల్లా మేజిస్ట్రేట్, పెద్దపల్లి, పెద్దపల్లి జిల్లా. 4. జాయింట్ చీఫ్ ఎన్విరాన్‌మెంటల్ ఇంజనీర్, తెలంగాణ కాలుష్య నియంత్రణ మండలి, జోనల్ కార్యాలయం, ఇం నెం. 6-3-1219, బ్లాక్- C, వార్డ్ నెం.91, ఖాజీ ఫక్ర దగ్గర, బేగంపేట్, హైదరాబాద్. 5. పర్యావరణ్ ఇంజనీర్, తెలంగాణ కాలుష్య నియంత్రణ మండలి, ప్రాంతీయ కార్యాలయం, రామగుండం, పెద్దపల్లి జిల్లా. 6. మున్సిపల్ కమిషనర్, రామగుండం మున్సిపల్ కార్పొరేషన్, రామగుండం (M), పెద్దపల్లి జిల్లా. 7. తహసీల్దార్, రామగుండం మండలం, పెద్దపల్లి జిల్లా. 8. తహసీల్దార్, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా. 9. తహసీల్దార్, పాలకుర్తి మండలం, పెద్దపల్లి జిల్లా. 10. తహసీల్దార్, కమాన్‌పూర్ మండలం, పెద్దపల్లి జిల్లా. 11. తహసీల్దార్, ఎలిగేడు మండలం, పెద్దపల్లి జిల్లా. 12. తహసీల్దార్, ధర్మారం మండలం, పెద్దపల్లి జిల్లా. 13. తహసీల్దార్ కార్యాలయం, మంథని టౌన్ మండలం, పెద్దపల్లి జిల్లా. 14. గ్రామ పంచాయతీ కార్యాలయం, రామగిరి, కన్నాల మరియు లింగాపూర్ గ్రామాలు పాలకుర్తి మండలం, పెద్దపల్లి జిల్లా. 15. గ్రామ పంచాయతీ కార్యాలయం, కుందనపల్లి మరియు అంతర్గాం గ్రామాలు, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా. 16. గ్రామ పంచాయతీ కార్యాలయం, పెంచికల్‌పేట్ మరియు జూలపల్లి గ్రామాలు కమాన్‌పూర్ మండలం, పెద్దపల్లి జిల్లా. 17. గ్రామ పంచాయతీ కార్యాలయం, ఎల్కలపల్లి, రామగుండం మండలం, పెద్దపల్లి జిల్లా.

పైన పేర్కొన్న (మూడు) పెద్దపల్లి మేజిస్ట్రేట్ ప్రకటన తేదీ నుండి **15 రోజులలోపు** ప్రాజెక్టు ప్రాంత నివాసితులు, పర్యావరణ ప్రయోజన సమూహాలు, ఇతర ప్రభావిత ప్రదేశం/ స్థానభ్రంశం/ ప్రభావిత ప్రదేశాలలో ఉన్న ఇతరులు, ఆసక్తిగల వ్యక్తులు ఈ ప్రాజెక్టుకు సంబంధించిన లేఖ అయినా ఒక **ee-rgm-tspcb@telangana.gov.in** కు ఇమెయిల్ ద్వారా ఆన్‌లైన్ ద్వారా సమర్పించవచ్చు. పైన పేర్కొన్న తేదీ మరియు వేదిక వద్ద పబ్లిక్ హియరింగ్ కార్యక్రమాలలో ఆసక్తిగల వ్యక్తులు పాల్గొనవచ్చు. ఆంగ్లంలో ముసాయిదా పర్యావరణ ప్రభావ అంచనా నివేదిక (EIA) మరియు కార్యనిర్వాహక సారాంశం (ఆంగ్లం & తెలుగు) తెలంగాణ రాష్ట్ర కాలుష్య నియంత్రణ మండలి వెబ్‌సైట్‌లో అప్‌లోడ్ చేయబడ్డాయి. ఎంబెడ్డింగ్ నోటిఫికేషన్ యొక్క అనుబంధం IV ప్రకారం ఈ పబ్లిక్ హియరింగ్ నోటీసు జారీ చేయబడింది మరియు ఈ ప్రయోజన ఖర్చును ప్రాజెక్ట్ ప్రతిపాదకులు భరిస్తారు.

స్థలము: రామగుండం సం/- పర్యావరణ ఇంజనీర్,
తేదీ: 02.12.2024 తెలంగాణ కాలుష్య నియంత్రణ మండలి,
DIPR R.O.No. 7367-PP/CL/ADVT/1/2024-25, Dt. 02.12.2024. ప్రాంతీయ కార్యాలయము, రామగుండం.

TELANGANA POLLUTION CONTROL BOARD
REGIONAL OFFICE, RAMAGUNDAM
Quarter No. Special C-3, NTPC - TTS, Near Zilla Parishad High School
Jyothinagar - 505 215, Peddapalli District

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ADDENDUM NOTIFICATION

The Telangana Pollution Control Board, Regional Office, Ramagundam has issued a press notification on 03.12.2024 in "Deccan Chronicle" English daily news Paper regarding Environmental Public Hearing for proposed expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW [Phase II: 2400 (3x800 MW)] in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State is scheduled on 19.12.2024 Time: 11.00 AM, Venue: Zilla Parished High School, NTPC-Jyothinagar (T.T.S), Ramagundam Mandal, Peddapalli District. As per the note orders of the Collector & District Magistrate, Peddapalli District the Environmental Public Hearing is postponed due to unavoidable circumstances. The next date of hearing will be notified later.

Sd/- Environmental Engineer,
Telangana Pollution Control Board
Regional Office, Ramagundam

R.O. No. : 808-PP/CL-AGENCY/ADVT/1/2024-25

తెలంగాణ కాలుష్య నియంత్రణ మండలి
ప్రాంతీయ కార్యాలయం, రామగుండం, జ్యోతినగర్, పెద్దపల్లి జిల్లా – 505215.

పత్రికా సవరణ ప్రకటన

మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ వారు ప్రతిపాదించిన విస్తరణ 1600 MW (ఫేజ్ I: 2x800 MW) నుండి 4000 MW [ఫేజ్ II: 2400 (3x800 MW)], 738.5509 హెక్టార్ల విస్తీర్ణంలో (ప్రస్తుతం ఉన్న విస్తీర్ణం: 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం: 481.57 Ha హెక్టార్లు) రామగుండం, కుందనపల్లి, రాణాపూర్ మొదలైన గ్రామాలు పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్రం, **తేదీ: 19.12.2024**, **సమయం: ఉదయము 11:00 గంటలకు**, వేదిక: జిల్లా పరిషత్ ఉన్నత పాఠశాల, NTPC-జ్యోతినగర్ (T.T.S), రామగుండం మండలం, పెద్దపల్లి జిల్లాలో జరుగు ప్రజాభిప్రాయ సేకరణ కార్యక్రమం యొక్క విషయం గురించి **తేదీ: 03.12.2024 దినపత్రికలో ప్రకటన** ఇవ్వడం జరిగినది. కలెక్టర్ మరియు జిల్లా మెజిస్ట్రేట్, పెద్దపల్లి జిల్లా గారి ఆదేశాల మేరకు, కొన్ని అనివార్యకారణాల వలన ప్రతిపాదిత ప్రజాభిప్రాయ సేకరణ కార్యక్రమము వాయిదా వేయడం జరిగింది. తదుపరి తేదీలను తర్వాత ప్రకటించగలము.

సం/- పర్యావరణ ఇంజనీర్, తెలంగాణ కాలుష్య
DIPR R.O. No.8049-PP/CL/ADVT/1/2024-25 Dt.18-12-2024 నియంత్రణ మండలి, ప్రాంతీయ కార్యాలయం, రామగుండం

Figure 7.2: Public Hearing Advertisement for 19.12.2024



TELANGANA POLLUTION CONTROL BOARD
REGIONAL OFFICE, RAMAGUNDAM -505 215
Peddapalli District. Ph No.08728-272597, Email: ee-rgm-tspcb@telangana.gov.in

ENVIRONMENTAL PUBLIC HEARING NOTIFICATION

In accordance with the Notification No: S.O.1533 Dt.14th September, 2006 of Ministry of Environment and Forests, Government of India, press notifications were issued on 24.10.2024 & 03.12.2024 (in Deccan Chronicle & Eenadu) for conducting Environmental Public Hearing for proposed expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW [Phase II: 2400 (3x800 MW)] in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State to obtain Environmental Clearance from MoEF & CC, GoI. However, due to unavoidable circumstances, the scheduled Environmental Public Hearings (EPH) were postponed. In accordance with EIA Amendment Notification No. S.O.2163 (E), Dt:09-05-2022, the Environmental Public Hearing is re-scheduled and it is hereby notified to conduct Environmental Public Hearing and the details of the project activities given by the project authorities are as follows:

1.	Name of the project	Expansion of M/s. Telangana Super Thermal Power Project from 1600 MW (Phase I: 2x800 MW) to 4000 MW [Phase II: 2400 (3x800 MW)] in an area of 738.5509 Ha (256.97 Ha existing and 481.57 Ha proposed) at village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli, Telangana State.
2.	Location of the project	M/s. Telangana Super Thermal Power Project (M/s. TSTPP) village Ramagundam, Kundanpalli, Ranapur and etc, District Peddapalli
3.	Name of the authorized person to be contacted	Sri Aedar Ranjan Pandu, Executive Director (R&T), M/s. Telangana Super Thermal Power Project (M/s. TSTPP) Jyothinagar, Ramagundam Mandal, Peddapalli District. Ph No: 08728-272505,(O) Fax: 08728-272122, Cell: 7995913759, E-mail: emgtelangana@ntpc.co.in
4	Name of the Project consultant/ Environment consultant	M/s. MANTEC CONSULTANTS PVT. LTD. (NABET Accredited EIA Consultant, MoEF&CC and NABL accredited Laboratory) Environment Division, D-36, Sector-6, Noida-201301, U.P.
5.	Capital Cost	Estimated cost of the proposed expansion project (phase-II): Rs 21000 Cr.
6.	Line of activity and Capacity	Thermal Power Generation - 2400 MW [Phase II: 2400 (3x800 MW)]
7.	Date/Time/ Venue of Public Hearing	**Date:** 28.01.2025 (Tuesday). **Time:** 11:00 AM. **Venue:** Zilla Parishad High School, NTPC-Jyothinagar (T.T.S), Ramagundam Mandal, Peddapalli District.
8.	Places of availability of Executive Summary (Telugu & English) & Draft Environment Impact Assessment report (EIA) report in English of the proposed project	i. O/o. Ministry of Environment, Forests & Climate Change, Integrated Regional Office, Hyderabad 3rd Floor, Aranya Bhawan, Opp. RBI, Saifabad, HYDERABAD-500004 ii. O/o. Member Secretary, Telangana Pollution Control Board, Board office, A-3, Industrial Estate, Paryavarana Bhavan, Sanathnagar, Hyderabad - 500 018 iii. O/o. Collector & District Magistrate, Peddapalli District. iv. O/o. Joint Chief Environmental Engineer, Telangana Pollution Control Board, Zonal Office, H No.6-3-1219, Block-C, Ward No. 01, Near Country Club, Uma Nagar, Begumpet, Hyderabad. v. O/o. Environmental Engineer, Telangana Pollution Control Board, Regional Office, Ramagundam. vi. O/o. Chief Executive Officer, Zilla Praja Parishad, Peddapalli, Peddapalli District. vii. O/o. General Manager, District Industries Centre, Peddapalli, Peddapalli District. viii. O/o. Revenue Divisional Officer (RDO), Peddapalli, Peddapalli District. ix. O/o. Municipal Commissioner, Ramagundam Municipal Corporation, Ramagundam (M), Peddapalli (Dist.). X. O/o. Tahasildar, Ramagundam Mandal of Peddapalli District. xi. O/o. Tahasildar, Anthargaon Mandal of Peddapalli District. xii. O/o. Tahasildar, Palakurthy Mandal of Peddapalli District xiii. O/o. Tahasildar, Kamanpur Mandal of Peddapalli District xiv. O/o. Gram Panchayath of Ramagiri, Kannala and Lingapur of Palakurthy Mandal, Peddapalli District. XV. O/o. Gram Panchayath of Kundanpalli, Anthargaon of Anthargaon Mandal, Peddapalli District. xvi. O/o. Gram Panchayath of Panchikalpet, Julapalli of Kamanpur Mandal, Peddapalli District. xvii. O/o. Gram Panchayath of Eklaspalli of Ramagundam Mandal, Peddapalli District.

Suggestions, views, comments and objections of the public on Environmental Issues, if any, are invited on the above project **within 15 days** from the date of publication of the re-scheduled notification from all persons including bonafide residents, environmental groups, others located at project site / sites of displacement / sites likely to be affected. All the above persons can also submit written suggestions to the undersigned of the Telangana Pollution Control Board or sent to **E-mail ID: ee-rgm-tspcb@telangana.gov.in.** The interested persons can take part in the proceedings of the Public Hearing on the date and venue specified above. The draft EIA (in English) & Executive Summary (in English & Telugu) are uploaded in TGPCB Website. This notice of public hearing is issued as per the Appendix IV of EIA Notification 2006 and its cost is borne by the project proponent.

Place: Ramagundam
Date : 08.01.2025

DPR R.O. No. : 857/PP/CL-AGENCY/ADVT/1/2024-25, Date: 08-01-2025

Sd/-
ENVIRONMENTAL ENGINEER,
Telangana Pollution Control Board,
Regional Office, Ramagundam.

తెలంగాణ కాలుష్య నియంత్రణ మండలి
ప్రాంతీయ కార్యాలయం, రామగుండం- 505 215
పెద్దపల్లి జిల్లా, ఫోన్ నెం. 08728-272597
ఇ-మెయిల్: ee-rgm-tspcb@telangana.gov.in

పర్యావరణ ప్రజాభిప్రాయ సేకరణ ప్రకటన

1.	ప్రతిపాదిత ప్రాజెక్ట్ పేరు	మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (దశ 1600 MW (దశ I: 2x800 MW) నుండి 4000 MW [దశ II: 2400 (3X800 MW)] 738.5509 హెక్టార్ల విస్తీర్ణంలో ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం 481.57 Ha హెక్టార్లు) రామగుండం, కుందన్‌పల్లి, రాణాపూర్ మండలాల గ్రామాలు, పెద్దపల్లి జిల్లా, తెలంగాణ రాష్ట్రం
2.	ప్రాజెక్ట్ స్థల వివరాలు	మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s. TSTPP) రామగుండం, కుందన్‌పల్లి, రాణాపూర్ మండలాల గ్రామాలు, పెద్దపల్లి జిల్లా తెలంగాణ రాష్ట్రం (ప్రస్తుతం ఉన్న విస్తీర్ణం 256.97 హెక్టార్లు మరియు ప్రతిపాదిత విస్తీర్ణం 481.57 Ha హెక్టార్లు)
3.	ప్రాజెక్టుకు సంబంధించి సంప్రదింపులకు అధికారుల పేరు, చిరునామా, ఫోన్ నెంబర్ మరియు ఈమెయిల్	శ్రీ ఆదర్ రంజన్ పాండు, ఎగ్జిక్యూటివ్ డైరెక్టర్ (R&T) మెస్సర్స్ తెలంగాణ సూపర్ థర్మల్ పవర్ ప్రాజెక్ట్ (M/s. TSTPP) జ్యోతినగర్, రామగుండం మండలం, పెద్దపల్లి జిల్లా టెలిఫోన్ నెంబర్ - 08728-272505 (O) ఫ్యాక్స్: 08728-272122 మొబైల్ నెంబర్ 7995913759 E-mail: emgtelangana@ntpc.co.in
4	EIA కన్సల్టెంట్ పేరు, వారు పనిచేసే విభాగం	మాంటెక్ కన్సల్టెంట్స్ ప్రైవేట్ లిమిటెడ్. (NABET గుర్తింపు పొందిన EIA కన్సల్టెంట్, MoEF&CC మరియు NABL ఎక్రెడిటెడ్ ప్రయోగశాల), ఎన్విరాన్‌మెంట్ డివిజన్, D-36, సెక్టార్-6, నోయిడా-201301, ఉత్తర ప్రదేశ్.
5	ప్రాజెక్ట్ వ్యయం	ప్రతిపాదిత విస్తరణ ప్రాజెక్ట్ యొక్క అంచనా వ్యయం (ఫేజ్ -II) రూ.21000 కోట్లు
6	కార్యాచరణ	థర్మల్ పవర్ జనరేషన్ - 2400 MW [దశ II: 2400 (3x800 MW)]
7.	ప్రజాభిప్రాయ సేకరణ తేదీలు, సమయం/వేదిక	తేదీ: 28.01.2025 (మంగళవారం). సమయం: ఉదయం 11:00 గంటలకు, వేదిక: జిల్లా పరిషత్ ఉన్నత పాఠశాల, NTPC-జ్యోతినగర్ (T.T.S) రామగుండం మండలం, పెద్దపల్లి జిల్లా
8	ప్రజల సౌలభ్యం నిమిత్తం ప్రాజెక్ట్ యొక్క సంగ్రహ నివేదిక మరియు ప్రాజెక్టు యొక్క పర్యావరణ ప్రభావ అంచనా నివేదిక	1. పెద్దపల్లి జిల్లా కలెక్టరు మరియు మేజిస్ట్రేట్; 2. ఉమ్మడి ఆదిలాబాద్ జిల్లా పరిషత్ ముఖ్య కార్యనిర్వహణాధికారి; 3. ఇన్‌చార్జ్ జిల్లా పరిషత్ అభివృద్ధి అధికారి, పెద్దపల్లి జిల్లా; 4. తెలంగాణ రాష్ట్ర కాలుష్య నియంత్రణ మండలి, ప్రాంతీయ కార్యాలయం, రామగుండం, పెద్దపల్లి జిల్లా; 5. మున్సిపల్ కమిషనర్, రామగుండం నగరపాలక సంస్థ (RMC), పెద్దపల్లి జిల్లా; 6. రెవెన్యూ డివిజనల్ అధికారి (RDO), పెద్దపల్లి జిల్లా; 7. తహసీల్దార్ కార్యాలయం, రామగుండం మండలం, పెద్దపల్లి జిల్లా; 8. తహసీల్దార్ కార్యాలయం, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా; 9. తహసీల్దార్ కార్యాలయం, పాలకుర్తి మండలం, పెద్దపల్లి జిల్లా; 10. తహసీల్దార్ కార్యాలయం, కమాన్‌పూర్ మండలం, పెద్దపల్లి జిల్లా; 11. గ్రామ పంచాయతీ కార్యాలయం, రామగిరి, కన్నాల మరియు లింగాపూర్ గ్రామాలు, పాలకుర్తి మండలం, పెద్దపల్లి జిల్లా; 12. గ్రామ పంచాయతీ కార్యాలయం, కుందన్‌పల్లి మరియు అంతర్గాం గ్రామాలు, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా; 13. గ్రామ పంచాయతీ కార్యాలయం, పంచికల్‌పేట్, జూలపల్లి మండలం, పెద్దపల్లి జిల్లా; 14. గ్రామ పంచాయతీ కార్యాలయం, ఎక్లాస్‌పూర్, రామగుండం మండలం, పెద్దపల్లి జిల్లా; 15. గ్రామ పంచాయతీ కార్యాలయం, ఎల్కలపల్లి మరియు అంతర్గాం గ్రామాలు, అంతర్గాం మండలం, పెద్దపల్లి జిల్లా; 16. గ్రామ పంచాయతీ కార్యాలయం, సిరిసేడ్ మరియు కాసులపల్లి గ్రామాలు, ముత్తారం మండలం, పెద్దపల్లి జిల్లా; 17. గ్రామ పంచాయతీ కార్యాలయం, ఎల్కతుర్తి, రామగుండం మండలం, పెద్దపల్లి జిల్లా

పైన పేర్కొన్న ముసాయిదా ప్రకటనకు సంబంధించి ప్రజలకు ఏవైనా సూచనలు, అభ్యంతరాలు, వ్యాఖ్యలు ఉంటే, వాటిని ఈమెయిల్ ee-rgm-tspcb@telangana.gov.in ద్వారా లేదా పైన పేర్కొన్న చిరునామాకు లిఖితపూర్వకంగా తెలియజేయవచ్చు. ఆసక్తిగల వ్యక్తులు పైన పేర్కొన్న సమయం మరియు వేదిక వద్ద జరిగే పబ్లిక్ హియరింగ్ ప్రొసీడింగ్స్‌లో పాల్గొనవచ్చు. ప్రతిపాదిత ప్రజా విచారణ EIA నోటిఫికేషన్, 2006 యొక్క అనుబంధం - IV ప్రకారం జారీ చేయబడింది మరియు ఈ ప్రకటన ఖర్చును ప్రాజెక్ట్ ప్రతిపాదకులు భరిస్తారు.

స్థలం: రామగుండం
తేదీ: 08.01.2025

DPR R.O.No. 857/PP/CL/AGENCY/ADVT/1/2024-25, Dt: 8.1.2025

సం/- పర్యావరణ ఇంజనీర్,
తెలంగాణ కాలుష్య నియంత్రణ మండలి,
ప్రాంతీయ కార్యాలయము, రామగుండం.

Figure 7.3: Public Hearing Advertisement for 28.01.2025



Figure 7.4: Photos of Environmental Public Hearing

Table 7.1: Action Plan to resolve the issues raised during Public Hearing of proposed Telangana STPP Stage-II

Sl. No.	Name & Address	Questions /Views/ Suggestions from Public	Reply from NTPC Telangana (Project Proponent)	Action Plan	Approx. Timeline	Approx. Budget provision (Rs. Lakhs)
1.1	Sri M. S. Raj Thakur, Hon'ble MLA, Rama Gundam Constituency	He asked for pollution mitigation measures to be taken by the Project as the power stations in this area were burning 50,000 Tonnes of Coal per day.	NTPC, being an environmentally conscious and responsible corporate entity, has always strived for continual improvement and is committed to the protection of the environment and resource conservation. The environmental protection measures adopted at Telangana STPP are as follows: • High Efficiency ESPs (Electrostatic Precipitators) for controlling particulate matter (PM). • Low NOx Burners for controlling NOx emissions. • FGD (Flue Gas Desulfhurization) for controlling SO_2 emissions. • Adequate dust extraction systems, dust suppression system, bag filters, water fogging system and suitable water spray systems are included in the design of the plant to suppress/avoid dust emissions from the coal and ash handling areas. • The concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted at Telangana Project since commencement. • The project has an integrated scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant	Implementation of Provisioned Environmental Protection measures in EIA/EMP	Will be implemented with the commissioning of the units (FY 2031-32)	EMP budget provision details in Ch. 10

			(ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), Waste Water Reverse Osmosis (WWRO) system, and Ash Water Recirculation System (AWRS) to reuse & recycle the effluents within the plant. • Wastewater from plant area is treated through ETP and used in plant as service water. 3.5 MLD STP is operational to treat the sewage from township. A 75 KLD MBBR-based STP is being provided to treat the plant-generated sewage. Additionally, nine pre-fabricated STPs, each with a 1 KLD capacity, are being provided at locations where it is not possible to connect them to the main STP. STP treated water is reused for Horticulture purpose. • Continuous Online Monitoring Systems (CAQMS, EQMS, CEMS) for environment parameters have been provided and data is being transmitted to CPCB & SPCB. • To prevent impact on groundwater quality, an impervious liner consisting of a layer of sand cushion, HDPE, geotextile and finally overlain by have been provided in ash pond. • Regular Ground and Surface Water Quality Monitoring is being done through EPA accredited lab. • NTPC has adopted Ultra Supercritical (USC) technology for the proposed plant. USC projects offer the			

			advantages of higher efficiency, reduced heat rate, and lower emissions, resulting in reduced coal consumption and a corresponding decrease in emissions. The proposed project is designed with an Air Cooled Condenser for water conservation by reducing water consumption. All necessary pollution control measures have been envisaged for the proposed project.			
1.2		He stated that this 4000 MW power project of 5 X 800 MW was constructed as per the mandate contained in the State Re-organization Act. He stated that the intension of this project was to provide energy to the country. He charged the previous Government for executing the Power Purchase Agreement for 2 X 800 MW leaving the 3 X 800 MW open.	Noted			
1.3		He pointed out that the NTPC celebrated its 50th year of successful operations among the family of employees, leaving the 4000 contract	All were invited for the celebration.			

		labors without any compliments.				
1.4		He raised the issue of CSR funds and details of amount spent by them.	NTPC has spent more than Rs.150.00 Crores under CSR/CD under the major heads of Infrastructure, Education, Health, Drinking water, Electrification, Sanitation, Plantation, Agriculture, Sports, Self-income generation.			
1.5		He stated that an officer from Security Forces misbehaved with him while on his way to this public hearing venue. He complained that efforts were made to prevent people from attending this public hearing.	Public hearing was conducted by the SPCB as per norms, under the directions of the Distt Magistrate, Peddapalli, Telangana, who was the Chairperson of the Public hearing. NTPC welcomed all the public to express their views.			
1.6		He stated that NTPC has not provided FGD equipment for effective control of pollution. He pointed out that a unit with a cost of Rs.600 Crores was promised, which was expected to be completed within six months. He charged that the work on that plant was not yet started due to negligence of the	MoEF&CC, vide notification dated 30.12.2024, has extended the timeline for compliance with SO_2 norms for TPPs in Category C up to 31st December 2029. However, NTPC has already provided Flue Gas Desulphurization System (FGD) for Unit-I & II of Telangana STPP Phase-I (2x800 MW) to reduce the SO_2 emissions and the systems are in operation. Further, the installation and commissioning works for FGD for all the seven units of NTPC Ramagundam Super Thermal Power Station is in progress and expected to be completed within the stipulated timeline.			

		Management.				
1.7		He pointed out that the project authorities stated that they planted 13.0 Lakh plants, if it was so the entire Ramagundam should have been covered by greenery. He wanted afforestation of land in Ramagundam as raising of greenery with species like Neem and other local species was the correct solution to mitigate the pollution.	NTPC has made remarkable strides in environmental conservation by developing a denser and thicker green belt/cover in plant and the surrounding areas. Adopted Miyawaki Technique for plantation to plant more trees in less area. These areas are not only acting as carbon sinks but are also helping in oxygenating nature. NTPC has adopted Miyawaki method of plantation plan at project site for the first time in 2019-20. About 81.138 Ha has been used for greenbelt/plantation development under Phase-I project area, and 106.837 Ha is identified for greenbelt/plantation area under Phase-II project area. However, greenbelt/plantation has been developed on 215.39 Ha area in and around the project which also covers peripheral greenbelt/plantation. NTPC has already carried out plantations around the plant, including avenue plantations of over 10,000 trees along Rajeev Rahadari, around 84,000 trees in Ramagundam Municipality, and Miyawaki plantation of approximately 25,000 trees in Gowtham Nagar, Ganga Nagar, and Head Works areas of RMC. Further plantation activities will continue in available areas, and NTPC will strive to meet the specific plant requirements for the villagers.	Development of green belt is provisioned under in proposed Telangana Phase-II under EMP		
1.8		He brought out the list of several affected	"As per the agreement in1980, NTPC has provided employment to the land oustees			

		villages due to the Thermal Power Project. He stated that the land oustees were promised employment and 50 years lapsed and no employment was provided in the project. He sought employment at least in this Telangana STPP.	as per the terms & conditions based on suitability/availability. Further, in the year 2015 & 2022, NTPC has given employment as per the agreement. Further NTPC is also providing economic opportunities through secondary employment vide contracting agencies to the PAVs under contractual works, wherein 4660 Nos of workers from Ramagundam and Peddapalli areas have been hired by various agencies at Ramagundam Thermal power plant and Telangana Super thermal plant. Therefore, NTPC has given the employment as per commitment. Till date employment provided by NTPC is as under: Total Permanent Employment given to the local = 515 (449 +47 +19) (i) Ramagundam Project outsourcing employment = 3010 out of total 5329 (ii)Telangana Project outsourcing employment = 1650 out of total 2010 In addition, 8 PAP cooperative societies are operational at NTPC Ramagundam and 96 land oustees have also been allotted shops in NTPC Township. In Proposed Telangana Phase-II: Tentative manpower/employment numbers are as given below. During Construction: Contractual is 3500			

			to 4000 and Permanent is 96. During Operation: Contractual is 1000 to 1500 and Permanent is 216 nos.			
1.9		He stated that contractors quoted very less price for NTPC tenders but they sell the jobs at a cost of Rs.2 Lakhs or Rs.3 Lakhs per job.	NTPC is following all the statutory guidelines and prevailing labour laws in regulating contractual employment.			
1.10		He stated that he was committed to extend full support to the industries, simultaneously there should be opportunities for employment. He appealed to the District Collector to act as a custodian to provide employment directly to the land ousters, who gave their lands for the project instead of through contractors.	NTPC has welcomed his commitment and full support for setting up of expansion units. Employment details are as mentioned above in reply at sl. no. 1.8			

1.11		He raised the issue of Mathangi Colony where people were living in precarious conditions as high tension lines were passing over them and he sought rehabilitation to the people and employment to all such persons. He reiterated his demand for rehabilitation of Mathangi Colony.	NTPC is taking all necessary actions for the welfare of land oustees/PAPs in accordance with the existing R&R policy. Transmission lines are erected and maintained by PGCIL/TG TRANSCO, and the lines were constructed in compliance with all high-voltage electricity norms. Therefore, there is no hazard as anticipated by the Hon'ble MLA for Mathangi Colony. The land in village Medipally was acquired long back in the year 1980 for the establishment of NTPC Ramagundam Thermal Power Plant through the District Administration as per the then prevailing Land Acquisition Act 1894. Mathangi Colony, Ward no. 39 (Kazipally), Village Medipally, Ramagundam Mandal, is under Ramagundam Municipal Corporation area. The land at Mathangi colony is govt land as per the Dharani Portal of the Govt of Telangana. Further, no land has been acquired /proposed to be acquired in Mathangi Colony (village Medipally) for Telangana Super Thermal Power Project Phase I & II and thus there is no displacement of people as far as Matangi Colony is concerned.			

1.12		He brought out the plight of Malkapur Village, where not a single road was laid so far.	NTPC has already spent Rs.1.73 crores through various initiatives under CSR, with specifically 44.02 lakhs spent on infrastructure development for Malkapur village as per the requirements of the villagers and the Need Assessment Survey.	In case any requirement comes in future, NTPC will address the issue.	by 2029	200
1.13		He demanded the management to develop all necessary infrastructure facilities at Ramagundam.	NTPC is committed for overall development of Ramagundam area and working relentlessly towards the wellbeing of the citizens of Ramagundam and beyond, transforming the lives. Significant infrastructure facilities developed by NTPC in Ramagundam area includes construction of school buildings, hospital building & medical equipment provision at Godavarikhani Hospital & supporting during the Ganesh Immersion and Sammakka Saralakka Jathara towards sanitation.	NTPC will take development works in consultation with local authorities & based on need Assessment.	by 2028	1000
1.14		He stated that 1500 acres of land belonged to Yelkalapalli including village tank was acquired earlier. The project authorities promised to de-silt the village tank, but nothing was carried out so far and there was a need to construct platforms for the use of farmers. He stated that they	NTPC will plan to visit the site for the feasibility of desilting of the Elkalapally tank NTPC acquired land in Elkalapalli (Yelkalapalli) Village is 130 Acre, 32 Guntas. Villagers have been provided pond ash from Telangana Ash Dyke as per extant guideline of MOEF & CC and NTPC Ash Policy.	Pond De-silting/Rejuvenation etc.	by 2028	100

		constructed an ash storage pond without any permission. He demanded that the villagers should be permitted to lift the ash at the nominal rate of Rs.1/-.				
1.15		He raised the issue of Kundanpalli village which faced the problem of ash spillage during summer season. The women folk of the village protested and sought rehabilitation of the village. He stated that the people were subjected TB, other skin diseases and sought employment. He stated that the villagers sought supply of drinking water by linking the pipeline.	NTPC being a responsible corporate citizen, is committed to environmental protection. All necessary measures are being taken to control dust emissions at the Ash Dyke, including: 1. Ash Pond water ponding. 2. Sprinkling water on the Ash Pond using a sprinkler system and fog cannons. 3. Water sprinkling on the roads by water tankers. Therefore, the impact of Ash Pond on the environment is minimal and there is no possibility of air, water, soil pollution and cultivable land of the concerned villages being affected due to this. Occupational health and epidemic health disorders survey of the study area (10 km radius) was conducted through M/s Pollucon Laboratories Pvt. Ltd, Surat in July 2018. A copy of the final report was submitted to the Regional Office (South Zone), MOEF&CC at Chennai on 25th November 2018. The health status of study population (both human and animal) was	Maintenance of drinking water system and pipeline shall be undertaken as per requirement.	by 2026	2.5

			found to be satisfactory. The health-related problems found during the study like General health related complains, Under nutrition, Over nutrition, Anemia and Refractive error were due to life style related factors and not due to above pollutants in emission from NTPC plant at Ramagundam. NTPC Ramagundam supplies drinking water to Kundanapally village through a pipeline from the NTPC plant. NTPC has also constructed an RO plant and a 10,000-litre capacity overhead tank in the village.			
1.16		He stated that there was no chance of increasing the wages to the Contract labours by the Central Government. He pointed out that the officers of NTPC were drawing Lakhs of rupees as salaries, the contract labours were getting a paltry sum of Rs.18,000/- to Rs.20,000/- per month. He demanded the payment of minimum amount of Rs.50,000/- per	NTPC is following all the statutory guidelines and prevailing labour laws in regulating contractual employment.Wages are being paid as per Govt. Rules and Regulation.			

		month to the technicians working on contract basis.				
1.17		He wanted that the management should have the powers to provide jobs to the Engineering Diploma holders instead of taking them through contractors. He stated that they are supporting the Phase-II of the power project and their demands also should be considered by the management.	Employment opportunities will be generated in which priority shall be given to the locals based on suitability/ availability of required skills as per the extant policy.			
1.18		He appealed to the management to allow the toddy tappers to harness the palm trees as these trees were left in the plant site which would provide sustenance to the toddy tapping community.	NTPC has taken action in coordination with DM and Excise department and the issue has been resolved.			

1.19		He demanded the project management to permit the fishing in the tanks and ponds maintained by them by Mudiraj community as the tanks were full of fishery wealth, otherwise the fish developed in the tanks would be wasted. He assured that the fishermen would not disturb the PV Panels installed for generation of power in the reservoir.	Fishing within the NTPC industrial premises is not permitted to ensure safety and security as per the guidelines. Further installation of floating solar is planned in the reservoir.			
1.20		He brought out the plight of the Mogalpahad village where the ground water was totally contaminated and became unfit for consumption and the people requested for supply of potable	Groundwater quality monitoring is being conducted regularly through an NABET-accredited lab. Third-party analysis reports of bore well samples from 5 locations around the Ramagundam ash dyke and 4 locations around the Telangana ash dyke are being submitted to statutory bodies on regular basis, and it has been observed that the results are within the limits as per drinking water	Regular monitoring of Water Quality shall be undertaken. Provision and Maintenance of drinking water system as per	Continuous	5

		water to the village.	standards. NTPC has constructed an overhead tank and provided an RO plant in the village to supply drinking water as per the villagers' requirements.	requirement.		
1.21		He stated that the project authorities distributed identification cards for treatment of patients. He contended that there was no staff to renew the cards. He demanded that the treatment should be provided to all contract labours in the NTPC hospitals on par with ESI Hospitals. He demanded setting up of Health Centers in 6 affected villages (PAVs).	1. Medical facilities are being provided as per the policy. 2. Medical camps are conducted throughout the year through the Mobile Medical Unit (MMU) with two doctors (including 01 lady doctor) for general health checkup in all the project affected villages. Free Medicines are distributed during Medical Camps and in MMU. Further we are also conducting special camps for eye checkup, Gynaec, Ortho etc. in project affected villages. Additionally, oral health and cancer detection camps are organized in project-affected villages, and this will continue in the future as well. NTPC has provided infrastructure facilities for establishing an ESI hospital in the NTPC township and is further renovating it to enhance the existing facilities. For the benefit of the PAVs peoples, NTPC has Infra facilities like construction of 2nd floor & provided various equipment's like	ongoing	continuous	100

			establishment of Eye checkup center & hospital in Godavarikhani with the cost of 690 Lakhs.			
1.22		He stated that emissions due to burning of 50000 Tons of coal per day which would be increased to 1, 00,000 TPD. He stated that the quantum of pollution would be so much and several cases were filed in NGT.	NTPC is committed to the cause of protecting and improving the environment for sustainable development. All pollution control measures, as mentioned above in reply to sl. no. 1.1, have been provided for the operating units of Telangana Phase-I and are also provisioned for the proposed Telangana Phase-II. All possible environmental protection measures are being implemented in compliance with the directives issued by MoEF&CC, CPCB, SPCB, and other statutory bodies from time to time.			
1.23		He stated that water would be made available from Yellampalli Sripada Sagar through Yellampalli-Murmuru to these areas.	Matter not related to NTPC.			

1.24		He stated people were subjected to cancer, heart attacks and mysterious health problems due to pollution. Despite all these deficiencies, he never intended to oppose the industry, instead they welcome the setting up of industries. He requested for effective control of pollution, develop basic infrastructure like roads, water supply, hospitals and health centers.	Pollution control measures adopted are as mentioned above in reply at sl. no. 1.1. NTPC is committed to developing the PAVs in a phased and timely manner through CSR funds.			
1.25		He put forward the following specific demands:				
		(1) Wages to the Contract labors should be enhanced.	Wages are being revised/enhanced and paid as per government rules and regulations.			

		(2) Skill Development Training to be imparted to the Engineering Degree and Diploma holders.	NTPC has setup a vocational training support to local PAV's through CIPET Hyderabad and Life Skill Academy in our NTPC premises where skill development trainings are conducted at regular interval. Every year NTPC organizing Vocational training program to the unemployed youth on various competitive exams by deploying subject matter experts. This year also 6 months vocational training program is being organized at Life Skill Academy, NTPC, Ramagundam.	This program is implementing every year.	Continuous	7.5
		(3) Selecting the Contract labors should be channelized through the District Collector instead of through contractors.	The matter is dealt with as per NTPC's Work & Procurement policy. However, priority is being given to local people/PAVs based on suitability/availability.			
		(4) CSR funds should be spent by adopting Ramagundam Constituency and practice of spending the CSR funds elsewhere like State	NTPC is committed to the development of nearby communities, and CSR activities are carried out as per Section 135 of the Companies Act, 2013. NTPC always prioritizes spending CSR funds for the welfare of the people of the Ramagundam Constituency.			

		and District headquarters should not be entertained. The funds could be utilized in the remaining areas of the District on fulfilling the demands of the local area.	Details given at 1.13			
		(5) CSR funds to a tune of Rs.360 Crores should be made available to the local development. Further an amount of Rs.600 Crores would be available under Phase-II of the project towards 2% allocation.	As per Section 135 of the Companies Act, 2013, and the budget allocated as per NTPC policy.			
		(6) Requested to take up several development activities in all villages of the constituency such as roads, water supply,	NTPC is committed to the development of nearby communities, and CSR activities are carried out as per Section 135 of the Companies Act, 2013. NTPC always prioritizes spending CSR funds for the welfare of the people.	NTPC will take development works in consultation with local authorities & based on need	by 2030	300

		and construction of community halls, women welfare and other development activities.		Assessment.		
		(7) De-siltation of Ramapuram Tank. The water should be treated along with Kundanpalli Tank. Extensive greenery should be developed	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment. Plantation details as mentioned above in reply at sl. no. 1.7.	De-siltation of Tank	by 2028	200
		(8) Employment opportunities to the youth in the dust affected villages.	Details given at Point no. 1.17 & 1.8.			
		(9) Ramagundam Tank should be maintained and necessary steps should be taken to prevent free flow of water in to the Tank to prevent siltation.	Water quality is being checked regularly, and all necessary action is being taken to prevent contamination of water body.	Inspection and Maintenance of the water tank.	Regular	

		(10) Construction of shopping complex with the financial assistance of NTPC at Medipalli to provide gainful employment to the local youth.	The matter cannot be taken up as per the extant policy of the company.			
		(11) Establishment of shopping complex between NTPC Police Station and MRO Office by NTPC.	The matter cannot be taken up as per the extant policy of the company.			
		(12) Employment to the local people only and all works should be entrusted to the local people only.	As above at point no. 1.8.			
		(13) Reduce the existing pollution levels to bare minimum possible extent and rehabilitation of pollution affected colonies.	NTPC is committed to the cause of protecting and improving the environment for sustainable development. All pollution control measures, as mentioned above in reply to sl. no. 1.1, have been provided for the operating units of Telangana Phase-I and are also provisioned for the proposed Telangana Phase-II. All possible environmental protection measures are being implemented in			

			compliance with the directives issued by MoEF&CC, CPCB, SPCB, and other statutory bodies from time to time.			
		(14) Construction of multi-specialty hospital to cater to the needs of Contract labors instead of spending Lakhs of rupees, he requested the management of NTPC to provide health card which could be useful and acceptable in any corporate hospital to provide free treatment.	NTPC has provided infrastructure facilities for establishing an ESI hospital in the NTPC township and is further renovating it to enhance the existing facilities. Medical Facilities are being provided as per policy. Medical camps are being conducted through Mobile Medical Unit. Further we are conducting camp of oral health and cancer detection in project affected villages. This will be continued in future also. Provided Infra facilities like construction of building, providing equipment's and establishment of Ophthalmology dept. in Godavarikhani Area Hospital.	Medical camps, Mobile Medical Unit in project affected villages will be continued in future also.		
		(15) Shifting of 10 MW Solar Power Plant from the center place, which was spread over 60 acres of land.	10 MW Solar plant has been installed in NTPC land as per Govt of India policy to enhance renewable power. The existing capacity may be enhanced further.			

		(16) Construction of houses for contract labors over an area of 2,000 acres of land.	No such policy is in place at present.			
		(17) Construction of stadium over 16 acres site near Police Commissioner Office. Requested for development of Sammakka-Saralamma area near Goliwada Village with greenery and bathing ghats as water from Godavari is drawn from this village.	The said land is allocated for green belt development and cannot be spared for infrastructure development such as a stadium, etc. NTPC's land is currently being used for local festivals like Sammakka-Saralamma. Further, the development of bathing Ghats at the Godavari river requires the permission of the concerned authorities. NTPC is always committed to developing greenery and plantations for environmental protection.			
		(18) Provision of employment to the family members who gave away the land for setting up of the NTPC Project. (outsees).	Employment data given above at point no. 1.8			

		(19) Demanded the management of NTPC to establish Skill Development Centre to train the local people in various trades.	NTPC has setup a vocational training support to local PAV's through CIPET Hyderabad and Life Skill Academy in our NTPC premises where skill development trainings are conducted at regular interval. Every year NTPC organizing Vocational training program to the unemployed youth on various competitive exams by deploying subject matter experts.	6 months vocational training program at Life skill academy	Continuous	7.5
1.26		He stated in his concluding remarks that this project was taking shape due to consistent efforts of the State leadership and Government which was promised as part of State Re-organization Act, 2014. He hoped that the Ramagundam would become a city near future due to industrial development.	Noted			

1.27		He stated that he would fight for the sake of the rights of the people of this area. In his concluding oration, he assured on behalf of the people of the Ramagundam that they would extend their full cooperation for the setting of 3 X 800 MW Phase-II Power Project.	Noted			
1.28		While disposing representations received by him, he requested the District Collector for payment of higher compensation to the land proposed for acquisition for ash pond. He requested for allotment of NTPC Quarters for the Government School teachers working since 30	The proposed land acquisition shall be done in line with extant rules and concerned authorities. NTPC has provided infrastructure for Govt. school.			

		years.				
1.29		He pointed out that the NTPC management promised to plant 13.0 Lakh saplings under afforestation program, which was not taken up so far. He read out the representations. He finally concluded with a request to the District Collector, Peddapalli to secure all the assurance in writing by the NTPC.	NTPC is committed for environment protection and improving the environment for sustainable development.			
2.1	Sri T. Surender, Ex-Employee, Annapurna Colony, Ramagundam:	He stated that the 4000 MW power project was the outcome of State formation. He supported the setting up 2400 MW Power Plant by M/s. NTPC Ltd.	Noted.			

2.2		He stated that several employees were working without any training, consequently they met with accidents. He stated that there was a training center and he requested to train up local youth to enable them to secure employment.	NTPC ensures proper training and safety precautions during the employment as per policy. However, matter will be taken up and more training will be provided on continuous basis. NTPC has setup a vocational training support to local PAV's through CIPET Hyderabad and Life Skill Academy in our NTPC premises where skill development trainings are conducted at regular interval. Every year NTPC organizing Vocational training program to the unemployed youth on various competitive exams by deploying subject matter experts. This year also 6 months vocational training program is being organized at Life Skill Academy, NTPC, Ramagundam.			
2.3		He stated that the NTPC paid good salaries, but there was a problem related to pension. Though the Hon'ble Supreme Court issued orders in 2002 for payment of	Issue is being taken up with PF/ Pension authorities.			

		higher pension. The orders were not implemented so far. He appealed to the management to resolve the issue through HR Department.				
2.4		He wanted the NTPC to supply free power to the farmers around NTPC plant. He concluded his views and supported the proposed expansion.	No such provision exists in the R&R policy at present.			
3.0	Sri P. T. Swamy, President, Senior Citizens Organization, r/o. Godavarikhani	He stated that electricity was the prime input for development of the area and for industrial development of the area as well as country and there was no second thought on this matter. He stated	NTPC has demonstrated a strong commitment to environmental protection and sustainable development. The company has integrated pollution control measures in existing Telangana Phase-I units and the proposed Telangana Phase-II units. This proactive approach is aimed at minimizing the environmental impact of its operations. The details of these pollution control measures are elaborated in the previous			

		that electricity would be essential for the economic progress on par with the other countries. He opined that the protection of environment would be equally essential as the recorded day temperatures were well above 43^{0}C at Ramagundam and surrounding areas. He stated that radiation was increasing and people were faced with various diseases. He stated that several members expressed their concern over spread of diseases. Despite the impacts, it was imperative to support the proposed expansion as it would supplement the development of	section (Sl. No. 1.1), underscoring NTPC's dedication to enhancing air and water quality. The measures not only focus on controlling emissions but also address the overall ecological footprint of the plant. Moreover, NTPC's emphasis on plantation activities and green cover reflects its effort to create a healthier, more sustainable environment around its facilities. By reducing pollutants and investing in greenery, NTPC is striving to contribute positively to the local ecosystem while adhering to its environmental responsibilities.			

		industry which ultimately increase the employment potential of the area				
		He suggested to the M/s. NTPC to take up plantation to the possible extent, supply of drinking water, provision of 75% jobs to the local youth. He appealed the Hon'ble MLA to move legislation in the house to reserve 75% jobs to the local people only, if required by amending the existing rules.	NTPC is continuously carrying out extensive plantation activities in and around the plant. Further plantation efforts will continue in available areas. Employment details are as mentioned above in reply at sl. no. 1.8.			
		He sought free medical aid to the contract labours and free treatment to the people of project affected area. He requested for the various welfare	Medical facility details are mentioned in reply 1.21. NTPC is committed for development of nearby communities.			

		programs should be implemented for the development of the area as well as industry. He concluded his opinion with a hope that the area as well as the industry should develop together.				
4.1	Sri D. Balaraju, Social Worker, Ramagundam	He stated that the Phase-I of Telangana STPP was accorded unconditional clearance and several promises were made during the public hearing. He informed that only books to the children and some smaller things were fulfilled by them, but local employment was not provided as expected.	The Telangana STPP Stage-I (2x800 MW) power plant was accorded approval by the MOEF&CC, with various project-specific conditions and general conditions. The Telangana project has already implemented numerous activities through its CSR initiatives related to the improvement of infrastructure facilities. Some of these activities include the construction of school buildings, hospital buildings, and the provision of medical equipment. The details of employment provided by NTPC are mentioned above in point 1.8. As per the R&R policy, priority will be given to project-affected people, subject to the availability of opportunities, and the			

			suitability and eligibility of candidates.			
4.2		He concluded his opinion with a request to the industry to start ancillary units in order to provide employment to the local youth.	No ancillary units can be set up within NTPC Plant premises.			
5.1	Sri B. Anil Kumar, Ex-Mayor, Ramagundam	He wanted the management of the Project to ensure the sanitation and cleanliness in the impacted wards of Ramagundam Municipality at par with the colonies lying in the project area.	The sanitation and cleanliness in the impacted wards of Ramagundam Municipality is to be carried out by State Government. NTPC supported the sanitation and cleanliness works by depositing Rs.5 lakhs per year to the concerned municipality and shall continue to support the same.		Continuous	5
5.2		He requested the industry to construct one synthetic parade ground in Ramagundam Municipal Commissionerate	NTPC will take development works in consultation with local authorities based on need Assessment.		2027	25

		grounds.				
5.3		He stated that the industry was drawing water from Yellampalli Reservoir on Godavari River. He stated that STPs were constructed at a cost of Rs.250 Crores. He demanded the NTPC to purchase the treated wastewater from the Municipality, so that the municipal corporation would get some benefit financially.	At present, no STP is available within a 50 km radius of the NTPC power station to cater to the water requirements of the station. Once treated water becomes available as per plant requirement, the feasibility of utilizing STP-treated water at the NTPC station will be studied.			
5.4		He further demanded the free electricity supply to all villages lying in 10 Km radius i.e. impact zone.	Electricity distribution is beyond the scope of NTPC.			

5.5		He pointed out that NTPC resorted to constructions without any prior permissions from the Municipality and demanded 100 times tax payment to all such constructions.	In view of the expedited project execution and urgency of the works, information has been provided to the Municipal Corporation, and approval has been received for part of the project. The rest is currently under progress for approval.			
6.1	Sri Khaja Ajimuddin, Secretary, Land Oustees Association, r/o Kannala village	He stated that the some of the land oustees were struggling to meet their survival due to acquisition of their lands. He stated that their parents gave away the lands about 50 years back to the proposed project. He sought justice in this regard. Government acquired 10,300 acres of land for these projects.	Details given at Point no. 1.8			

6.2		As per the agreement of 1988, they promised to provide 500 jobs in phases, which could not be fulfilled by them till to date. He listed 17 villages, whose lands were acquired. He stated that people from far away from Mancherial, Manthani, Chattisgharh and Bihar and other places were working in the plant.	Details given at Point no. 1.8.			
6.3		He stated that they were not allowed to enter into the offices and access to the public was strictly regulated. He stated that being a social worker, he tried his best to secure employment, but he was shown employment as a	Details given at Point no. 1.17 & 1.8.			

		contract labour.				
6.4		He stated that there was no wage revision to the contract labours and no change in their status.	Wages are being paid as per Govt . Rules and Regulation as amended from time to time.			
6.5		He informed that 450 members were provided employment through Karimnagar Employment Office. He stated that a notification was issued in 2022. He stated that they planned to submit representations in the Public Hearing meeting, but heavy deployment of Police prevented them from submitting the representations. He informed that they possessed the records with	Employment Details given at Point no. 1.8 As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		evidence but did not allow us to carry the papers. He made it clear that they came to represent their problems.				
6.7		He concluded his opinion by extending his support to the proposed expansion. He repeated his anguish over loss of his land which resulted in loss of lives, livelihood and the people of this area lost everything due to this project. He requested the management to ensure the payments without any cuttings by the Contractor who engaged them on false pretext.	Wages are being paid as per Govt. Rules and Regulation as amended from time to time.			
7.1	Smt. K.Sujatha, Ex. Corporator, Ramagundam	She supported the proposal for expansion of the	Noted			

		power project. She stated that there would be nothing to express any more points as the Hon'ble MLA dealt with all the issues related to this proposal including problems faced by the local people.				
7.2		She stated that the management of the NTPC was yet to complete the promised works in the impacted villages. She stated that the people lost their lands for this project and some of them became landless. She pointed out that the land oustees were not compensated with the land and they did not have land even to	NTPC acquired land through State Government for construction of Power Plant as per extent LA Act of 1894 between the years 1980-1984. Further, compensation as determined by the appropriate authority of the state govt. was deposited by NTPC with the concerned authorities for further distribution of the compensation. No cases are pending with NTPC for payment of compensation.			

		construct their house.				
7.3		She demanded that the project authorities should provide roads and drainage to the 9 divisions in Ramagundam and other affected villages falling in 15 Km radius to the plant apart from free supply of power.	NTPC already doing lot of activities under its CSR initiatives and NTPC will do developmental activities in phased manner through CSR funds.	NTPC will take development works in consultation with local authorities & based on need Assessment.	2028	100
7.4		She sought employment to the family members of land oustees in the plant directly as most of them were struggling to meet their survival.	Employment details are as mentioned above in reply at sl. no. 1.8			
7.5		She stated that Mathangi Colony was	All pollution control measures, as mentioned above in reply to sl. no. 1.1.			

		located adjacent to the compound of the power project and the residents were subjected to Noise and Air Pollution. She demanded the management of the project to resettle them by providing houses and employment.	NTPC will ensure the implementation of all the provisioned pollution control measures. NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas and Mathangi colony side to control Noise and Dust pollution.			
7.6		She stated that Kajipalli Village was also subjected to pollution, and she sought the rehabilitation of entire village.	Details given at Point no. 7.5.			
7.7		She wanted that the CSR funds should be spent in the affected areas instead of spending elsewhere as was done earlier.	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			

8.1	Sri B. Manohar Reddy, PACS-Chairman-Kannala, r/o. Ranapaur	He wanted the authorities to understand the plight of the people whose lands were acquired for the power projects which were under their enjoyment for years together. He raised the issue of the small and marginal farmers, who were left in lurches after acquiring their Ac.2-3 of land which provided sustenance to their life.	Land acquisition details given at 7.2			
8.2		He appealed to the District Collector to understand the problem of farmers as the market rate per acre of land would be around Rs.30-35 Lakhs, whereas the compensation offered by the	The proposed land acquisition shall be done in line with extant rules and concerned authorities.			

		Government would be invariably less than the market value.				
8.3		He sought employment and opportunities for earning to the landless poor.	Details given at Point no. 1.17 & 1.8.			
8.4		He invited the attention of the District Collector over the problems faced by the toddy tapper community of Kannala and Yelkalapalli villages due to destruction of Phoenix (Etha) trees from the lands acquired by the project. He sought compensation for removing such trees and direct the concerned not to fell the Etha trees further.	NTPC taken action in coordination with DM & Exesice department and the issue has been resolved.			

9.1	Sri K. Shashibhushan, Advocate, Manthani	He extended his full support to the proposed expansion of the Telangana STPP undertaken by the NTPC Ltd as part of fulfillment of the provisions of State Re-organization Act, 2014.	NOTED			
9.2		He stated that electricity was essential for supply of free electricity to agriculture, 200 units for each household, 250 units for artisans and for industries in the State.	NA. Refer reply in Point 5.4			
9.3		He requested the management of M/s. NTPC Ltd to fulfill the promises made by them to the people and certain demands put forward to them by the Hon'ble MLA.	NOTED			

9.4		He stated that the 4000 MW Telangana STPP was sanctioned by the Government of India as part of the State Re-organization Act, 2014. He stated that the State Government delayed the PPAs resulting in delay in the implementation of the project.	NOTED			
9.5		He stated that the present Government persuaded and requested the Central Government to complete the construction of 4000 MW Power Plant as provided in the State Re-organization Act, 2014.	NOTED			

9.6		He requested the management of the project to consider the problems faced by the people on humanitarian considerations.	NTPC committed for community development activities present and future as per policy.			
9.7		He concluded his opinion with a request to the District Collector to ensure to conduct Social Audit as Environmental audit was completed.	NTPC conducts Need Assessment, Social Impact surveys as per extant NTPC policy. However, the issue of Social Audit of the region pertains to state govt.			
10.1	Sri P. Ashok, Senior Advocate, r/o Godavarikhani	He stated that the issues brought out by the Hon'ble MLA was reflected on the ground and 200% relevant.	NOTED			
10.2		He stated that he could not secure the job, even though he attended the interviews, despite possessing requisite	Details given at Point no. 1.17 & 1.8			

		qualification.				
10.3		He put forward a suggestion to the people to demand the NTPC to pay minimum compensation to the age barred and qualified people in this region.	Wages are being paid as per Govt. Rules and Regulation.			
10.4		He stated some of the land oustees secured employment and requested the District Collector kindly to expedite the action to provide employment to the remaining persons as promised earlier.	Details given at point no. 1.8			

11.1	Sri P.V. Sharma, R/o. Ramagundam, State Project Manager, JK Trust-Mumbai	He stated that they received mandate to conduct a survey on livestock in impact zone. He stated that CSR funds were provided from NTPC to run Integrated Livestock Development program known as ILDP.	NOTED			
11.2		He stated that they have produced 3500 active generation cattle/upgraded calves so far and which yielding 4-5 liters of milk per day. He stated that their organization was carrying out their activities over 10 ILDCs	NOTED			
11.3		He stated that this program was closed in 2025 and requested the NTPC	NTPC has implemented 10 ILDC centres through NGO JK Trust for Artificial Inseminations with cost of Rs. 1.90 Crore and this program is completed recently.			

		to re-start 20 ILDCs on behalf of the farmers. He stated that the technical skills were improved, and necessary proposals were submitted to improve fodder availability.	Further, NTPC may restart the program based on the requirements of farmers and recommendation of District Collector Peddapalli			
11.4		He hoped the program would be revived for the benefit of local farmers.	Replied at Pt. 11.3			
12	Dr. Sampath Reddy, R/o. Hyderabad	He stated that they were involved in oral, dental and cancer health initiatives on behalf of M/s. NTPC Ltd, under CSR activities. He concluded his opinion and expressed his gratitude to the Hon'ble MLA.	NOTED			

13.1	Sri V. Sunanda Reddy, NGO & Environmentalist, R/o Nalgonda	He stated that this public hearing was held to elicit the views of the people on the impacts of environment which included air, water and land due to proposed expansion.	NOTED			
13.2		He felt that the pollution could be minimized by way of up-gradation of existing pollution control equipment and by adopting new technologies. He stated that it became imperative on the adoption of latest technology.	NTPC is committed to the cause of protecting and improving the environment for sustainable development. All pollution control measures, as mentioned above in reply to sl. no. 1.1, have been provided for the operating units of Telangana Phase-I and are also provisioned for the proposed Telangana Phase-II. All possible environmental protection measures are being implemented in compliance with the directives issued by MoEF&CC, CPCB, SPCB, and other statutory bodies from time to time.			
13.3		He opined that there were limitations in respect of Wind and Solar Power Plants. He felt that the	NTPC is taking various steps to make its energy portfolio greener by adding significant capacities of Renewable Energy (RE) sources. NTPC Ramagundam installed a 10 MW ground-mounted solar			

		management should ensure to run the plant with zero pollution.	power plant in early 2014 and India's largest floating solar plant with a capacity of 100 MW in 2022. 1310 KW Solar Rooftop capacity has been installed on various plant buildings, parking sheds, stores and common buildings at Telangana STPP. The installation work for a 176 MW PV-based solar power plant (120 MW land-based + 56 MW floating solar) is currently in progress.			
13.4		He stated that the Phase-I utilized more water and whereas the consumption of water would be less after expansion of Phase-II of the project. He felt that recycling and treatment of water resulted in less consumption of water.	Telangana Phase-I has been designed with a Zero Liquid Effluent Discharge (ZLED) scheme. The plant has an integrated system for the collection, treatment, recycling, and reuse of effluents generated within the plant. The ZLD system consists of an Effluent Treatment Plant (ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO system, waste service water system, and Ash Water Recirculation System (AWRS), among others, to reuse and recycle the effluents within the plant. The proposed Phase-II will use an Air Cooled Condenser for water conservation by reducing water consumption.			

13.5		He pointed out that the EMP indicated more area under plantation under Phase-I, but lesser extent of area under Phase-II and he opined that the area should be more. He suggested to plant medicinal and fruit bearing plants as the other species would cater to the needs of greenery, but not useful to the people.	As replied above under sl. no. 1.7			
13.6		He suggested the imparting of skill development training to the local people, who were technically qualified so that they would be able to secure employment elsewhere due to experience gained here.	Details given at 1.25 (19)			

13.7		He expected that this project should be implemented by following all environmental norms. He stated that the environmentalists usually opposed to the setting up of pollution generating industries, but he lent all out support to the proposed expansion as power generation would help to reduce the unemployment which was the chief pollutant in this country.	The pollution control/environmental protection measures adopted by NTPC at Telangana Phase-I and provisioned for the proposed Telangana Phase-II are as mentioned above in reply to sl. no. 1.1. The implementation of all the provisioned pollution control measures will be ensured in compliance with the statutory norms issued by MoEF & CC from time to time.			
13.8		He suggested to the industry to adopt Zero Pollution Technology to make this eco-friendly in nature. He felt that it would be necessary to add additional	Noted			

		4000 MW to the existing capacity to meet the growing demand.				
13.9		He wanted the industry to upgrade the existing pollution control equipment to reduce the adverse impacts on the environment.	Refer Pt 1.1			
13.10		He concludes his opinion with a request to the authorities to forward the proposal with positive recommendation to the MoEF&CC for according environmental clearance.	Noted			

14.1	Sri Narsimha Chary, NABARD, NGO	He stated that the industries were essential for the development thereby improvement in the lives of people. He opined that any development in the lives of people would be considered as actual development.	Noted			
14.2		He stated that he conducted a program on waste land development about six years back under CSR at locality of Kannala Village covered within 10 Km radius. He stated that he extended necessary assistance to 20 farmers to develop their wastelands into productive and sustainable lands.	NTPC will ensure the development of wastelands as green cover based on requests received from villagers.	NTPC will take development works in consultation with local authorities & based on need Assessment.	2028	20

14.3		He stated that they were involved in the implementation of Integrated farming system in six villages in impact zone under NABARD scheme. He expressed his gratitude to the NTPC for their participation and assistance to improve the farming practices.	Extension proposals under discussions.		2026	35
14.4		He stated that NTPC Ramagundam attained prestigious position in the country as this project filled the light in the lives of the people. This project was a prestigious one in the State of Telangana, and he supported the implementation of Phase-II of the	Noted			

		Project.				
14.5		He requested the management of NTPC to extend their full assistance to the development of basic infrastructure in the impact zone.	NTPC is already undertaking these activities and will continue to implement developmental activities under CSR in the future			
14.6		Being an NGO and Social Worker, he hoped that M/s. NTPC Ltd would continue their cooperation for the implementation of development activities in and around Ramagundam and concluded his views by extending his full support to the proposed expansion project.	Noted			
15.1	Sri Raj Kumar, Ex-Sarpanch, R/o Yelkalapalli	He stated that the lands were acquired from the people of his village at Rs.2,700/- to Rs.3,000/- per acre in	Land acquisition details given at 7.2			

		1979 as per the prevailing price. He stated that the lands were offered by the villagers with a hope to secure employment in the Power Project.				
15.2		He opined that this project filled the lights in the lives of other state people and their children were getting educated in foreign countries, but the people of his village were leading the lives in ash generated by the power project. He stated they faced severe problem due to this project.	NTPC is committed to the cause of protecting and improving the environment for sustainable development. All pollution control measures, as mentioned above in reply to sl. no. 1.1, have been provided for the operating units of Telangana Phase-I and are also provisioned for the proposed Telangana Phase-II. All possible environmental protection measures are being implemented in compliance with the directives issued by MoEF&CC, CPCB, SPCB, and other statutory bodies from time to time.			
15.3		He stated that they used to experience emission of Ammonia during the nighttime due to RFCL.	Not applicable to NTPC.			

15.4		He demanded employment to their descendants as the patta holders became old. He stated that their lands were abutting NTPC Project and there was no approach road to their lands. He appealed to the management to construct CC Roads and electrify the road for convenience of the farmers.	NTPC is committed for development of nearby communities subject to availability of funds.	NTPC will take development works in consultation with local authorities & based on need Assessment.	2027	150
15.5		He stated that there were toddy tappers community in 7 villages and requested for justice to them by providing gainful employment.	NTPC has taken action in coordination with the DM and Excise Department, and the issue has been resolved.			
15.6		He stated that Mudiraj community who lived on catching the fish and sought justice to	Response given at 1.19.			

		them.				
16.1	Sri M. Krishna Kumar, NGO, Manochaitanya	He stated that he was involved in rehabilitation of mentally handicapped children. He stated that the Government order stipulated that there would be no Government assistance after attaining 20 years of age. He felt that Government would listen to the people having influence or voice.	Already NTPC is providing support to Manochaithanya. NTPC committed for community development activities at present and in future as per policy. NTPC	On receipt of request, the proposal will be initiated.	2027	50
16.2		He stated that the mentally handicapped children were not in a position to demand as they were mentally derailed				

		people. There was no voice to them.	will take development works in consultation with local authorities & based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.			
16.3		He stated that he was running the home for mentally retarded children since 40 years and he wanted to handover the rehabilitation to the Government. He stated that they were spending Rs.50/- on each member for providing basic amenities and his financial and health position turned precarious, he requested the District Administration to come forward to take up the responsibility of those children.				

16.4		He appealed to the Executive Director, NTPC to extend necessary assistance.				
17.1	Sri Jupalli Venugopal Rao, R/o Veerlapalli	He stated that about 50000 TPD coal passed through the village throughout day and night. He wanted NTPC management to publish white paper on the assistance rendered or employment provided to the people of Veerlapalli till to date.	Employment details are as mentioned above in reply at sl. no. 1.8. NTPC committed for community development activities at present and in future as per policy. NTPC will take development works in consultation with local authorities & based on need Assessment.			
17.2		He wanted the project management to disclose the details of the work proposed to be undertaken in his village. He stated that it would be his 10th public hearing in which he	NTPC has not received any representations regarding the need for development works in Veerlapalli. It is a Project Affected Village (PAV) of RFCL and SCCL. However, we have extended our continuous support to the old age home in Veerlapalli. If any request is received, NTPC will undertake development works in consultation with local authorities and based on a needs assessment.			

		participated in all those public hearings. He stated that lands of Veerlapalli Village were acquired for the project purpose in the year 1982, 1983 and 1989.				
17.3		He concluded his views with a request to the Project management to publish the data through white paper on the provision of employment to the persons of his village.	Details given at 17.2.			
18.1	Sri S. Govinda, CIPET, r/o Hyderabad	He stated that the NTPC sponsored the trainings since 5 years. He stated that they imparted training to the persons and they would be able to work in industries. He stated that his	Noted and NTPC explore conducting trainings through CIPET as per requirement.			

		institute trained nearly 500 members in various courses. He informed that the management of NTPC entrusted the CIPET to impart training to 40 members and to secure placements in industries. He stated that CIPET selected poor students from surrounding 16 villages and sent them for training to CIPET, which provided free training, boarding and lodging in their training institute in Hyderabad. He stated the persons who underwent training secured employment in industries and they were getting about Rs.15,000/- to Rs.20,000/- per month as salaries. He				

		stated that there was possibility of getting employment in other countries after attaining experience. He stated that this training would help to start industries on their own. He thanked the management of NTPC for providing assistance to 200 members through CIPET. He appealed to the people to utilize the opportunity of the training imparted freely by CIPET. He hoped that the NTPC would facilitate opportunities to CIPET to conduct the trainings in future.				

19.1	Sri K. Satish, Ex-Corporator, r/o.Yelkalapalli	He stated that they were facing hardship due to pollution. He stated that they gave land for water reservoir, they converted the said land into ash pond. He stated the environment was good earlier and became polluted due to location of ash pond.	The pollution control and environmental protection measures adopted by NTPC at Telangana Phase-I and provisioned for the proposed Telangana Phase-II are as mentioned above in response to Sl. No. 1.1. The implementation of all provisioned pollution control measures will be ensured in compliance with the statutory norms issued by MoEF & CC from time to time. All necessary measures are being taken to control dust emissions at the Ash Dyke, including: 1. Ash Pond water ponding. 2. Sprinkling water on the Ash Pond using a sprinkler system and fog cannons. 3. Water sprinkling on the roads by water tankers.			
19.2		He complained that they were subjected to various diseases. He stated that contract works were awarded to the local people by M/s. SCCL. He demanded the NTPC to adopt same practice by awarding	Occupational health study details are mentioned above at s.no. 1.15 Employment and contract works details given 1.8 and 1.17.			

		contract works to the local people.				
19.3		He demanded the Power Project management to bear the expenditure incurred by the people in the affected villages towards treatment of various diseases such as cancer, lung and skin problem which he attributed to the Air Pollution.	Daily Medical Camps are being conducted through Mobile Medical Unit; two Doctors including one female doctor, staff nurse, Pharmacist, Lab Technician and Driver um Attendant deployed. Most of the diseases/disorders detected are related to Lifestyle related i.e Diabetes, Hypertension, Anemia etc. Free of cost Blood Sugar and Hemoglobin test are being for screening as well as for follow-up for monitoring of diseases control. Blood pressure, weight are measured and timely intervention with medication. Special care of Pregnant mother are being take care of by the Female Doctor and Staff Nurse. Blood Sugar, Hemoglobin and Weight measured and growth of Baby are monitored. Ensuring 100% Institutional delivery as a preventive measure for reduction of Maternal and Infant Mortality rate.			

19.4		He sought the management to provide free ambulance service to meet the health requirements / emergencies of the people in the impacted zone.	The proposal may be forwarded through District Collector, Peddapally. The management will look into the aspect of provide free ambulance service to meet the health requirements / emergencies of the people in the impacted zone.			
19.5		He alleged that several people took undue advantage by securing employment in the name of land oustees. He appealed to the District Collector to ensure free and fair practices in the provision of employment to actual land oustees, not only to 210 posts under Phase-II expansion, but also for all other jobs covering all future recruitments.	Employment Details given at Point no. 1.8 As per R&R policy, priority will be given to project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

20.1	Sri B. Raji Reddy, 39th Division, r/o Ramagundam:	He stated that Mathangi Colony was located at a distance of 10-15 feet from the Compound Wall of NTPC followed by Kajipalli and Pragathi Nagar. He stated that the said colony lacked even basic amenities. He appealed to the District Collector to make a visit to Mathangi Colony, where people faced severe hardship. He felt that the expansion of Power Project by the addition of 3 X 800 MW would increase the problems further.	Pollution control measures are as mentioned above in reply at sl. no. 1.1. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured. NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas to control Noise and Dust pollution.			
20.2		He appealed to the District Collector to resettle the residents of Mathangi Colony, Kajipalli and Pragathi Nagar. He demanded	Employment Details given at Point no. 1.8 As per R&R policy, priority will be given to project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		provision of employment to one person from each household.				
20.3		He stated that the Project authorities conducted annual awareness meeting to entrepreneurs of small units from Adilabad and Karimnagar Districts. He stated that he was the President of Ash Users' Association of the said two former districts. He complained that the practice of conducting the meetings was discontinued and he appealed for reviving the practice.	Meetings are conducted by NTPC with Ash Users on regular basis to resolve their issues, if any.			

20.4		He blamed the management over the supply of fly ash to the cement industries in Yadadri area. He stated that the project authorities resorted to supply of ash to the Corporate entities contrary to the Government order which stipulated free supply of ash to the local brick manufacturers using cement and earth. He stated that a tender was floated by the industry, wherein it was indicated that there were only 4,000 brick manufacturing units in these two districts, which according to him was 1850 Cement based brick Units and 6000 earth based brick units.	Supply of ash is mainly done through e-auction process to all interested User agencies as per extant guidelines of Ministry of Power, Govt of India.			

20.5		As demanded by the Hon'ble MLA, he appealed to the District Collector to ensure free supply of fly ash to brick manufacturing units at free cost. He expressed his apprehensions over the existence of the brick industry on stoppage of free supply of fly ash. He stated that his struggle was intended to secure justice to the land oustees.	Ash has been provided free of cost to local agencies with transportation cost being borne by them from Telangana STPP Phase-1 as per Ministry of Power, Govt of India guidelines.			
21.1	Sri K. Venkatesh, Ex-Sarpanch, R/o. Penchikalpet	He claimed that his village was also one among the impacted villages since 1990. He stated that his village never got the benefit of CSR funds so far. He requested the NTPC to consider this village as one		NTPC will take development works in consultation with local authorities & based on need Assessment.	by 2028	600

		that was covered in the impact zone.	CSR & Community development work are being done as per requirement, NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			
21.2		He put forward the list of works to be undertaken under CSR funds. Construction of link road to the Mandal headquarters and installation of solar lamps, Construction of open gym and walking track in the playing ground, Construction of building for women empowerment and health centre and Beautification of Yerragunta Tank Bund.				

21.3		He alleged that an amount of Rs.4.0 Lakh was charged for providing employment in the power project, which should not be permitted	No such information is available with NTPC, Ramagundam.			
21.4		He requested the management to lay CC Roads, raising of Avenue plantation and distribution of fruit yielding saplings. He concluded his opinion with a request to include his Penchikalpet Village in the list of impacted villages.	NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas. If villages come with specific requirement of plants, same may be provided by NTPC.			
22.1	Sri P. Satyanarayana Goud, R/o Yelkalapalli	He stated that the villagers extended their helping hand by giving advance possession of the land for setting up of the Power Project	Land acquisition details given at 7.2			

		with a hope to secure employment. He stated that the compensation paid to their lands was Rs.5,000/- per acre and after prolonged battle in the Court, another installment of Rs.5,000/- was paid to them. He claimed that the cost of the same land, now as per market rate was Rs.30-40 lakhs per acre.				
22.2		He said that 40% of the total NTPC land was acquired in Elkalapalli village itself, and three or four more villages were in his gram panchayat, and that all of them were completely acquired and a colony was built in New Poratapalli, but only	Issue pertains to state authority.			

		a few people built houses, and some people went to other places to make a living without building houses. He said that the remaining plots were given to others, and that those rehabilitation plots were supposed to be for life long, but the revenue people gave them to others, so he requested that they please give them what was allotted to them according to the layouts at that time.				
22.3		He stated that NTPC distributed Health Cards to the land oustees with an assurance that NTPC would bear 80% of the cost and the remaining would be payable by the Card	Computerized Hospital Management System has been implemented since last three years in NTPC to avoid manual error. Only 20% cost of OPD & Emergency are being taken from the Health Card Holders, ensuring the compliance 100% as per NTPC MAT rule.			

		holders. He alleged that the entire amount was collected from the Card holders only.				
22.4		He charged that the villagers usually would not come to the NTPC Hospital and treatment was not up to the expected level.	Since last 2-3 years all the specialists are available at NTPC Ramagundam Hospital including Homeopathy, Ayurvedic, Radiologist and ENT Specialist facilities are available. Our customer satisfaction has rated as excellent by 90% of the customer. Critical and Trauma care patients are attended promptly by the Doctors and Specialist. Doctors are available round the clock at emergency and Specialist attend the patients timely.			
22.5		He stated that they were not permitted to enter into the NTPC premises as there were several such instances of rejection which resulted in turning away from submitting an application to the concerned officer. He	Employment details are as mentioned above in reply at sl. no. 1.8. As per R&R policy, priority will be given to project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		found fault with the management of NTPC over lack of concern towards the land oustees, who became landless and no means to make living. He stated that the management of the project agreed to provide employment to 2,500 people which was not implemented since 30 years and he informed that most of the people became too old.				
22.6		He concluded his opinion with a request to convene a meeting once in six months with the NTPC to resolve the issues. He requested them to grow plantation over 5 acres of land in every village for toddy	NTPC has taken action in coordination with the DM and Excise Department, and the issue has been resolved.			

		toppers.				
23.1	SriMarri Yellanna, Social Worker, Mathangi Colony	He stated that he was the resident of Mathangi Colony. He stated that several members including public representatives demanded the Government to resettle them people from the existing place. He put forward his only one demand to shift the Mathangi Colony and resettle them at a safer place. He expected that the Government would take action and resettle the residents of Mathangi Colony to save the residents from pollution.	Pollution control measures are as mentioned above in reply at sl. no. 1.1. Mathangi colony reply is as mentioned above at sl.no. 1.11. Medical facility details are mentioned in reply 1.21			

24.1	Smt. Somavarapu Lavanya, Ex Corporater, Gowthaminagar	She opined that the expansion of the power project was expected as Ramagundam possessed all facilities. She felt that though the power project supplied energy to the country, but the people living near the power project were still living in the dark. She stated that the expansion of the power project was essential to the country, she expected that the District Collector and the management of the NTPC should bestow their attention to the development of the area. She stated that 16 villages including Ramagundam were subjected to the adverse impact of the	CSR & Community development work are being done as per requirement, NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			

		power project, hence she demanded for allocation of resources for the development of this area.				
24.2		Though the residents of Mathangi Colony were allotted with house sites, there were 500 members living in 160 houses in Mathangi Colony and Kajipalli Village nearby. She appealed to the Government that the members should be resettled, and compensation should be paid to the people. She demanded that the residents should be issued with health cards and the residents should be provided with treatment at free of cost in Corporate	Mathangi colony reply is as mentioned above at sl.no. 1.11. Medical facility details are mentioned in reply 1.21.			

		hospitals.				
24.3		She wanted a self-employment scheme to the residents of the Colony. She requested self-employment scheme for women.	Details given at 1.25 (19)			
24.4		She sought allotment of houses to the residents of Mathangi Colony under Rehabilitation and Resettlement scheme.	Mathangi colony reply is as mentioned above at sl.no. 1.11.			
24.5		She concluded her opinion by extending her support to the development of the area and at the same time the welfare of the people were also equally important.	Noted			
25.1	Sri Ch. Laxmaiah, Mathangi colony, r/o.	He stated that he was the resident of Mathangi Colony. He humbly requested	Pollution control measures are as mentioned above in reply at sl. no. 1.1. Mathangi colony reply is as mentioned			

	Ramagundam	the authority to shift the Mathangi Colony, as he spent Rs.10000/- towards medical expenses to his wife and Rs.25000/- to restore his health.	above at sl.no. 1.11.			
25.2		He complained that the people were not able to withstand the onslaught of the pollution of power project.	Pollution control measures are as mentioned above in reply at sl. no. 1.1. Further plantation by NTPC will continue in available areas to control Noise and Dust pollution.			
25.3		He complained that a hospital was constructed at a cost of Rs.25.0 lakhs in the Colony, but there was no supply of medicines or equipment. He wanted the District Collector and MLA to verify the conditions of the hospital. He stated that assistance was extended to	Issue pertains to state authority. NTPC Medical facility details are mentioned in reply 1.21.			

		them earlier. He requested for assistance to the affected villages.				
26.1	Sri B. Prasad, R/o Yelkalapalli	He stated that the yield of paddy was reduced to 25 bags from 40 bags earlier due to pollution. He requested the District Collector to verify the information from the Agriculture Officer or Statistical Officer.	Control measures for dust / fugitive dust at source are in place with the aid of suitable pollution control devices such as dust suppression system, bag filters, water fogging system, sprinklers and others. A scientific study for assessment of impact on vegetation within 10 km radius of the Telangana STPP was conducted through Tropical Forest Research Institute – Jabalpur. Study report was submitted to MOEF&CC Integrated Regional Office-Hyderabad on 29.11.2021. As per the report findings "any detrimental impact on the quality of food grain grown using the decanted water from ash pond area is not evident".			
26.2		He stated that the NTPC distributed agriculture implements about 10 years back and they stopped the distribution. He claimed that the	NTPC will distribute agriculture seeds this year.	Every year	Every year	5

		project authorities distributed books to the students earlier, but they stopped this program also.				
26.3		He requested the Project Administration to provide employment opportunities and conduct skill development programs, which would benefit the local youth.	Details given at 1.25 (19)	Ongoing	Every year	7.5
26.4		He concluded his opinion with a suggestion to the NTPC to distribute sports ware to encourage the local sportsmen.	As per CSR/CD activates NTPC will provide all necessary assistance for sports ware to encourage local sportsmen. NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			

27.1	Sri Kandula Satish, R/o. Laxmipuram	He stated that he was one of the land oustees and suffered from Polio disease which crippled him bodily. He stated that he was one person among 25 selected for employment in 2022 by the NTPC, but kept on hold. He appealed to the management to provide him job as he lost land and house.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
27.2		He stated that he was living in Laxmipuram Village now and living in pathetic condition. He appealed to the District Collector to consider his case and prevail upon NTPC to issue employment order. He concluded his views with a request to the District Collector to	Issue pertains to state authority. Employment details are as mentioned above in reply at sl. no. 1.8. As per R&R policy, priority will be given to project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		interfere in this matter and render justice to him by providing employment in NTPC.				
28.1	Smt. Vengala Padmalatha Bapu, Ex-Corporater, Shalapalli, R/O. Ramagundam	She stated that the pollution impact of power project covered 10 Divisions of Ramagundam Municipal Corporation and claimed that not much development was undertaken in the last 50 years.	CSR & Community development work are being done as per requirement, NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			
28.2		She requested the NTPC to undertake full scale development activities in those areas. She claimed that the Contract labours working at coal and ash handling plants were paid minimum wage of Rs.500/- per day,	*Wages are being paid as per Govt . Rules and Regulation as amended from time to time.*			

		which she claimed was grossly insufficient to meet their needs. She claimed that the persons engaged as contract labours were once farmers who provided food to others, whose lands were acquired for the construction of Power Projects. She stated that the contract labours were not able to support their families due to paltry wages paid to them. She requested the management of the project to enter into wage agreements with contract labours in order to provide some relief to them who actually ceded their agriculture lands for the project				

28.3		She demanded employment to the local youth. She demanded employment to women by engaging them in various works in the plant. She complained that they brought to the fore several problems in public hearings held earlier, but there was no response from the concerned. She concluded her views with an appeal to the District Collector to conduct reviews on the problems put before them.	Employment details are as mentioned above in reply at sl. no. 1.8. As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
29.1	Sri Akula Rajaram, r/o Malkapur	He alleged that the wash containing acid and ash were discharged into the Godavari River. He complained that the people were	The Telangana STPP is designed with the concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted since its commencement. Hence, there is no chance of wash containing acid and ash were discharged into the Godavari River. The project has an integrated			

		subjected to itching and skin diseases after bathing in polluted water.	scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant (ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO system, waste service water system and Ash Water Recirculation System (AWRS) etc. to reuse & recycle the effluents within the plant.			
29.2		He stated that ash water from Kundanaplli village flowed into Ramagundam Tank which resulted in filling of tank to a depth of 10 feet. He stated that farmers were raising the crops with same tank water	Desilting at Ramagundam Cheruvu is planned and mentioned at Ponit no. 1.25(7). A scientific study for assessment of impact on vegetation within 10 km radius of the Telangana STPP was conducted through Tropical Forest Research Institute - Jabalpur. Study report was submitted to MOEF&CC Integrated Regional Office-Hyderabad on 29.11.2021. As per the report findings "any detrimental impact on the quality of food grain grown using the decanted water from ash pond area is not evident".	De-silting at Ramagundam Cheruvu	2028	200
29.3		He stated that they sought information on water quality of the river and soil.	The information on water quality of the River Godavari and soil quality are included in Chapter-3 of the Draft EIA submitted to Telangana SPCB and the same was uploaded on Telangana SPCB			

			website. The Draft EIA report along with Executive Summary in English and Regional Language was put at various location in and around Ramagundam for Public to go through the report and suggest the valuable comments so that the same will be included in the Final EIA report.			
29.4		He questioned the claim made by the NTPC with respect to Air Quality Index (AQI), Environment and reduction in ambient temperatures. He stated that earlier he filed a case in the NGT and won it.	NTPC is operating all the existing units in compliance with applicable norms. Air Quality Monitoring conducted by NABET accredited laboratory. Based on NGT case, EC amendment 2022 received and complied with the conditions.			
29.5		He stated that he was a farmer and the yield of crops was not up to the optimum level due to dust and contaminated air with Sulphur-di-oxide. He stated that this polluted air	Control measures for dust / fugitive dust at source are in place with the aid of suitable pollution control devices such as dust suppression system, bag filters, water fogging system, sprinklers and others. A scientific study for assessment of impact on vegetation within 10 km radius of the Telangana STPP was conducted through Tropical Forest Research Institute –			

		would affect all the persons not only up to 25 Km radius, but beyond the impact zone.	Jabalpur. Study report was submitted to MOEF&CC Integrated Regional Office-Hyderabad on 29.11.2021. As per the report findings "any detrimental impact on the quality of food grain grown using the decanted water from ash pond area is not evident".			
29.6		He appealed to the District Collector to ensure a pollution free environment and permit the people to survive in the present circumstances as they were subjected to severe pollution on one flank by M/s. SCC Ltd and other flank by M/s. NTPC Ltd.	The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured. The details are mentioned in 1.1			
29.7		He wanted to submit the four-page memorandum to the District Collector over the problems faced by them due to unabated pollution. He questioned the security agencies for	Public Hearing was conducted by SPCB as per norms and directions from DM, Peddapally. NTPC welcomed all the public to express their views. NTPC is not involved in controling the public.			

		obstructing them in attending this public hearing and taking away their representations before entering into the venue.				
29.8		He wanted the NTPC to conduct health checkups in each village falling in impact zone. He alleged that the CSR funds were spent at Karimnagar and Siddipet, but not here which bore the brunt of the pollution. He alleged that not a single work was undertaken in the Malkapur Village under CSR so far.	Medical facility details are mentioned in reply 1.21 CSR & Community development work are being done as per requirement, NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment. CSR activities taken in Malkapur village mentioned in reply 1.12			

30.1	Sri Umamaheshwar, Environmental Activist, R/o. Ramagundam	He complained to the District Collector that several persons who intended to participate in this public hearing were prevented from entering into the venue.	Public hearing was conducted by the SPCB as per norms, under the directions of the District Magistrate, Peddapalli, Telangana, who was the Chairperson of the Public hearing. NTPC welcomed all the public to express their views. NTPC not involved in controlling the public. More than 1000 people attended the public hearing.			
30.2		He submitted a detailed representation in the shape of a pamphlet to the District Collector, Peddapalli. He alleged that the NTPC made several promises when 1600 MW Power Project was proposed, but they forgot everything, even ignored the court orders. He stated that the case moved to Supreme Court which could be surfed on Google Search Engine by typing	Pollution control measures are as mentioned above in reply at sl. no. 1.1. Plantation details as mentioned above in reply at sl. no. 1.7 As directed by NGT and EAC, NTPC had conducted additional studies and amendment in EC was granted vide letter dated 08.08.2022.			

		'Umamaheshwar, NGT' Case No.46/2016.				
30.3		He stated that the installed capacity at Ramagundam was 4200 MW and one more power station with 1200 MW was located at a distance of 13 Km from this place. He stated that the cement unit located at a distance of 9 Km was using around 1.9 crore tons of coal. He stated that the cumulative coal burning capacity would be about 4.0 crore tones per annum. He stated that the total consumption of coal in the world was 1.0 lakh tones in the year 1999, whereas the present consumption of coal would be	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured. NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas to control Noise and Dust pollution.			

		about 890-900 crore tones. He stated that China consumed about 500 crores tones annual and India consumed about 100 crore tones per annum which included the quantity of imported coal. Though China consumption of coal was 5 times to the coal consumed in India, they reduced the pollution levels when compared to 2003 levels. He said that India emits 4.35 million tonnes of sulphur dioxide per year, which is 6 times more than China.				
30.4		He stated that the Hon'ble Court directed the NTPC to consider the pollution impacts in 15 Km radius. He	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC.			

		contended that the Environment Consultant engaged by this Project was incompetent to calculate the environmental impacts over a radius of 15 Km. He stated that 10 Km radius covered 316 Sq.km whereas the area under 15 Km radius would be 706 Sq km. If the radius increased to 25 Km the area would be above 1900 Sq.km. He pointed out that the Environmental Consultants should forget their 10 Km radius surveys and should prepare the baseline data extended over a distance of 15 Km as directed by the Hon'ble Supreme Court of India and				

		National Green Tribunal. He opined that the EIA Report submitted by the Environmental Consultant should not be permitted as the statement prepared by the Consultant was contrary to the orders of the Hon'ble Court.				
30.5		He stated that there was RFCL with a capacity of consuming 13 lakh tons of coal per annum. He stated that 16 underground mines 7 open cast mines were existing in the impact zone. He stated that Opencast-IV mine was closed which was adjacent to the Godavari River. He stated that they	Not related to NTPC			

		constructed an embankment to the Godavari River. He stated that the Opencast mine constituted 470 tunnels and they extracted 5,000 tons of coal from each tunnel. He informed that it would be dangerous to fill these tunnels with coal ash.				
30.6		He stated the employment potential of the proposed expansion of 2400 MW (3 X 800 MW) was indicated as 96, this means that one job will be generated for every 25 megawatts, which worked to 4 members to 100 MW and 1 member to 25 MW. It was indicated in the report that the	Employment details are as mentioned above in reply at sl. no. 1.8 In the past years, there has been a lot of change in the manpower requirement in the power generation industry and the requirement of executives and nonexecutives/workers has become very limited. Optimum utilization of manpower has become very important to maintain the long-term financial capability and viability of the plant. The construction of 03 units proposed in the project will also be set up based on super critical technology, hence there will be limited			

		cost of generation of 25 MW was Rs.320 crores. There would be employment to the contract labour of 216, who were paid paltry sum. He felt that they could be paid Rs.15, 000/- freely for surviving in polluted environment by inhaling dust and obnoxious air. He stated that there were 4000 labourers working in NTPC and they incurred expenditure of Rs.60 crores on payment of wages to them. He stated that the officers who were in the cadre of E6 to E11 they get each Rs.1.0 crore per year.	employment opportunities in the project. However, efforts will be made to address employment issues as follows (1) Efforts will be made to provide unskilled employment to claimants from the project affected families as far as possible in the contract agencies involved in construction and operation. (2) Skilled and semi-skilled categories in the construction and operation related agencies associated with NTPC will be given priority as per their qualification and requirement. Wages are being paid as per Govt . Rules and Regulation as amended from time to time.			
30.7		He pointed out that that there would be no generation of ash,	The information related to ash sale and bottom ash supply to SCCL is not correct.			

		but they were actually selling the ash worth of Rs.1, 000 crores. M/s. NTPC Ltd demanded money for the supply of bottom ash as M/s. SCC Ltd refused to make payment for bottom ash. He stated that the exhausted mines used to be filled with sand earlier. Due to high cost of sand, the Hon'ble High Court directed the M/s. SCCL to fill the mines with bottom ash generated in Thermal Power Stations.				
30.8		He stated that the Government of Telangana gave Power Purchase Agreement to 800 MW and the remaining 800 MW would be supplied to	PPA agreements are in progress.			

		Andhra Pradesh Government as per the Act. However, the Andhra Pradesh Government was persuaded to accept 1000 MW. He stated that the supply of remaining 600MW was not disclosed so far. He opined that the cost of generation of 1 MW power worked out to Rs.12.30 crores, whereas the cost of Solar Power per MW worked out to Rs.3.50 - 4.0 crores. He stated that the cost of Solar Power was Rs.40/- per unit about 30 years back, now the same Solar Power was available at a cost of Rs.1/-.				
30.9		He stated that the Solar Energy Corporation of India	Renewable and Solar energy details as mentioned above in reply at sl. no. 13.3			

		persuaded the Andhra Pradesh Government to accept Solar Power at the rate of Rs.2.29/- per unit over a period of 25 years. He stated that the cost of power from the Phase-II of the Power Project would work out to Rs.6.50/- per unit, if the unit commenced the operation as per the schedule. He contended that the cost of the power might go up even up to Rs.9/- in case of any delay. He opined that the private companies always chased the profits and quoted the Jeweler that money would not come easily. He stated that one job was offered for Rs.300.0 crore				

		capital investment.				
30.10		He quoted 'LANCET' an International Medical Magzine, which published a paper on the impact of air pollution. It stated that 25.0 lakhs persons were affected due to air pollution since 2019 onwards.	Not related to NTPC			
30.11		He found fault with the Planning Commission and Niti Ayog the successor of Planning Commission. It was unfortunate that the both agencies considered the FGD plant as a non-entity and did not deserve any consideration.	MoEF & CC, vide notification dated 30.12.2024, has extended the timeline for compliance with SO_2 norms for TPPs in Category C up to 31st December 2029. However, NTPC has already provided Flue Gas Desulphurization System (FGD) for Unit-I & II of Telangana STPP Phase-I (2x800 MW) to reduce the SO_2 emissions and the system is currently operational. Further, the installation and commissioning works for FGD for all the seven units of NTPC Ramagundam Super Thermal Power Station is in progress and expected to be completed within the			

			stipulated timeline.			
30.12		He found fault with the people living in the affected mandals which was shown as 6, 00,000. He contended that the actual population in these mandals was 12, 00,000. He stated that the generation cost of power was Rs.1.80 crores and went up to more than Rs.12.0 crores instead of Rs.6.0 crores. He stated that the impact of Air Pollution at Yadadri Thermal Power Project would become less intense as there was no other competing coal	In EIA study, total population of study area is mentioned according to 2011 census.			

		consuming units nearby.				
30.13		He stated that 5, 85,00,000 tons of Carbon-di-Oxide, 2.98 lakh Tons of Sulphur-di-oxide and 10,000 Tons of $PM_{2.5}$ were ejected into the air. He stated that there would be possibility Cancer, if the $PM_{2.5}$ exceeded 15 µg/cum in the air. He carried an air sampler which indicated 300 AQI and in some cases nearer the plant site it would be around 500 AQI. He cited the reasons forwarded by NTPC as local disturbance and vehicular movement contributed to the	As per EIA study, PM10 max value is 90 and PM2.5 max value is 50.			

		higher levels.				
30.14		He stated that the NTPC consumed 3.75 crore tons of coal per year. He found fault with the reasoning of NTPC management that 12.0 lakh residents constituting 3.0 lakhs houses contributed to the increase in Air Quality Index. He stated that the claim of NTPC of below 40 µg / cum of PM_{10} below 28 µg / cum of $PM_{2.5}$. He claimed that the actual levels of $PM_{2.5}$ would be above 100 µg / cum and 200 µg/cum in the case of PM_{10}.	EIA study has mentioned that high values of PM are may be attributed to vehicle movements, but not mentioned as due to population. As per EIA study, PM10 max value is 90 and PM2.5 max value is 50.			

30.15		He contended that Sulphur-di-oxide would affect the lungs and metals also.	MoEF & CC, vide notification dated 30.12.2024, has extended the timeline for compliance with SO2 norms for TPPs in Category C up to 31st December 2029. However, NTPC has already provided Flue Gas Desulphurization System (FGD) for Unit-I & II of Telangana STPP Phase-I (2x800 MW) to reduce the SO2 emissions and the system is currently operational. Further, the installation and commissioning works for FGD for all the seven units of NTPC Ramagundam Super Thermal Power Station is in progress and expected to be completed within the stipulated timeline.			
30.16		He stated that only 33% of heat would be converted as electrical energy and the remaining would escape into surrounding areas. He stated that the proposed capacity of power plants including existing plants would be about 10,200 MW. He contended that	NTPC has adopted Ultra Supercritical (USC) technology for the proposed plant. USC projects offer the advantages of higher efficiency (around 42%), reduced heat rate, and lower emissions, resulting in reduced coal consumption and a corresponding decrease in emissions. The proposed project is designed with an Air-Cooled Condenser for water conservation by reducing water consumption. All necessary pollution control measures have been envisaged for the proposed project.			

		the heat emitted into atmosphere and surrounding areas would twice the generating capacity i.e. the quantum heat would be sufficient to generate about 21000 MW. He stated that it would create a heat junction and the people would feel the temperature effect on their lives. Hence, he demanded the shifting of the plant.	Further, Green belt development also has been planned in the surroundings. Ambient Temperature is being monitored, and tree plantation is also being done in and around the periphery of the plant area.			
30.17		He found fault with the Environmental Consultant for preparing the report basing on the false data. He stated that Executive Summary was prepared in English language and most of the	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. Both Telugu and English copies are distrusted in all village panchayats and kept at Mondal offices. Additional Telugu and English copies also distributed during PH.			

		people were not able to understand the English language. He suggested to circulate the Executive Summary in Telugu language as most of the people could be able to read the booklet.				
30.19		He stated that the increase in particulate matter would cause Cancer, heart and lung diseases. He cited the example of banning DDT a chemical used as insecticide. A social worker got the DDT banned in USA. He questioned whether any health survey was conducted in impact zone.	Occupational health study details are mentioned above at s.no. 1.15			

30.120		He stated that the details of CSR funds was not furnished as half of the pages were not attached to the Executive Summary. He stated that the people of yelkalapalli requested for the construction of 4 rooms, but the proposal was rejected and fund were lying unutilized. He stated funds were sought for construction of school in Yelkalapalli and a road in Malkapuram, both the proposals were not yet considered.	NTPC is already implementing numerous developmental activities in Yelkalapally and Malkapur villages. NTPC will consider the proposals from Yelkalapally and Malkapur and will continue to carry out developmental activities in the coming years.	We will take up this activity in next 2 years.	by 2027	100

30.21		He cited that the area of the country as 30.0 lakhs sq. km. Though the area was shown as more, in reality it was different. He stated that the impacted area was 706 sq.km which was one by 46th part of the total area. He stated that the entire country consumed 100 crore tones of coal where as this area consumed 4 crore tones of coal.	The A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State.			
30.22		He stated the cost of Solar Power was Rs.3.5 crores per MW. He questioned the wisdom of setting up of 10 MW Solar Power Plant by NTPC on the land which valued Rs.600 crores as the land abutting the Rajiv	The A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. For generating the 2400 MW of Solar Power, the Land requirement approximately will be 10,000 acres. So much of land is not available at the Telengana Thermal Power Plant. NTPC is taking various steps to make its energy			

		Rahadari. He stated that cost of the Solar Power Plant was only Rs.50 crores only. He questioned wisdom of setting up of low valued power project in high valued land. He offered to procure 60 acres of land for setting up of Solar Power Project, in exchange of the land utilized for Solar Power Project, which they needed to handover the land to the Government for useful purpose.	portfolio greener by adding significant capacities of Renewable Energy (RE) Sources. NTPC Ramagundam installed the 10 MW Ground mounted solar power plant in early 2014 and India's largest Floating Solar Plant with capacity of 100 MW in 2022. And Installation work of 176 MW PV based Solar Power plant (120 MW land base + 56 MW floating solar) is in progress.			
30.23		He stated that they were utilizing 4.0 crores tons of coal now and propose to consume 3.0 crore tones in future. He stated that they tried through a	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control			

		known person to offer favours to him, but he did not bend to their bait.	Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured.			
30.24		He informed that the River Godavri flow over a length of 1465 Km from its birth place near Nasik to Antarvedi near the sea in Andhra Pradesh. He stated that the water quality of Godavari River at Murmur near Yellampalli was 'C' category. Godavari River is one of the sacred River in the country and people used to revere it and people of old generation used to take bath in Godavari River. He demanded an	The concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted at Telangana Project since commencement. The project has an integrated scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant (ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO system, waste service water system and Ash Water Recirculation System (AWRS) to reuse & recycle the effluents within the plant. EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. Ground and Surface Water Quality Monitoring is being done as per TOR. and all the values have been found to be within norms.			

		answer from the TGPCB whether bathing in Godavari River would not peel off the skin. He stated that the river water turned into 'H' category near Ramagundam and responsibility rested with M/s. NTPC, RFCL and M/s. SCCL, who discharged the water into river.				
30.25		He stated that the Indian coal contained Sulphur, hence the emission of Sulphur-di-oxide was more when compared with China which consumed 5 times. He questioned whether increasing the load of pollution on smaller portion of land was justified	MoEF & CC, vide notification dated 30.12.2024, has extended the timeline for compliance with SO2 norms for TPPs in Category C up to 31st December 2029. However, NTPC has already provided Flue Gas Desulphurization System (FGD) for Unit-I & II of Telangana STPP Phase-I (2x800 MW) to reduce the SO2 emissions and the system is currently operational. Further, the installation and commissioning works for FGD for all the seven units of NTPC Ramagundam Super Thermal Power Station is in progress and expected to be completed within the			

		by burning of extra coal. He stated that all countries in the world including China, Russia and USA were reducing the consumption of coal to the possible extent. He stated that Manchester, a City in UK, which recorded highest AQI once, now read the AQI as 25. He requested the AQI NTPC to bring Ramagundam on par with present Manchester in the case of Air Quality. He opined that the dashboard at NTPC never displayed correct figures and he wanted to know the exact figures. He felt that India should possess the technology of de-sulphurization as	stipulated timeline.			

		Sulphur-di-oxide posed problem to lungs and also some metals like Iron. He stated that FGD was established only when the Hon'ble Supreme Court directed the NTPC to install FGD to the Flue Gas Stacks, even though it was well known that FGD was essential to control Sulphur-di-oxide emissions. He claimed that the FGD was installed 30 years after commissioning of the plant. It indicated that 30 years they posed problem to the public.				

30.26		He felt that this public hearing was conducted to elicit the views of the stake holders living in impact zone, but most of them were not permitted to enter into the meeting venue.	Public hearing was conducted by the SPCB as per norms, under the directions of the District Magistrate, Peddapalli, Telangana, who was the Chairperson of the Public hearing. NTPC welcomed all the public to express their views. NTPC not involved in controlling the public. More than 1000 people attended the public hearing.			
30.27		He estimated the annual Carbon-di-oxide production at 585 lakh tones. Even trees located in one 1 acre area would not be able to absorb more than 2-3 tones annually to carry out photosynthesis process. He calculated the requirement of trees around 1.5 crores to be planted to absorb the Carbon-di-oxide emitted by the plant. He concluded that	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured. NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas to control Noise, Dust and other pollution.			

		land would not be available to plant so many trees. He stated that the cultivated land in the country was stated to be 39.0 crores, which was cultivated by 13.0 crore farmers. He informed that 55% of the people in the country were depending on agriculture to eke out their livelihood. He stated that people were able to survive on paltry earnings.				
30.28		He stated that creation of one job required 325 crores as capital investment in NTPC. He stated the statics on land allotment to various industries in acres. NTPC-11,000;	As per the R&R policy, priority will be given to project-affected people, subject to the availability of opportunities, suitability, and eligibility of candidates. Employments details are as mentioned above in reply at sl. no. 1.8.			

		SCCL-40,000; RFCL-6,000; Kesoram Cements-6,000; TGGENCO-6,000 and on the other bank of Godavari 20,000. The above lands were given from Ramagundam, Kamanpur and Palakurthi Villages. He alleged that local employment was limited to only 100 members. He stated that 4,000 members were getting 60 crores as salaries, whereas 400 officer class people were getting 400 crores as their salaries.				
30.29		He cited the EIA Report where in it was indicated that leopards, pythons, mongoose and foxes were roaming in the impacted zone	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. The monitoring has been carried out from March, 2024 to May, 2024 based upon which the Draft EIA report			

		which was considered as green zone. The pH values were stated to be in the range of 7.0-7.3. He stated that groundwater and surface water was considered as potable as per the report.	has been prepared.			
30.30		He stated that the installed capacity of NTPC as on date was 42000 MW. He pointed out that the NTPC indicated 15 members per MW as the employment potential, which was revised to one member per 25 MW production. He found fault with this statement as people were required to pay Rs.5.0 lakhs to secure a monthly salary / earning of	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		Rs.15,000/-.				
30.31		He alleged that 890 Contract labours were removed in a single stroke and two members committed suicide. He raked certain old issues on contract labours. He state that 200 regular employees removed from FCI were given casual work after collecting Rs.2.0 lakhs per head. Subsequently, they collected Rs.5.0 lakhs to Rs.15.0 lakhs for providing employment. He alleged that totally they unlawfully collected about Rs.40.0 crores in the name of providing employment.	Not related to NTPC			

		Though this was the practice, no complaint was filed and no action was taken.				
30.32		He stated that cost of Solar Power was Rs.132/- per unit and it was scaled down to Rs.1.30/- per unit and he questioned that why this Thermal Power is required at the cost Rs.12/- per unit. He opined that the traffic police was vulnerable and it amounted to consuming 40 cigarettes per day. He stated that the Police required to perform their duties under the open sky and were bound to inhale smoky air. He cited the comments of a	Renewable and Solar energy details as mentioned above in reply at sl. no. 13.3. Occupational health study details are mentioned above at s.no. 1.15.			

		Surgeon who was performing operations since 40 years as the lungs of youngsters were red and older people who consumed cigarettes black. He found that the lung were turned black irrespective of age due to Air Pollution. He cited one more Surgeon who said that the maximum number of cancer cases came from Ramagundam area. He cited a medical journal 'LANCET' which published an article over the possibility of prevalence of diseases like Cancer, heart, lung, skin and abortions. He said that one lakh people died in this area due to heart diseases,				

		lung diseases, skin diseases, and other life-threatening problems. He suggested to establish green power plants to increase the capacity of power generation throughout the country. He stated that clean power would be the solution to meet the future requirements, instead of dirty power generated from the fossil fuel. He compared with the China where the causality was not more than the reported death in India despite consuming 5000 MTPA of coal.				

30.33		He demanded the project proponent to supply air purifiers to 3.0 lakh families living in the impact zone and plant as many number of plants as possible to meet carbon sequestration target. He stated that the EIA Report furnished false report on planting of 13 lakh plants. He pointed out that the Report stated 60000 plants near Solar power station, which was incorrect. He stated that small shrubs should not be considered as plants only Neem, Ravi, Juvvi and Neredu etc were considered as plants. He stated that 40 plants could	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured. Plantation details as given at point no. 1.7. NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas. If villages come with specific requirement of plants, same will be provided by NTPC. EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. The monitoring has been carried out from March, 2024 to May, 2024 based upon which the Draft EIA report has been prepared.			

		be planted over one acre of land and entire 10,000 acres if planted, it would not be more than 4,00,000 plants. He stated that 5,050 acres under fresh water tank and 1600 acres under ash pond. The remaining area contained Railway tracks, path ways and schools etc and hardly 1000 acres left of afforestation. He demanded answer from the NTPC on actual number of plants. He found fault with the EIA Report wherein the maximum temperature was 43.6^{0}C. He stated that maximum temperature during summer season				

		exceeded 50^{0}C.				
30.34		He finally stated that the baseline data collected within 10 km radius was contrary and wrong instead of collecting the baseline data over an area falling in 15 Km radius. He faulted with the data pertaining to Godavari River Water, Surface water of other water bodies, ground water, PM_{10} $PM_{2.5}$ Noise levels and data on planting of trees. He stated that the coverage of impacted area as 65000 acres which	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. The monitoring has been carried out from March, 2024 to May, 2024 based upon which the Draft EIA report has been prepared.			

		was factually in correct. He sarcastically stated that the power project could be constructed disregarding the impact on environment. He demanded the supply of Air Filters to all residents numbering 3.0 lakh families, supply of clean drinking water and construction of schools in every village.				
30.35		He demanded for survey of prevalence of disease in respect of Oncology, Pulmonology, Cardiology and Dermatology by third party and not by the agency nominated by the NTPC. He	Occupational health study details are mentioned above at s.no. 1.15			

		wanted to know whether there was rise in temperature of 1.5^0 C over a period of about 100 years. As the elevation of Ramagundam was about 140 M above MSL, the temperature when compared to Hyderabad would be 2.5^{0}C more. He stated that the difference exceeding 2.5^{0}C was mainly attributed to the burning of coal.				
30.36		He demanded for survey of prevalence of disease in respect of Oncology, Pulmonology, Cardiology and Dermatology by third party and not by the agency nominated by the NTPC. He wanted to know	Occupational health study details are mentioned above at s.no. 1.15			

		whether there was rise in temperature of 1.5^0 C over a period of about 100 years. As the elevation of Ramagundam was about 140 M above MSL, the temperature when compared to Hyderabad would be 2.5^{0}C more. He stated that the difference exceeding 2.5^{0}C was mainly attributed to the burning of coal.				
30.37		He stated them not to believe the propaganda regarding employment as the NTPC website explained their motto of providing one job for the generation 3.3 MW.	NTPC is recruiting employees as per requirement and NTPC policy.			

30.38		He wanted construction of 300 bed Multi-Specialty Hospital at Mancherial to cater to the needs of traffic Police and street vendors.	Issue pertains to state authority.			
30.39		He appealed to the District Administration to accommodate 2,000 street vendors by allotting a piece of land of 4 m width from NTPC gate to MRO Office and construction side roads to Rajiv Rahadari to avert fatal accidents.	Issue pertains to state authority.			
30.40		He reiterated his previous remark against the display of various parameters related to Air Quality on NTPC dashboard was incorrect. He	LED screen near the project entrance gate is installed and it displays ambient air quality in terms of PM10, PM2.5, SO2 and NOx & also stack emissions in terms of SO2, PM and NOX. 4 AAQMS locations are installed at suitable location as per the direction from the SPCB.			

		found fault with the Air Quality sampling procedure as they collect the samples in opposite directions of wind rose. He concluded his exhaustive opinion, views, suggestions and objections with a request to the Chair not to permit the expansion of Phase-II project or else rehabilitate and resettle all the 10 lakh residents from the impact area.				
31.1	Sri N. Govardan, Advocate, Environmentalist & Social Activist	He exhibited the cell phone screen depicting the burning in California/Los angels of Hollywood area. He cited the example of power project proposed at Bela area in Srikakulam District which was opposed	NA Comment not related specifically to the project.			

		by the local people. Consequently, the then Government cancelled the proposal of thermal power project. He stated that the burning of wildfires in California area was attributed to the dryness in atmosphere as there was no or very scanty rainfall coupled with high velocity winds of 160 Km speed. He stated that the green leaves became dry and the most of the 52 States in USA and North America as a whole was subjected to the wildfires. He attributed this phenomena to the burning of coal for generation of power.				

31.2		He opined that the burning of fossil fuels like coal, oil etc became agents / factors of destruction of environment and ecology which included flora and fauna. He stated that he stayed in a village near Mancherial. He stated that they used to consume a legume known as Chikkudu over 90 days in a year now that became extinct due to pollution, though they were staying on the northern part of Godavari River. He opined that the indigenous flora and fauna was getting extinct due to unabated pollution.	Pollution control measures are as mentioned above in reply at sl. no. 1.1. The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured.			

31.3		He stated that an artificial sun with 10 crore degrees centigrade was created by China using Hydrogen-Helium fusion reaction. He questioned why officers in NTPC were not thinking in that direction and continue with burning of coal as fuel. He stated that China announced openly that it would not construct any more thermal power stations in future. He brought out a matter of concern that the food crops would be threatened, endangering the existence of mankind itself.	NA Comment not related specifically to the project.			

31.4		He stated that Germany and France were manufacturing 10 MW capacity wind mills whereas China developed 32 MW wind mills by Shanya Company. He felt that installation 75 such wind mills instead of 3 X 800 MW Thermal Station using coal would generate the same energy.	The A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. NTPC is taking various steps to make its energy portfolio greener by adding significant capacities of Renewable Energy (RE) Sources. NTPC Ramagundam installed the 10 MW Ground mounted solar power plant in early 2014 and India's largest Floating Solar Plant with capacity of 100 MW in 2022. And Installation work of 176 MW PV based Solar Power plant (120 MW land base + 56 MW floating solar) is in progress.			
31.6		He stated that the temperature during May and June months would over around 51^0 C in these areas consequently 2 members among 3 were subjected to lung diseases. He stated that he gave up rice, salt and practice exercises	Occupational health study details are mentioned above at s.no. 1.15. Lung function tests are being carried out among all the employees and workers working in dust-prone areas.			

		like pranayama and yoga to overcome the problem of lung diseases. He stated that his lungs would not function properly at Ramagundam and Mancherial due to polluted air whereas the same would function properly in forested areas				
31.7		He compared the conflicts in world with the clean fuel versus fossil fuel. He requested the chair not to provide any chance to the people who spoke in favor of NTPC or Government and provide chance to offer the views of affected persons. He opined that the future would belong to clean fuels and securing jobs in NTPC should not be a	Noted			

		dependable preposition. He felt that the industrialization would result in human less working. He stated that 1000 robots were working in place of 10000 labours in South Korea. He stated that western countries were adopting unmanned working. He gave a forecast on the revolutionary changes in respect of industries, energy and environment in the country. He concluded that employment would be zero and spoke against capitalism. He felt that the world should invariably adopt the socialistic eco-friendly approach being the correct and viable				

		solution for survival of human race.				
32.1	Smt. E. Janaki, R/o Narrashalapalli	She stated that their family land was acquired for setting up the power project by NTPC and her father attained old age. She stated that NTPC never provided any sort of means or employment to their family. She stated that she approached an official in Delhi and obtained eligibility certificate and the names of the land oustees descendants was forwarded by the employment exchange office to the NTPC, but there was no action in	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Further there is no provision of such pension.			

		providing employment to them.				
32.2		Though the District Collector issued letters to the land oustees, the project management did not honour any letters. She expressed her anguish over the lapse of time in providing employment to the land oustees. She appealed to the District Collector to issue land oustee certificates on her name and provide employment opportunities in the project.	Issue pertains to state authority. Employment details are as mentioned above in reply at sl. no. 1.8			

33.1	Sri Srinivas Reddy, R/o Mogalpahad	He stated their land was utilized to locate ash pond and they still cultivate the left over land adjacent to the ash pond. He stated that they cultivated their lands since 1953. He stated that the lands extent of Ac.1200 from Ramagundam Railway Station to the existing project of NTPC belonged to their village.	Issue pertains to state Revenue authority. No comments.			
33.2		They constructed NTPC power project by acquiring 350 acres of land in 1982. He stated that they were shifted from their homes and shifted to the site adjacent to the IOCL Petrol Bunk and they were not paid compensation to their lands till now.	NTPC acquired land in Moghalapahad Acre 793-21 Gts through State Government as per Land Acquisition Act 1894 and payment was made to state government and there is no compensation pending with NTPC.			

		He stated that they were cultivating the remaining land.				
33.3		He cited that the District Collector conducted a meeting on September, 2024 and informed them that an extent of Ac.606 acres of land was proposed for acquisition within 2 months and requested to file if they had any objection whatsoever before the RDO and MRO offices.	As per Land Acquisition act 2013, the District Collector Peddapalli has issued Preliminary Notification section 11 of 2013 done on 05-09-2024.			
33.4		He stated that the second acquisition was effected in 1990 for construction of SRSP Canal. An extent of Ac.28.0 was acquired in this process from the	NTPC did not acquire land for any SRSP canal and issue may be related to irrigation department.			

		Mogalpahad Village. He stated that they submitted applications for payment of compensation, but the details of the acquisition was yet to be furnished to them and no compensation was paid in this case also. He displayed Xerox copies of the pattadar passbooks issued by the Government and the original passbooks of the land was handed over to the Lawyer and he stated that they were not recognized as farmers.				

33.5		He questioned that, after introduction of the Dharani portal, the 606 acres of land was transferred in the name of Raja Venkata Murali Manohar and his son's name Sri Rajeshwar. They said that they had told the RDO about this matter many times. He questioned the District Collector, Peddapalli on behalf of 200 farmers, whether it was possible to own 602 acres by an individual farmer. He stated that the land was held in the name of Sri Murali Manohar Deshpande who was ceased to exist now and expired long back.	The District Collector has issued order proceedings on 31.01.2025 based on the public hearing meeting 28.01.2025 for removing name in Dharani portal Mr. Raja Venkata Murali Manohar whose name is wrongly entered in portal.			

33.6		He questioned the District Collector, how compensation would be paid and he apprehended that all this strategy was to benefit the NTPC by circumventing the payment of compensation to the farmers who were in the possession of said land. He stated that they filed number of applications to the District Collector through the Revenue Divisional Officer stating that Sri Muralidhar Rao was no more and his son Sri Rajeshwar Rao mischievously usurped the land without proper documents. He demanded a reply from the District Collector on this	The District Collector has issued order proceedings on 31.01.2025 based on the public hearing meeting 28.01.2025 for removing name in Dharani portal Mr. Raja Venkata Murali Manohar whose name is wrongly entered in portal.			

		matter whether justice would be rendered to the passbook holders.				
33.7		He cited one example that the pattadar passbooks were not even issued to the remaining lands after acquisition from the said farmer. He narrated the sequence of events with different officials at different levels to enter their names in 'Pahani' i.e. Revenue Record related to the ownership of the land. He requested for issue of copy of Pahanis in their names since 1952 as they paid land taxes since 1952 onwards. He cited the land	The District Collector has issued order proceedings on 31.01.2025 based on the public hearing meeting 28.01.2025 for removing name in Dharani portal Mr. Raja Venkata Murali Manohar whose name is wrongly entered in portal.			

		acquisition notification issued for acquisition of land from farmers wherein the primary task was to identify the ownership of the farmers. He wanted to know from the District Collector, whether the farmers were identified as owners or not, which they were not aware even till now.				
34.1	Sri Y. Srinivas Reddy	He stated that lands were acquired from them. While acquiring the lands they reasoned that the lands were acquired for the development of the country and for welfare of the people. But he contended that the industry was utilizing the land not for the betterment	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be			

		but for the destruction of environment. He alleged that the officers were enjoying the facilities of quarters provided by the NTPC, but they never bothered about the plight of the people. He complained that the food cooked in the morning was polluted with ash. He alleged that the reports submitted by the NTPC, SCCL and RFCL were totally false as stated by the previous speaker.	ensured.			
34.2		He requested the managements not to handover the operations to the contractors. He stated that the managements should recruit persons	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		directly, if they felt that the said industry was essential and indispensable, so that some people would get employment directly. He alleged that the contractors in NTPC and RFCL were collecting huge amounts to provide employment. Though the Governments changed several time, but the contract system was continued.				
34.3		He appealed to the Government not to invite this type of situation of conducting public hearing in closed places. He concluded his opinion with a request to the District Collector, to rehabilitate and	Issue pertains to state authority. Employment details are as mentioned above in reply at sl. no. 1.8. Further, no land has been acquired /proposed to be acquired for Telangana Super Thermal Power Project Phase I & II main plants.			

		resettle their village, to provide employment and sustenance to the affected people.				
35.1	Sri Raj Kumar, Advocate, r/o Godavarikhani	He stated that the EIA Report should have been circulated among the people, which was not made available to understand the implications of expansion. He stated that extensive tree growth used to exist and about 10 mines used to operate in that area. He stated that trees used to exist despite mining operations which were mainly underground mines and environmental setting was good	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. The Executive Summary on the project and other relevant information was displayed at the offices of the local bodies and the Collectorate to enable the public to access the information. Both Telugu and English copies are distrusted in all village panchayats and kept at Mondal offices. Additional Telugu and English copies also distributed during PH.			

35.2		He stated that open cast mining was taken up and emission of dust particles was increased steeply. All units such as NTPC, Kesoram and RFCL surrounding this area has been emitting pollution. He alleged that people were subjected to various diseases. He stated that public hearing was held without the participation of the people. He stated that the carrying capacity of the area was saturated and the area would not be able to take additional pollution load. He opined that it was not desirable to expand the existing capacity of the power project in	Occupational health study details are mentioned above at s.no. 1.15.			

		view of the constraints of pollution as people from Godavarikhani, who were covered in impact zone also would not support this expansion proposal. He requested the District Collector to withhold the expansion of the NTPC as it would be detrimental to the health of the people.				
36.1	Sri Shekhar, Advocate, R/o Godavarikhani	He stated that there were several mine from 1 to 11 inclines. He stated that the underground mines were closed one after another and opencast mines 1, 2 &3 used to be there. He stated that with the advent of opencast mining pollution levels	- Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 1.1.			

		started increasing.				
36.2		He stated that citrus fruits were covered with spots and infected. He cited the example of curry leaf tree which was covered with dust, unless sprayed with water. He contended it was imperative to wear mask if they come out from the home. He stated that M/s. SCCL was concerned about production, early the production used to come through manual operation and now they extracting the mines by blasting. After advent of this	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 1.1.			

		blasting operations, the number of chimneys in NTPC increased phenomenally from 4 to 10 and more.				
36.3		He stated that NTPC, SCCL and RFCL, they provide CSR funds to the local villages. He stated that the employees they go to corporate hospitals for their treatment, though there were hospitals in their respective industries. He raised the nagging issue of why specialist doctors were not prepared to work here. He requested the District Collector to recruit the specialist doctors to treat the cases. He expressed his gratitude to the management of	Issue pertains to state authority. Super specialists Doctors are visiting to NTPC Hospital every week and providing their services in the field of Cardiology, Neurology, Pulmonology (Lung Specialist, Cancer Specialist.			

		NTPC, who constructed a good hospital using CSR funds. He requested the District Collector to send a proposal for recruitment of experts and specialist doctors to provide treatment to the patients.				
36.4		He stated that air pollution was severe here. He stated that the water was scarce and polluted. He cited Shivararathri and Sammakka-Saralamma Jatara were celebrated in this area. He cited the example of vehicles which were kept neat and clean and washed with water by the concerned, in contrast the vehicles in this place were always dusty and	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 1.1.			

		there was no fresh water for the up-keep of the vehicles.				
36.5		He sought solution to contain Air Pollution and requested to see provision of Oxygen chambers to the people like air conditioning for reduced temperatures. He stated that the pollution levels were unbearable to the people with the commissioning of 2 X 800 MW under Phase-I. He concluded his opinion with a request to envisage the conditions with the addition of 3 X 800 MW under Phase-II by the	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured.			

		officers connected to environment protection.				
37.1	Sri Durgaiah, R/o Mogalpahad	He stated that 1200 acres of land was acquired for the construction of RSTPP and three hundred acres of land was lying there. He raised the issue acquisition of additional 650 acres of land threatening the lives of the people of the village in peril. He alleged that the land available with the NTPC was utilized for dumping ash and laying the roads and acquisition of additional land posed the problem of survival of the people	Fresh Land acquisition is for Dyke only. Main plant and other facilities for proposed 3X800 MW Phase II will be set up in land already available with NTPC. Pollution control measures details given at point no. 3.1.			

		as that particular patch was under cultivation by the villagers.				
37.2		He informed that the District Collector visited the area personally. He stated that it was a ceiling land and there were two cases filed against him. He alleged that the Mr. Deshpande mischievously tried to obtain patta to such land, in fact it was not entered in to the records. He stated that he won the Court case against him for 56 acres of land. Despite winning the case, the Administration helped him and the land was displayed in	Issue pertains to state authority. Land acquisition details given at 7.2.			

		his name. He appealed to the District Collector to consider their cases as they owned the land.				
37.3		He agreed to give his land for the project, but requested to consider him as original pattadar of the land. He stated that only 8 villagers were the employees of the NTPC from his village. He appealed for justice to the farmer who tilled the land. He stated that he was not prepared to handover the land.	Issue pertains to state authority.			
37.4		He questioned that the area was subjected to high pollution due to vehicular movement. He felt that Government	• To control the fugitive dust emissions in Coal Handling and Ash handling areas, dust control systems as Dust Extraction & Dust Suppression, Water sprinklers, Fog Canons etc. are being used. Water sprinkling is being done in other dust prone areas like unpaved roads.			

		threatened them takeover of their land which was shown in the name of previous pattadar. He stated that there was left over fallow lands available in the village, which could be acquired by the Government and requested the District Collector not to include the land under canal cultivation for acquisition. He appealed to the District Collector once again with a request to exempt their cultivated lands from acquisition proceedings.	• Under the direction of the Government of India, the National Highways Authority of India (NHAI) is building major highways in the country by taking ash from NTPC. We are also committed to providing them ash for the development of the nation. • Along with this, our ash is sent to cement factories and bricks, block and tiles companies through closed vehicles (bulkers). But for road construction, transportation of ash is possible only through Hiva. Arrangements have been made to cover the trucks engaged in ash transportation.			

38.1	Sri Sagar, Mathangi Colony, R/o Ramagundam	He stated that the workers who were working in NTPC could be seen directly by climbing up the stairs of his building. He stated that the equipment within the plant could be seen from his house.	NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas and Mathangi colony side to control Noise and Dust pollution.			
38.2		He concluded his views with a request to the Government to shift the Mathangi Colony and resettle them with all facilities at a new site free from pollution and this rehabilitation should be completed before the commencement of the work on the Phase-II of the Power Project of TSTPP.	Ref. reply at Sl.no. 1.11.			

39.1	Sri Laxman, NGO	He stated that the people were living in peculiar situation. He stated that there was unemployment at the same time who got employed were enjoying with their families. He made a comment on the people who would accuse Electricity Department in case of disruption of electric supply even for a short period. He made it clear it would not be possible to supply electricity without power generation. Survival without electricity would be a night mare.	Noted			

39.2		He stated that the employees of State and Central Governments provided secured employment till 60 years plus age. He reiterated his support to the project and requested the MoEF&CC to accord environmental clearance to the Phase-II Expansion of the project provided the industry complied with all environmental norms stipulated by the Regulatory Agencies.	Noted			
39.3		He stated that the employees of State and Central Governments provided secured employment till 60 years plus age. He	Noted			

		reiterated his support to the project and requested the MoEF&CC to accord environmental clearance to the Phase-II Expansion of the project provided the industry complied with all environmental norms stipulated by the Regulatory Agencies.				
39.4		He suggested to the Government to provide remunerative rate to the land and compensation to the farmers whose lands would be acquired for the project.	The proposed land acquisition shall be done in line with extant rules and concerned authorities.			

39.5		He stated that it was not desirable to provide guaranteed employment to few members and they should think about large number of unemployed. He sought employment to the people by according clearance to the project.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Further there is no provision of such pension.			
40.1	Sri Bheemsen, NGO, President, Godavari Pradushana Pariharana Paryavarana Parirakshana Gavaksham	He stated that this project should be supported keeping in views of the development of the country. He firmly believed that this project would take shape and would be materialized, irrespective of support or opposition from any quarter. He felt that some damage to the environment became	Noted			

		a necessity.				
40.2		He objected to the technical data furnished by the Environment Consultant which he felt erroneous. He preferred to discuss the issues with the Environmental Wing of the NTPC and sought their appointment. He replied that they were busy on that date and requested him to come on fixed appointment. He stated that the same officer who contacted him for a meeting a day before the public hearing. He informed him that he preferred	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC.			

		to offer his opinion during the public hearing.				
40.3		He stated that their organization was involved in the public and on environmental protection since 20 years and they offer their unbiased opinion on the industrial establishments located in and around this area. He stated that they were providing suggestions.	Noted			
40.4		He stated that this project belonged to the public and the persons who occupied the Chair were Government paid servants and	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions.			

		discharging their duties as provided in the Constitution of India. He felt that it would be necessary to restore the environment and ecology to the extent it was destroyed. He opined that it would be imperative on the part of society to protect environment as destruction of Ozone would result in adverse impact and it would be necessary to grow trees to effect equilibrium in environment.	The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured. NTPC has done extensive plantation in and around the plant, Further plantation by NTPC will continue in available areas.			
40.5		As narrated in the Executive Summary of the project, he stated that only 60% plantation target was attained and there was no land left for plantain to attain the	Telangana STPP has already Developed the Greenbelt in and around the plant premises on approx. 215.39 Ha. of land as per the details given in EIA. Further, approx. 80.14 Ha. areas have been identified for Greenbelt Development in next 5 years span. NTPC has done extensive plantation in and around the			

		target. Even though they were some short comings on environment front, he stated that their organization supported the proposed expansion as it was the project of the public and related to the development of the country.	plant, Further plantation by NTPC will continue in available areas. If villages have specific plant requirements, NTPC will provide them accordingly			
40.6		He felt that there would be no normalcy after accident, similarly that there was destruction to some extent. He made some suggestions to the management of the project. Some of the suggestions were according priority to education, health and employment, coaching facilities to competitive	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			

		examinations. He felt that very important one was provision of drinking water facilities to the local people. He declared that the quality of mineral water from the Potable Drinking Water Plants was found to be very poor and toxic as per their analysis. He stated that the water did not contain minerals, dissolved oxygen, TDS and Alkalinity. He stated that drinking of such water result in loss bone strength and fractures				
40.7		He enumerated the various types of pollutions like Air, Water, Land, Noise, Chemical, Radioactive and the most treacherous	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 1.1.			

		was contributed to the degradation of human beings. He attributed the selfishness was the outcome of Psychological imbalance.				
40.8		While extending his support to the proposed project, he suggested to include the services of the local NGOs for the collection and preparation of the baseline data and requested the Environment Consultant to incorporate their suggestions in final copy of the Report. He stated that their participation would be limited to pollution control and environment	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC.			

		protection only.				
40.9		He concluded his opinion and suggestions with a request to the Management to spare the time to discuss the issues related to environment with the local NGOs with standing and incorporate their views and suggestions in the report. He stated that he submitted a representation wherein he demanded share to farmers and prohibition of Plastics and its derivatives. He requested the	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC.			

		cooperation of administration in this regard.				
41.1	Sri Madhusudhan, r/o. Mancherial	He stated that he was the resident of Mancherial. Though the proposed plant is located in Ramagundam, he opined that the public hearing should have been conducted in Mancherial District also, as 4 mandals of Mancherial District were covered in the 15 Km impact zone. He stated that Luxettipet, Hajipur, Naspur and Mancherial mandals of Mancherial District were covered in this zone affecting 2.0 Lakh people who	Public Hearing was conducted by SPCB as per norms and directions from DM, Peddapally. According to the EIA Notification 2006- Public hearings are to be held at the following places: At the project site or A site which is in 'close proximity' to the project site. The spirit of the provision is to ensure maximum participation of the affected people in the Public Hearing process. It is therefore to be held at a place which is convenient for the public to access. This can be the project site itself or an area which is in 'close proximity'. 'Close proximity' would refer to an area nearest to the project site where arrangements can be made to organize a Hearing in which all affected persons can participate without difficulty, and which also ensures wide participation of all concerned persons.			

		were living in impact zone. He requested the management of the NTPC should answer their indifference in conducting the public hearing. He wanted to know the reasons for non-conducting public hearing in Mancherial District. He stated that they were also adversely affected due to discharge of polluted gases into the air. He stated that his residence was located in the impact zone. He stated that there was no information on this public hearing in his District and requested the District Collector to take the matter to the notice of the Government. He				

		requested the Management of NTPC to conduct the same public hearing in Mancherial District.				
41.2		He stated that the management of NTPC gave several assurances during the public hearing. He requested the District Collector to examine the degree of compliance to all assurances or commitments earlier. He castigated the NTPC for non-compliance of environmental conditions by non-establishment of FGD units. He stated that emission of Sulphur-di-oxide into the air would be detrimental to flora, fauna including human	MoEF & CC, vide notification dated 30.12.2024, has extended the timeline for compliance with SO2 norms for TPPs in Category C up to 31st December 2029. However, NTPC has already provided Flue Gas Desulphurization System (FGD) for Unit-I & II of Telangana STPP Phase-I (2x800 MW) to reduce the SO_2 emissions and the system is currently operational. Further, the installation and commissioning works for FGD for all the seven units of NTPC Ramagundam Super Thermal Power Station is in progress and expected to be completed within the stipulated timeline.			

		beings.				
41.3		He felt that the District Collector being the custodian of the health and wellbeing of the people, a decision should be taken on setting up of this plant. He opined that the District Collector should send a report to the Government of India keeping in view the health and welfare of 12 Lakh people. He alleged that the officials of the NTPC submitted a false report and the officers dealing with environment were also misguided by the report and driving the decision makers in the wrong direction. He drew parallel to the fines levied by the Police	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. Pollution control measures are as mentioned above in reply at sl. no. 1.1.			

		Department on polluting vehicles, whereas this industry had been emitting pollution and he wanted to know the punishment proposed on the major polluter.				
41.4		He stated that Government intended to generate power due to availability of coal and water. He contended that the people were also suffering from diseases due to pollution. He alleged that nearly 1.0 lakh people were subjected to various diseases mainly related to kidney, lung and skin diseases.	Occupational health study details are mentioned above at s.no. 1.15			

41.5		He found fault with the local industrial majors like M/s. NTPC and M/s. SCCL for not constructing Super Specialty Hospitals at Ramagundam, instead of driving the people to costly destinations like Hyderabad for treatment. He stated that the industrial majors were having their turnover in thousands of crores, but they were hesitant to extend their assistance to develop a well-equipped hospital to meet the need of the local people. He appealed to the District Collector to take action for fulfilling this requirement.	Medical facility details are mentioned in reply 1.21			

41.6		He cited the provisions of Article.51 of the Constitution wherein it was stipulated that the responsibility of protection of environment rested with every citizen of this country. He stated that he was the only person who came as a representative of Mancherial District to participate in this public hearing. He has cited Article.48A of the Constitution which stipulates the State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country. This Article places an obligation on the State to protect the	NTPC Telangana is committed to the protection of the environment and resource conservation. NTPC is dedicated to following all directions and guidelines issued by MoEF&CC from time to time. The proposed Telangana STPP, Phase-II, based on Ultra Super Critical technology, has higher thermal efficiency compared to sub-critical units. The enhanced efficiency results in lower coal consumption, leading to reduced ash generation and gaseous emissions. The latest pollution control technologies and measures have been provisioned for the proposed Telangana Phase-II (3x800 MW). The implementation of all provisioned pollution control measures will be ensured. NTPC is continuously undertaking plantation activities to improve the environment.			

		environment and wildlife.				
41.7		He cited the previous speakers who found fault with misleading EIA Report and requested the Government to conduct the public hearing again after correction of the reports. He stated that the new unit should be permitted only after complying the stipulated conditions.	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. All the pollution control measures have been implemented at Telangana Phase-I and envisaged in proposed Telanagana Phase-II. NTPC is dedicated to following all directions and guidelines issued by MoEF&CC from time to time.			
41.8		He concluded his opinion with a request to the District Collector, Peddapalli to take to the notice of the Government to conduct the public	Public Hearing was conducted by SPCB as per norms and directions from DM, Peddapally.			

		hearing at Mancherial.				
42.1	Sri V. Ravinder, R/o Yelkalapalli	He stated that their lands were acquired for the construction of NTPC projects in 1983 at a rate of Rs. 2500 - Rs. 5000 per acre of highly fertile agriculture lands. He stated their grandfathers thought that giving lands to NTPC would light up the country and the villages. He stated that their grandparents thought that the reputation of the place would go up. But they never knew that the lives of their children would be filled with darkness due to giving away the valuable lands. He lamented that	Land acquisition details given at 7.2.			

		their rights by obstructing his participation in this public hearing and he somehow entered into this venue to offer his opinion				
42.2		He stated that he was one unemployed persons and not in a position to feed his family. He opined that several unemployed people were turning as extremists and anti-social elements due to lack venues.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Further there is no provision of such pension.			
42.3		He requested the management to plant saplings as part of protection of environment. He stated that there were no street lights and schools without bathroom facilities for girl students. He	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			

		requested to consider the requests put forward by him with regard to the land oustees and redress their grievances.				
43.1	Sri S. Venkateshwarlu, NGO, Suryapet	He stated that project authorities should plant indigenous species like Neem, Maddi, Kanuga and Malabar Vepa species as part of raising plantations.	The plantation activities and selection of suitable species will be carried out by the State Forest Development Corporation as per the location.			
43.2		He expected that local people should be provided employment.	As per the R&R policy, priority will be given to project-affected people, subject to the availability of opportunities, suitability, and eligibility of candidates. Further, there is no provision for such a pension.			
43.3		He sought conducting health camps once in every three months in the villages.	Medical camps details are mentioned in reply 1.21			

43.4		He suggested to the management to provide drinking water facilities in the villages. He wanted the management of the project to extend necessary assistance to the development activities in the villages.	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			
43.5		Though this project filled the light in the lives of the people, they should take action to control air pollution. He concluded his opinion with a request to the authority to accord environmental clearance to the project in order to complete the project at the earliest.	Pollution control measures are as mentioned above in reply at sl. no. 1.1.			

44.1	Sri Bhikshapthi, CITU, Vice President, Peddapalli District	He opined that the views and opinion of the people should be obtained as public hearing was intended for that purpose. He felt that such atmosphere was non-existent in this venue. He questioned the necessity to arrest the party members of his party during the night time. He stated that they were not anti-social elements to arrest them during the night time. He questioned whether this was the place of public hearing. He informed that he was checked at three places and taken away the representations for submission to the District Collector. He informed that he met	Public hearing was conducted by the SPCB as per norms, under the directions of the Distt Magistrate, Peddapalli, Telangana, who was the Chairperson of the Public hearing. NTPC welcomed all the public to express their views. NTPC not involved in controlling the public. More than 1000 people attended the public hearing.			

		the District Collector yesterday and submitted representation.				
44.2		He stated that this was not a public hearing conducted in free atmosphere and there was no need to conduct this meeting with so much security. He stated that there were no terrorists here. He stated that he sent slip at 11.30 hrs, but it did not reach the Chair, but he sent again and he was given chance at this late hour. He questioned whether this was public hearing. He questioned the reasons behind apprehensions of the project proponent.	Public hearing was conducted by the SPCB as per norms, under the directions of the District Magistrate, Peddapalli, Telangana, who was the Chairperson of the Public hearing. NTPC welcomed all the public to express their views. NTPC not involved in controlling the public. More than 1000 people attended the public hearing.			

44.3		He stated that TSTPP Phase-I was constructed at a cost of Rs.9900 crores which worked out to more than 6.0 Crores per MW, whereas the capital cost of Phase-II of the Project was Rs.29,000 Crores, which worked out to Rs.12.0 crores per MW. He stated that the rate of electricity generated from the power project was simple i.e. the investment per MW in Crores would be the unit cost per unit in rupees. The phase-I cost was Rs.6/- per unit, whereas for Phase-II the unit cost would be Rs.12/- per unit.	S.O. 251(E) In exercise of the powers conferred by sub-section (2) of section 43A of the Electricity (Supply) Act, 1948 (54 of 1948), hereinafter referred to as the Said Act, the Central Government hereby determines the factors in accordance with which the tariff for sale of electricity by Generating Companies to the Board and to other persons shall be determined.			
44.4		He stated that the Government introduced Green	A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired			

		and Clean Energy. He opined that all Thermal Power Units should be dismantled as it was against the policy envisaged by the Government. He opined that this project was neither good to the people nor to the environment and more over considered as dangerous and risky to the people of this place.	thermal power plant for Telangana State.			
44.5		He never opposed the setting up of Thermal Power plant. He opined that it would not be possible to supply power to the people of the country without Thermal Power. He felt that this power project should be shifted to	Pollution control measures are as mentioned above in reply at sl. no. 1.1. Renewable and Solar energy details as mentioned above in reply at sl. no. 13.3			

		another place where pollution problem was not so intense unlike here.				
44.6		He stated by setting up of the plant would help the local people of that area to secure employment and development of area. He stated that the responsibility of rehabilitation of the people of Mathangi Colony rested with the NTPC as the colony was surrounded by the railway line on one side. He wanted the District Collector to prevail upon the Project Proponent to provide R&R package to the people of Mathangi Colony including payment of	Now, no land required for Telangana Phase II main plant. Mathangi colony reply at Sl.no. 1.11.			

		compensation.				
44.7		He stated that 4000-5000 people were working as contract labours in the plant, but they were not provided with medical facility. He stated that ESI was prepared to establish a 100 bed hospital but they were not provided with land and they were informed that land was not available to start ESI Hospital in this place. He expected the NTPC to provide land to the ESI hospital near police Commissionerate, as Hospital was essential to the people and stadium could be located at	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment. Medical facility details are mentioned in reply 1.21.			

		some other place.				
44.8		He stated that maximum number of contract labours were working in NTPC only and crores of rupees subscription was paid regularly to the ESI. He opined that crore of rupees were paid to ESI Corporation, but corresponding service was not available to the working class. He wanted to know from the Chair how many permanent labours were working in Phase-I of TSTPP. He stated that Executives were permanent and rest were working on contract basis and not even single	Employment details are as mentioned above in reply at sl. no. 1.8			

		labour was the permanent member. He stated that there would be no permanent labours in Phase-II of the plant. He questioned the benefit to the local people versus dust and pollution due to operation of the plant. He stated that there would be no scope for employment even in the Phase-II of the project.				
44.9		He opposed the setting up of the plant at this site and requested to set up at another site. He stated that the setting up of FGD was not moving at pace as the contractors working on that FGD plants blamed the delay in	The Flue Gas Desulphurization (FGD) system has been commissioned for Unit-I and Unit-II of Telangana STPP Phase-I (2x800 MW) to reduce SO2 emissions and ensure smooth operation. The work for installation of FGD in all the seven units of Ramagundam station is in progress. High Efficiency Electrostatic Precipitators (ESPs) have been installed in all operating units. The particulate matter levels are well within the prescribed limits in all the			

		payment of bills. He requested the District Collector to see the chimneys during the night time. He stated that he was the retired employee of NTPC and he would like disclose some facts about the plant. He alleged that the operation of ESPs were put out during night time which would increase the emission of dust. He alleged that they get Rs.11,000/- per 10 tons of ash. He stated that it showed their sincerity to the people.	units.			
44.10		He stated that the Government intended to constitute Ramagundam Urban Development	Wages are being paid as per Govt. Rules and Regulation as amended from time to time.			

		Authority (RUDA). He wanted to upgrade the city into 'B' Class, which would offer some benefit. He stated that there would be possibility of increased allowances to the contract labours and there would be enhancement in wages. Even the employees would get better allowances.				
44.11		He stated that more Solar power plants should be set up by NTPC to obtain power at lower costs as the State Governments would not be in a position to pay the cost of power and also to meet the free power requirements.	Renewable and Solar energy details as mentioned above in reply at sl. no. 13.3			

45.1	Sri Ch. Upender, NTPC Retd. Employee, HMS Trade Union President	He stated that the pollution was the major mind boggling factor not only to our country but to the Globe. He stated that the world countries discussed the issue of pollution and abatement measures at a Conference at Rio de jenero. He stated that some smaller countries announced the use of coal as fuel for the generation of electricity. He informed that our country was developing country and industrialization would be essential and power was the major contributor for the development of the country. He stated that M/s. NTPC Limited was established in the	Pollution control measures are as mentioned above in reply at sl. no. 1.1.			

		year 1975 and attained the installation capacity of 75000 MW stage now and became a well-known Power Corporate in the world.				
45.2		He stated that the power generation stations were accompanied by the pollution before the establishment of NTPC. He stated establishment of Electro Static Precipitators (ESPs) with efficiency of 98.45% was established first time in the country by the NTPC. He attributed the increased emissions to the poor quality of coal and consequently presence of Sulphur-di-oxide gas in the	Pollution control measures are as mentioned above in reply at sl. no. 1.1.			

		emissions.				
45.3		As part of reducing the pollution, old power stations were phased out. He suggested to the NTPC to phase out 3 X 200 MW old power units, which were commissioned in 1983 and establish a single 800 MW Unit, which would improve the scales of economy instead of installation of FGD in the older units.	NTPC has already taken mitigation measures to reduce stack emissions from the old units, which include the following: 1. ESP (Electrostatic Precipitator) R&M (Renovation & Modernization) is in progress to improve the efficiency of the existing ESPs. 2. FGDs (Flue Gas Desulfurization units) are being installed for all the units to reduce SO2 emissions. 3. Turbine R&M for RSTPS Stage-1 units has been completed to increase efficiency. Boiler R&M is also in the pipeline to further enhance the efficiency of the units.			
45.4		He stated pollution was threatening the existence of living beings and public hearing was a process, which should be held for establishing new power units or expansion of existing	The proposed Telangana STPP, Phase-II based on Ultra Super Critical technology has higher thermal efficiency as compared to sub critical units. The enhanced efficiency results in lower coal consumption leading to lower ash generation as well as gaseous emissions. The latest Pollution Control Technologies/measures have been provisioned in the proposed Telangana			

		units. He felt that the power station would be constructed once the State Governments entered into PPAs with the NTPC. He stated that Ramagundam became a Hub of Power in the country, consequently, air, water, land and noise pollution increased in this area.	Phase-II (3x800 MW). The implementation of all the provisioned pollution control measures will be ensured.			
45.5		He suggested to the NTPC to undertake periodical monitoring of all parameters. He stated the responsibility rested with the management of NTPC to check pollution levels within NTPC area. He stated that no	An Online Continuous Emissions Monitoring System (OCEMS) for real-time monitoring of PM, SO2, and NOx in stack emissions has been installed in Unit-I and Unit-II of Telangana STPP. The data is linked to TGPCB and CPCB. Four Online AAQMS stations have been installed at locations finalized in consultation with TGPCB for the continuous monitoring of prominent parameters such as PM10, PM2.5, SO2, and NOx, along with a meteorological			

		Company would be able to survive against the wishes of the people. He drew the attention of the management to the wrath of the people on pollution due to operation of the plant and suggested to the NTPC to appoint a nodal officer to liaise with the problems faced by the people.	station at one of the AAQMS locations. The data is linked to TGPCB. In addition to continuous online monitoring, offline monitoring of environmental parameters is being conducted through an NABL-accredited laboratory.			
45.6		He suggested to the NTPC to spell out clearly whether they would like to pay three times compensation to the actual land value as envisaged in the Land Compensation Act, 2013 for the acquisition of land to the proposed project or they intended to provide employment	Issue pertains to state authority. Land acquisition details given at 7.2			

		to the land oustees.				
45.7		He felt that the NTPC should focus on alternate energy sources such as Wind Power and Solar Power etc. He suggested to the NTPC to establish Solar Power Farm in the land owned by the NTPC at Ramagundam.	Renewable and Solar energy details as mentioned above in reply at sl. no. 13.3			
45.8		He complained that green belt developed all along the avenues was disappeared due to negligence of the NTPC and by the ambitious shop owners. He brought out the importance of extensive tree planting as a pollution abatement measure.	Plantation details as mentioned above in reply at sl. no. 1.7			

45.9		He stated that effluent discharged by the industries were polluting the Godavari River Water which rendered the water unfit for bathing and people resorted to the sprinkling of water over their heads as reverence.	The concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted at Telangana Project since commencement. The project has an integrated scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant (ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO system, waste service water system and Ash Water Recirculation System (AWRS) etc. to reuse & recycle the effluents within the plant.			
45.10		He expressed confidence over the setting up of 3 X 800 MW power project as it was essential to the country. At the same time he wanted the NTPC to ensure that the CSR funds should be spent for development activities in the impact zone, instead of spending elsewhere. He	Ensuring the maximum CSR expenditure done in PAVs. NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment.			

		warned that people would take to the streets in case of diversion of CSR funds.				
45.11		He requested the District Administration to ensure the development of the region. He wanted the system of collection of money for the provision of employment should change and he attributed the existence of this system to the nexus between leaders and contractors. He concluded his opinion with a request to the District Collector to use his magisterial powers by directing the management to do away with this	Issue pertains to state authority.			

		system.				
46.1	Sri M. Naresh, r/o Poratpalli:	He stated that he was the resident of Poratpalli Village and it took him 45 years to reach this stage. He hand over 80 acres of land in 1983 to set up NTPC Project. He stated that generations changed and he started cultivating the remaining extent of land and he owned 8 guntas land near Pochammagudi, but NTPC did not allow to go to that piece of land.	Issue to be taken with state authorities.			
46.2		He stated that they did not provide meter and they were using electricity free of cost. In 1990 he was kept in the jail for using free electricity. He stated	Public hearing was conducted by the SPCB as per norms, under the directions of the Distt Magistrate, Peddapalli, Telangana, who was the Chairperson of the Public hearing. NTPC welcomed all the public to express their views.			

		the villagers were not informed about this public hearing and requested the District Collector to solve the problems faced by them.				
47.1	Smt. Nagalaxmi, Social Worker & Advocate, Krishnagar Colony, r/o Ramagundam	She claimed that some of her colleagues numbering 50 women expired due to heart attack and other diseases. She requested the authorities to carry out a health status survey covering various localities in Ramagundam and the other surrounding villages covered in impact zone. She claimed that to her knowledge, no health survey was ever conducted by the	Occupational health study details are mentioned above at s.no. 1.15. Medical facility details are mentioned in reply 1.21			

		Government.				
47.2		She stated that her maid servant worked in her house aged 40 years with three children, expired due to Cancer. She also claimed a lady living in a colony adjacent to the NTPC expired prematurely due to Cancer. She enumerated number of people especially women, who were subjected to Cancer.	Female-related cancers are often linked to viruses and can be detected timely by a gynecologist. Such camps are being conducted in the CSR villages, and female doctors are deployed at the CSR Mobile Medical Unit. Now, we can detect the disease at an early stage if individuals come for screening.			
47.3		She humbly requested the District Collector to come to a conclusion on setting up of the new power units only after carrying out the detailed health survey by an independent NGO. She claimed that it	Issue pertains to state authority. Pregnant mothers need regular checkup and timely treatment, Female Doctors deployed in the Mobile medical unit are taking care of such mother which is monitored by the Gynecologist.			

		would not possible to give birth to two children without 3 to 4 abortions.				
47.4		She stated that there were number of such instances, where food was not made available to the affected people. She stated that both wife and husband were required to work to feed their families here. She felt that women folk could not move out of this place due to source of earning of money and their fear stemmed out of the source of earning which would not be possible at any other place in the District. She stated that most of the women folk were engaged in menial jobs of	No comments			

		working in households. She state that she served as a convener of the Household Maids Association and she was very well aware of the problems which could not be explained. She cited the instances of heart attack recently, who was aged 40 years and himself was a contractor.				
47.5		She appealed to the District Collector to conduct Integrated Family Survey to ascertain the social and financial status of the people. She requested the Authority to consider all these factors and she felt that setting up of 3 more units would not be desirable. She felt	Issue pertains to State Authority.			

		that the NTPC might obtain all permissions and set up three more units in STPP, but such decision should be taken after considering the health status of people especially women folk.				
47.6		She felt that this public hearing should have been conducted after considering the compliance status or fulfillment of the assurances given by the NTPC during the public hearing held in connection with the Phase-I of the project. She opined that the NTPC failed to comply or fulfill the assurances made during the previous public hearing held	MoEF & CC, vide notification dated 30.12.2024, has extended the timeline for compliance with SO2 norms for TPPs in Category C up to 31st December 2029. However, NTPC has already provided Flue Gas Desulphurization System (FGD) for Unit-I & II of Telangana STPP Phase-I (2x800 MW) to reduce the SO2 emissions and the system is currently operational. Further, the installation and commissioning works for FGD for all the seven units of NTPC Ramagundam Super Thermal Power Station is in progress and expected to be completed within the stipulated timeline.			

		in connection with the Phase-I of the TSTPP. She cited the example of non-compliance in respect of installation of FGD Towers, which were not yet completed in respect of Phase-I of the project. She state that people were not prepared to believe their sincerity if the pollution abatement measures were not fulfilled by them.				
47.7		She stated that people were prevented from entering the venue. As an example she cited her own experience, when she contacted women folk from two villages, they expressed their reservations stating	Public hearing was conducted by State Pollution Control Board under the Chairmanship of Collector & DM, Peddapalli. NTPC welcomed all the public to express their views.			

		that they would not be permitted to enter into the venue. She requested the District Administration, Environmental Officers and the Management of NTPC to ascertain the desirability of setting up of three more units in the light of above circumstances. She cited one domestic instance as an example in respect of non-compliance of the assurances. She reiterated the instances cited earlier with more examples of women expressing their inability to attend this public hearing due to heavy security network with several check points to reach				

		the venue.				
47.8		She appealed to the District Administration to initiate the survey on health, social and economic Integrated Survey in the impact zone. She personally opposed the proposed expansion of the Phase-II Power Project by NTPC.	Issue pertains to State Authority.			
48.1	Sri K. Yadagiri, NGO, r/o Nalgonda	He stated that unemployment would be solved by setting up of this power project. While extending his support to the proposed expansion, he requested to provide employment to the local unemployed youth.	Employment details are as mentioned above in reply at sl. no. 1.8			

48.2		He appealed to the management of NTPC to conduct health camps once in three months in all surrounding villages. He concluded his opinion by extending his support to the proposed expansion of the power project.	Medical facility details are mentioned in reply 1.21	Medical camps are being conducted through Mobile Medical Unit. Further we are conducting camp of oral health and cancer detection in project affected villages. This will be continued in future also.	Continuous	
49.1	Sri T. Ravinder, r/o Malyalapalle	He stated that people suffered earlier with heart attacks not only here at other places where there were no industries. According to him birth and death of people was a natural	-			

		phenomena				
49.2		He sought employment to the workers. He stated that several Administrators changed, but the Power Project continued the expansion. He requested the District Administration and the Management of the NTPC to furnish an assurance to the workers what they would provide to them in future. He stated that they lost their lands long back.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Employment details are as mentioned above in reply at sl. no. 1.8			
49.3		He stated that he was a contract labour who lost his land. He stated that he approached the senior Ministers	Wages are being paid as per Govt . Rules and Regulation as amended from time to time.			

		including Hon'ble Chief Minister for justice, but till today no action was taken. He stated that he secured the employment, but they paid Rs.2,000/- less per month. He stated that he gave away the land for the project and paid Rs.2,000/- less towards IR, whereas the people who joined directly were paid more without any deduction.				

Note: As per MOEF&CC notification dated 11/07/2025 installation of FGD is not mandatory for the projects falling in the area of Category C. Hence installation of FGD is not envisaged in the proposed project.

Table 7.2: Action Plan to resolve the issues raised by villagers in forms of written representation during public hearing of the project Phase-II

S.No.	Representation given by	Description	Response and comments from NTPC Telangana (Project Proponent)	Action Plan	Approx. Timeline	Approx. Budget provision (Rs. Lakhs)
1	Sri P. Hajarathaiah, Society For Development Action, Jirravaripalem (Vi&Po.), Kaligiri (M), SPSR Nellore District. (NGO organization submission)	He made the following advises to the NTPC management to take up.				
1.1		Avenue plantations at the project area.	NTPC has made remarkable strides in environmental conservation by developing a denser and thicker green belt/cover in plant and the surrounding areas. Adopted Miyawaki Technique for plantation to plant more trees in less area. These areas are not only acting as carbon sinks but are also helping in oxygenating nature. NTPC has adopted Miyawaki method of plantation plan at project site for the first time in 2019-20. About 81.138 Ha has been used for greenbelt/plantation development under Phase-I project area, and 106.837 Ha is identified for greenbelt/plantation area under Phase-II project area. However, greenbelt/plantation has been developed on 215.39 Ha area in and around the project which	Year wise plantation, Location, Budget mentioned in EIA report.		

			also covers peripheral greenbelt/plantation. NTPC has already carried out plantations around the plant, including avenue plantations of over 10,000 trees along Rajeev Rahadari, around 84,000 trees in Ramagundam Municipality, and Miyawaki plantation of approximately 25,000 trees in Gowtham Nagar, Ganga Nagar, and Head Works areas of RMC. Further plantation activities will continue in available areas, and NTPC will strive to meet the specific plant requirements for the villagers.			
1.2		Medical Camps will be conducted in Every Six Month at the project Villages and nearby villages also.	Medical facilities are being provided as per the policy. Medical camps are conducted throughout the year through the Mobile Medical Unit (MMU) with two doctors (including 01 lady doctor) for general health checkup in all the project affected villages. Free Medicines are distributed during Medical Camps and in MMU. Further we are also conducting special camps for eye checkup, Gynaec, Ortho etc. in project affected villages. Additionally, oral	Ongoing	Continuous	100

			health and cancer detection camps are organized in project-affected villages, and this will continue in the future as well. NTPC has provided infrastructure facilities for establishing an ESI hospital in the NTPC township and is further renovating it to enhance the existing facilities.			
1.3		RO Drinking Water plants to the required villages.	NTPC has installed 33 RO plants in various project affected villages till date and this will be continued in future also based on the requirement as per NTPC policy.	We will take representations from PAVs through Collector and take up this activity in next 03 years.	by 2028	50
1.4		Green belt development.	Green belt Development Details are given at Sl no:1.1 above	Development of Greenbelt/Plantation as per plan.	By 2031	
1.5		To conduct training programs to the unemployed people of the project area villages.	NTPC has setup a vocational training centre where skill development trainings are conducted at regular interval. Every year NTPC organizing Vocational training program to the	This program is implementing every year.	Continuous	7.5

			unemployed youth on various competitive exams by deploying subject matter experts. This year also 6 months vocational training program is being organized at Life Skill Academy, NTPC, Ramagundam.			
1.6		Allocation of 10 to 15% of CSR funds for development of the community villages.	The allocation of CSR fund is being done by NTPC as per guidelines stipulated in section 135 of companies' act 2013.			
1.7		Formation of coordination committee with villagers and project management to solve the local problems.	Village Development Committee headed by District Collector, Peddapally is already in place to resolve the local problems time to time.			
1.8		Finally, he requested the authorities to recommend to the MoEF&CC to issue the Environment Clearance to the project.	We welcome the statement			
2.1	Sri T. Satti Reddy (President), Earth Green Development Society, H.No.5-	He stated that, the proposed project is beneficial to the local village people, as there is development of infrastructure and	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need	Preference will be giving to the Local/PAVs for Community		

	12-55/1A, Srinivas Colony, B.T.S. Nalgonda (T & D).	improvement of road network in the village area.	Assessment.	development works.		
2.2		He made the following suggestions to the management:				
2.3		To provide dust masks and personal protective equipment's to the workers to prevent exposure of dust.	The High Efficiency Electrostatic Precipitators (ESP) are operational in Telangana Phase-I and provisioned in proposed Telangana Phase-II. The particulate matter is well within the prescribed limit by MoEF & CC. Adequate dust extraction systems, dust suppression system, bag filters, water fogging system and suitable water spray systems are included in the design of the plant to suppress/avoid dust emissions from the coal and ash handling areas. Personal protection equipment are provided mandatorily to all the workers through consent contract agency, working within plant premises.			

2.4		Avenue plantations at the project area and in the surrounding villages	Avenue Plantation details as mentioned above in reply at sl. no. 1.1			
2.5		Covering load transporting vehicles with Tarpaulin sheets.	Ash-loaded trucks are being covered with tarpaulin, and this practice will be ensured in the future as well.	Provision through contract agencies	Regular	
2.6		To conduct the medical camps to the local village people for the health point of view and the management shall issue health cards to them.	Medical facility details are mentioned in reply 1.2	On going	Continuous	NA
2.7		Finally, he requested the authorities to recommend to the MoEF&CC to issue the Environment Clearance to the project.	NTPC welcomes the statement.			

3.1	Sri Marupaka Ramesh (President) & Others, Shree Mathangi Colony Welfare Association, Shree Manthangi colony, 39 Division, FCI road, Jyothi nagar, Ramagundam (M), Peddapalli District.	They stated that they are residents of "Mathangi Colony". Their Colony is located in a low lying area and nearer to NTPC MGR Rails. It is highly dust prone and polluted area. Day-in and day-out they are practically inhaling dust not the Oxygen. There is no proper drainage system and they are living with manifold problems. They are all seeking out livelihood by depending on NTPC Project. Moreover, besides the dust, the roaring sound of NTPC MGR Goods rail sound is also unbearable and their children studies are also getting disturbed. Women are getting scared and living with inexplicable problems and difficulties. They are unable to drink pure drinking water as the same is contaminated and thereby falling sick too	The environmental protection measures adopted at Telangana STPP are as follows: • High Efficiency ESPs (Electrostatic Precipitators) for controlling particulate matter (PM). • Low NOx Burners for controlling NOx emissions. • FGD (Flue Gas Desulphurization) for controlling SO_2 emissions. • Adequate dust extraction systems, dust suppression system, bag filters, water fogging system and suitable water spray systems are included in the design of the plant to suppress/avoid dust emissions from the coal and ash handling areas. • The concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted at Telangana Project since commencement. • The project has an integrated scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant (ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO	Drainage system development and New RO plant.	3years	300

		often.	system, and Ash Water Recirculation System (AWRS) to reuse & recycle the effluents within the plant. • Wastewater from plant area, treated through ETP is used in plant. 3.5 MLD STP is available and operational to treat the sewage from township. A 75 KLD MBBR-based STP is being provided to treat the plant-generated sewage. Additionally, nine pre-fabricated STPs, each with a 1 KLD capacity, are being provided at locations where it is not possible to connect them to the main STP. • Continuous Online Monitoring Systems(CAQMS,EQMS& CEMS) for environment parameters have been provided and data is transmitted to CPCB & SPCB. • To prevent impact on groundwater quality, an impervious liner consisting of a layer of sand cushion, HDPE, geotextile and finally overlain by PCC to prevent leaching has been provided in ash pond. • Regular Ground and Surface Water Quality Monitoring is being			

			done through NABLaccredited lab. NTPC has adopted Ultra Supercritical (USC) technology for the proposed plant. USC projects offer the advantages of higher efficiency, reduced heat rate, and lower emissions, resulting in reduced coal consumption and a corresponding decrease in emissions. The proposed project is designed with an Air Cooled Condenser for water conservation by reducing water consumption. All necessary pollution control measures have been envisaged for the proposed project. NTPC has done extensive plantation in and around the plant, Further plantation will be continued in future. Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			

3.2		They requested the authorities stating that in view of the surmounted problems, kindly take over their locality and show the land under NTPC custody elsewhere and they are ready to shift as per the directions. The existing 1600 MW Units sound is causing much disturbance to them and when it becomes 4000 MW Project, their existence becomes a big question mark. They requested the authorities to take over their locality and offer the R&R benefits to them at the earliest and save their lives.	NTPC is proactively addressing the Environment related issues as mentioned above in reply at sl. no. 3.1.			
4.1	Sri P.L.N. Rao, Environment Social Worker, H.No.2-1-555/1/1, Nallakunta, Hyderabad-500044	He stated that, the Telangana Super Thermal Power Project in Ramagundam, Peddapalli district of Telangana state is already generating 1600 MW of electricity through coal in its first phase. The local people are facing	A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl.			

		serious problems and pollution due to the current electricity generation. He stated that he is totally opposing the expansion, as the pollution problems are likely to increase due to the proposed 2400 MW thermal power generation expansion project.	no. 3.1.			
4.2		He reported the following:				
4.3		Rising temperatures in Ramagundam pose a risk to public health: Due to the large coal deposits in the Ramagundam region, the temperature in this region is recording the highest in the state. Since 1600 MW of thermal power generation is already underway, if environmental clearances are granted for an additional 2400 MW of thermal power generation, the problem of ash from power generation will be high. There is a possibility	Adequate measures to control environmental pollution are being taken at NTPC Ramagundam. Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. To reduce/maintain the temperature NTPC has done extensive plantation and will also proposing for increase in afforestation area in and around the Telangana Thermal Power Plant. M/s. EPTRI, Hyderabad was engaged for Long Term			

		of disruption of the ecological balance in this region. There are chances that human survival will be in question due to the increased temperature without human habitation in this region.	Temperature study, as per study there is no increase in temperature. Study recommendation shall be implemented.			
4.4		Set up a solar project, cancel the thermal proposal: The proposal for expansion of the existing 2400 MW thermal power project Should be cancelled and the proposal for the thermal project Should be replaced by environmentally friendly 2400 MW solar power project. We request that efforts be made to stop the destruction of the health of the people of this region and the environment.	The A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. For generating the 2400 MW of Solar Power, the Land requirement approximately will be 10,000 acres. So much of land is not available at the Telangana Thermal Power Plant. NTPC is taking various steps to make its energy portfolio greener by adding significant capacities of Renewable Energy (RE) Sources. NTPC Ramagundam installed the 10 MW Ground mounted solar power plant in early 2014 and India's largest Floating Solar Plant with capacity of 100 MW in 2022.			

			1310 KW Solar Rooftop capacity has been installed on various plant buildings, parking sheds, stores and common buildings at Telangana STPP. Installation work of 176 MW PV based Solar Power plant (120 MW land base + 56 MW floating solar) is in progress. Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1.			
4.5		Rethink the thermal project as per the Supreme Court guidelines: Environmental problems are arising in the areas where thermal projects are located across the country, environmental destruction is taking place, and due to the large-scale use of coal in power generation, air pollution due to toxic gases, dust are being faced, which is	The A.P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. Telengana STPP is a based load coal based thermal power plant. The project is being implemented for meeting the Power demand of the Telengana State. As no additional land is proposed to be acquired, water commitment has been accordrd by the Telengana State and coal has been			

		causing climate change and putting human survival in question, and on the other hand, it is having a negative impact on the environment. Taking into account the instructions issued by the highest court of the country, the Supreme Court, which has directed the governments to make arrangements for the generation of electricity through natural resources such as water, wind and sunlight, as much as possible. He stated that, he is expressing his opinion that environmental permits should not be issued to the proposed expansion 2400 MW Telangana Super Thermal Power Project. If permits are issued without respecting public opinion, then as part of the next step to prevent the consequences of climate change & environmental protection, he will go ahead	allocated from the SCCL mine. For this reason NTPC has planned to expand the capacity as per the norms of the Environment Ministry. Pollution control measures adopted at NTPC Telangana Phase -I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Renewable energy details as mentioned above in reply at sl. no. 4.4.			

		legally.				
5.1	Sri Rangarao Kothakonda, General Secretary, Save Earth Metro Urban & Rural Development Society, H.No.100, Rd No.5, Phase 2, Chaitanyanagar Colony, BN Reddy Nagar, Saroor Nagar, Rangareddy District.	He stated that he is supporting TSTPP expansion project because this type of projects generates local employment and business opportunities. He stated that unemployment is the major pollution in the country and many people are waiting for better employment opportunities and there is an urgent need for industrial development. He requested the authorities to recommend to the MoEF&CC to issue the Environment Clearance to the project giving the following suggestions to the project management.	NTPC welcomes the statement.			

5.2		The consultant as already conducted base line survey of air, water, land. It is very good his request is please collect the data of the health status of the people & crop production status &ground water availability.	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. Occupational health and epidemic health disorders survey of the study area (10 km radius) was conducted through M/s Pollucon Laboratories Pvt. Ltd, Surat in July 2018. A copy of the final report was submitted to the Regional Office (South Zone), MOEF&CC at Chennai on 25th November 2018. The health status of study population (both human and animal) was found to be satisfactory. The health-related problems found during the study like General health related complains, Under nutrition, Over nutrition, Anemia and Refractive error were due to life style related factors and not due to above pollutants in emission from NTPC plant at Ramagundam. Ground water quality and availability is covered in EIA.			

5.3		Construct water harvesting structures and storage rain water it is useful for your industry and also develops ground water levels in this area.	Telangana project is envisaged with Rainwater Harvesting facility to harness the rainwater, 35 RWH pits are constructed for all the building facilities. 2 RWH storage ponds are constructed and 3 no of recharge basins are under construction. To enhance the rainwater harvesting at NTPC Township, Rainwater harvesting (RWH) Study was conducted through NIH Roorkee. As per the recommendations of NIH study, surface rainwater storage ponds are being constructed.			
5.4		Take up village plantation in nearby villages and also avenue plantation along internal roads and give priority for fruit bearing and medicinal value plants.	Plantation details as mentioned above in reply at sl. no. 1.1 The plantation activities and suitable species selection will be done by State Forest Development Corporation as per the location. Fruit bearing plants will be distributed to nearby villages based on requirement.	Fruit bearing plants will be distributed on yearly basis to nearby villages	Continuous	10
5.5		Give top priority to the local educated unemployed youth to give employment.	Employment is being provided mainly through contract agencies and priority is given to local unemployed youth as per NTPC			

			policy subject to opportunity, suitability and eligibility of candidates.			
5.6		Skill development training programs to the unemployed youth.	Kindly refer reply given at Sl no:1.5 above	On going	Continuous	
5.7		CSR funds should go through the village committees for developments to the effected villages	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			
5.8		Conduct health camps and motivate health immunity development awareness programs.	Kindly refer reply given at Sl no:1.2 above	On going	Continuous	
5.9		Support rural primary education for weaker sections.	Primary education for weaker sections is being supported by NTPC through various initiatives like renovation/construction of class rooms, Digital classrooms, dual desk benches, Water Coolers, RO plants and other infra-structure facilities on the basis of requirement.	NTPC will take development works in consultation with local authorities & based on need Assessment.	2027	50

6.1	Sri Jangapally venkataswamy, R/o. H.No.18-111/1m, Ramnagar, Mancherial	In the representation, he has listed some land survey numbers and extent of land in it. He requested the authorities to send any notice or letter in respect of the said survey numbers to him.	The matter pertains to District Administration.			
7.1	Prof Sri G. Haragopal, Convener, TPJAC & Sri Kannegati Ravi, Co-Convener, Telangana Peoples Joint Action Committee (TPJAC)	They stated that, they did a plagiarism check on volume I of the draft EIA report and found 26% similarity with other sources. Unfortunately, NTPC authenticated this report without testing it. As presented later in this critique air pollution data is fudged. Currently, the air quality data is beyond NAAQS but is shown to be below the standards even after the project implementation.	The EIA study has been conducted by a NABET-accredited consultant in accordance with the Terms of Reference stipulated by the MoEF & CC. All the data in the EIA Study Report are authentic.			
7.2		They stated that, local air pollution levels are already quite above the NAAQS, and the air quality data in the	The EIA study has been conducted by a NABET-accredited consultant in accordance with the Terms of Reference stipulated by the MoEF			

		draft EIA report are questionable.	& CC. All the data in the EIA Study Report are authentic.			
7		They reported that, the most harmful pollutant PM2.5 is left out of the impact assessment. PM10 concentrations are already above100 µg/m^3 on most of the days in January 2025. Presenting a deceptive draft EIA with doctored data to people by a public sector undertaking is unacceptable. It deserves to be rejected for giving false information as per the regulations. Independent data verification is required.	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC. Ambient Air Quality Samples were collected and analyzed for Pollutants parameters like PM10, PM2.5, SO_2, NO_2, O_3, NH_3, Benzene, B(a)P, C6H6, CO, Pb, Ni, As and Hg were collected. As per EIA study, PM10 max value is 90 and PM2.5 max value is 50.			
7.3		They stated that, NGT (SZ) ordered a cumulative impact assessment (CIA) for stage I within a radius of 15 km and they questioned that why the impact study is limited to a 10 km radius now when it should have been extended to a 25 km	The EIA study has been conducted by a NABET-accredited consultant in accordance with the Terms of Reference stipulated by the MoEF & CC.			

		radius. A list of all the industries big and small releasing carbon and air pollution within a 25 km radius are to be included in the EIA and a CIA should be conducted.				
7.4		They stated that, NTPC, Ramagundam plant site becomes the largest thermal power plant in the country with the addition of the present proposal. Installed capacity increases to 6600 MW. Old and outdated subcritical plants are still operational beyond their 30-year life. Thermal pollution to the equivalent of 16500 MW hits the people every instant. This is in addition to climate impacts. EIA report does not even mention thermal pollution and its impacts. They questioned that, doesn't thermal pollution hurt people and why has the EIA left out thermal	The EIA study has been conducted by a NABET-accredited consultant in accordance with the Terms of Reference stipulated by the MoEF & CC. The Temperature study has been awarded to M/s EPTRI and after finalization of the study, action plan submitted by the consultant will be implemented. NTPC has already taken mitigation measures to reduce stack emissions from the old units, which include the following: 1. ESP (Electrostatic Precipitator) R&M (Renovation & Modernization) is in progress to improve the efficiency of the existing ESPs.			

		pollution from the EIA study and they stated that, Ministry not including it in the ToRs is environmental injustice.	2. FGDs (Flue Gas Desulfurization units) are being installed for all the units to reduce SO2 emissions. 3. Turbine R&M for RSTPS Stage-1 units has been completed to increase efficiency. 4. Boiler R&M is also in the pipeline to further enhance the efficiency of the units.			
7.5		They stated that, a large number of peer-reviewed publications are available on the adverse impacts of coal-fired power plant emissions. Impacts on agriculture crop yields, human and animal health, forests, climate change, etc are published. The present EIA does not mention any of these impacts.	Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. A study was conducted on "Use of Ash Pond decant water for agriculture purpose around RSTPS" during2016-19 by Tropical Forest Research Institute (TFRI), Jabalpur. There is no evidence of bioaccumulation of heavy metals in the crop grown using decanted water in comparison to crop grown with normal irrigated water. It is not evident that there is any detrimental impact on the quality of food grain using the decanted water from ash pond area. Occupational health and epidemic			

			health disorders survey details as mentioned above in reply at sl. no. 5.2.			
8.1	Sri Makkan Singh Raj Thakur, Hon'ble MLA, Ramagundam Constituency-23, Peddapalli District.	He stated that, the villages Kundanapalli Gramapanchayath, NTPC town (06 Div.), Malyalapalli, Elkalapalli, Kajipalli etc. and other areas are affected by the operations of M/s. NTPC, Ramagundam, and are facing issues such as environmental degradation, lack of basic amenities like roads drainages, street lights etc. and unemployment. These issues have impacted the livelihood and well-being of the local population.	NTPC is committed to develop the PAVs in phased and timely manner through CSR funds.	NTPC will take development works in consultation with local authorities & based on need Assessment.	by 2030	200
8.2		He stated that, the presence of M/s. NTPC has contributed significantly to the regions industrial growth, it has also brought the challenges for the nearby communities.	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			

8.3		He requested the NTPC to undertake following development projects and initiates under Corporate Social Responsibility (CSR) and sustainable development:				
8.4		Increase minimum wages and allowance to all contract and outsourcing employees.	Wages are being paid as per Govt. Rules and Regulation as amended from time to time.			
8.5		Need to spend around 360 Cores for infrastructure & developmental activities in affected divisions & villages (construction of community halls, school buildings, roads & drains.	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			
8.6		CSR funds should be spent only in Ramagundam constituency.	CSR funds are being utilized as per policy.			
8.7		Restoration of Ramagundam tank (Ash Pond).	De siltation of Ramagundam cheruvu will be done as per requirement.	NTPC will take development works in consultation with local	by 2028	200

				authorities & based on need Assessment.		
8.8		Construction of 100 Shops from NTPC Police Station towards Sunday Market.	There is no such provision of utilizing NTPC fund for commercial purpose.			
8.9		Allotting 100 m x 100 m land for Petrol Pump between NTPC Police Station and MRO Office.	There is no such provision of utilizing NTPC fund for commercial purpose.			
8.10		100% Employment to local unemployed youth in Skilled, Semi-skilled & unskilled categories in the established plants and upcoming plants.	As per R&R policy, priority will be given to project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
8.11		Rehabilitation of Houses of Mathangi Colony.	NTPC is taking all necessary actions for the welfare of land oustees/PAPs in accordance with the existing R&R policy. Pollution control measures are as mentioned above in reply at sl. no.:3.1 The land in village Medipally was acquired long back in the year			

			1980 for the establishment of NTPC Ramagundam Thermal Power Plant through the District Administration as per the then prevailing Land Acquisition Act 1894. Mathangi Colony, Ward no. 39 (Kazipally), Village Medipally, Ramagundam Mandal, is under Ramagundam Municipal Corporation area. The land at Mathangi colony is govt land as per the Dharani Portal of the Govt of Telangana. Further, no land has been acquired /proposed to be acquired in Mathangi Colony (village Medipally) for Telangana Super Thermal Power Project Phase I & II and thus there is no displacement of people as far as Matangi Colony is concerned.			
8.12		Hospital with all facilities to be established for providing medical facilities to contract workers and their families.	Medical Facilities are being provided as per policy. Medical Facility details as mentioned above in reply at sl. no. 1.2.			

8.13		Balance service roads to be completed from MRO Office to CP Office on two sides.	The road is pertaining to HKR Roads under supervision of State Roads & Building department and these land is transferred to R&B from NTPC for lying of Four Laning.			
8		Idle High Tension Towers 8 Nos. From MRO office to NTPC PTS main gate to be removed.	Referred high tension Towers are not belongs to NTPC.			
8.14		A Stadium to be constructed by NTPC in the Vacant Open land between Commissioner of Police compound wall and Solar Plant for the use of local citizens.	NTPC is utilizing the land for Green Belt. Infrastructure facility can be developed on providing land. NTPC land cannot be used for the development of facility under CSR.			
8.15		Developing of Sammakka-Saralamma land at Godavarikhani & Goliwada and handing over the same to Endowment Department.	NTPC Ramagundam had already deposited requested amount for the development of Sammkaa Land to State authorities. The work is in progress.	NTPC will take development works in consultation with local authorities & based on need Assessment.	by 2028	100

9.1	Sri Ch. Yadaiah, Dist. President, Clean Home Green Home Programme, #7-1-155/H4/4/1, Amulya Colony, Panagal Road, Nalgonda District.	He advised the industry to take the steps to prevent the release of pollution into the environment as per Government Regulations, Conduct Skill Development training programs for unemployed youth and provide employment to eligible candidates, CSR funds for development of affected villages should go through village committees, Health camps should be organized among the people of the surrounding villages, to grow greenery around the company and nearby villages with fruit barring and medicinal plants.	Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Details of Skill Development programs are as mentioned in reply given at Sl no:1.5 above. Details of Health Camps are as mentioned in reply given at Sl no:1.2 above. Details of Greenbelt Development/Plantations are as mentioned in reply given at Sl no:1.1 above.	This program is implementing every year.	Continuous	7.5
9.2		He stated that today unemployment is the major pollution in India and hence he is supporting the industrial Sector and finally he sought the industry to provide the local	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			

		employment.				
10.1	Sri Dr. E. Manohar, Professor, Shatavahana University, Karimnagar.	He stated that, he really appreciate the CSR activities of M/s. NTPC as its contribution in educational activities are excellent and they have conducted social impact evaluation and they found that academic standards in this region have been improved.	NTPC is committed for development of nearby communities.			
10.2		He suggested the following:				
10.3		Shatavahana University, Karimnagar is ready to coordinate higher education activities.	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.	We will take representations through DM and will take up the activities in phased manner.	2027	50
10.4		Skill development programmes to this Ramagundam region students at University.				
10.5		He advised the NTPC to develop university with business school with NTPC name in main campus,				

		Karimnagar.				
10.6		University is ready to give super numery admissions to NTPC referred to students in MBA.				
10.7		Focus on higher education to this region students through Shatavahana University.				
11.1	Sri Katta Yadagi Dist. Presider Environmental Society, NGO, Pra Samasyalu Parishkara Vedik H.No.2-59/1, Chinnasuraram (V), Nalgonc Mandal & District	He advised the industry to take the steps to prevent the release of pollution into the environment as per Government Regulations, Conduct Skill Development training programs for unemployed youth and provide employment to eligible candidates, CSR funds for development of affected villages should go through village committees, Health camps should be organized among the people of the surrounding villages, to grow greenery around the company and	Pollution control measures adopted at NTPC Telangana Phase -I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Details of Skill Development programs are as mentioned in reply given at Sl no:1.5 above. Details of Health Camps are as mentioned in reply given at Sl no:1.2 above. Details of Greenbelt Development/Plantations are as mentioned in reply given at Sl no:1.1 above.	This progarm implementing every year.	Continous	

		nearby villages with fruit barring and medicinal plants.				
11.2		He stated that today unemployment is the major pollution in India and hence he is supporting the industrial Sector and he requested the industry to provide employment to the locals. Finally, he requested the authorities to recommend to MoEF&CC to issue Environmental Clearance to the project.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
12.1	Sri Sattu Venkateshwarlu, President, NGO, Parayarana Parirakshna Vedika,	He welcomed the project. He suggested the management to take up plantation of local spaces, to provide employment to the locals, free health camps and to provide	Details of Skill Development programs are as mentioned in reply given at Sl no:1.5 above. Details of Health Camps are as mentioned in reply given at Sl no:1.2 above. Details of Greenbelt			

	H.No.11-262, Gandhi Bazar, Mellacheruvu, Suryapet District.	drinking water facility in villages. He requested the Central, State Government and MoEF&CC authorities to accord the Environmental Clearance to the project at the earliest. He stated that he is expressing his full support for the project.	Development/Plantations are as mentioned in reply given at Sl no:1.1 above.			
13. 1	Sri P.V. Sharma, State Project Manager, J.K Trust, New Hind House, Narottam Morarjee Marg., Ballard Estate, Bombay.	He stated that, they have implemented 10 integrated livestock development programmes (ILDCs) with the support of NTPC. He further stated that, this expansion aims to further benefit the communities residing in and around Ramagundam area and he requested the NTPC to support for conduct of additional ILDCs under CSR initiatives.	Expansion discussions under progress			
14.1	Sri M. Bachaiah, President, Environmental Pollution	He requested / recommended the MoEF&CC to issue the Environment Clearance to	NTPC welcomes the statement.			

	Control awareness Society, #2-2-118/A, New Nallakunta, Beside ICICI Bank, Hyderabad.	the project giving the following suggestions to the project proponent.				
14 14.2		The Management of the proposed project beneficial to the local village people. As more infrastructure development and improvement to the network of the roads in the village area.	Already taken lot activities related to infra development of surrounding villages and in future also NTPC will take necessary steps towards infra development as per the availability of Funds.			
14.3		Developing the green belt up to (33.3%) according to the (MOEF & CC) Norms.	Plantation details are as mentioned above in reply at sl. no. 1.1. Green belt is developed in compliance with the MoEF & CC norms/EC Condition.			
14.4		Opportunity for employment to the local people upto 80%.	As per the agreement in1980, NTPC has provided employment to the land oustees as per the terms & conditions based on suitability/availability. Further, in the year 2015 & 2022, NTPC has given employment as per the agreement. Further NTPC is also providing economic opportunities through secondary employment vide contracting agencies to the PAVs			

			under contractual works, wherein 4660 Nos of workers from Ramagundam and Peddapalli areas have been hired by various agencies at Ramagundam Thermal power plant and Telangana Super thermal plant. Therefore, NTPC has given the employement as per commitment. Till date employment provided by NTPC is as under: Total Permanent Employment given to the local = 515 (449 +47 +19) (i) Ramagundam Project outsourcing employment = 3010 out of total 5329 (ii)Telangana Project outsourcings employment = 1650 out of total 2010 In addition, 8 PAP cooperative societies are operational at NTPC Ramagundam and 96 land oustees have also been allotted shops in NTPC Township. In Proposed Telangana Phase-II: Tentative manpower/employment			

			numbers are as given below. During Construction: Contractual is 3500 to 4000 and Permanent is 96. During Operation: Contractual is 1000 to 1500 and Permanent is 216			
14.5		CSR funds are using surrounding village's development. (In the 5% of CSR Funds from the net profit).	Allocation of CSR funds as per the Companies Act, 2013 provides for CSR under section 135.			
15.1	People of Ramagundam Industrial area.	They stated that the Ramagundam industrial area has become polluted. They appealed to the authorities to set up a gas based power stations, instead of coal based power stations in the districts of Peddapalli and Mancherial. They stated that their prayer was to develop their area in advance and to live in pollution–free.	Pollution control measures adopted at NTPC Telangana Phase -I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1.			
16.1	Sri Sirishetty Sathish Goud, President, 20th Division,	They stated that they are the villagers of Malayalapalli affected by the NTPC,	NTPC has demonstrated a strong commitment to environmental protection and sustainable development. The company has			

	Congress Party, and villagers of Malayalapalli	Ramagundam.They reported that they are facing severe difficulties with NTPC pollution, suffering from a number of diseases and many people from their village have already died of kidney, heart and lung diseases.	integrated pollution control measures in existing Telangana Phase-I units and the proposed Telangana Phase-II units. This proactive approach is aimed at minimizing the environmental impact of its operations .Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1 Occupational health and epidemic health disorders survey of the study area (10 km radius) was conducted through M/s Pollucon Laboratories Pvt. Ltd, Surat in July 2018. A copy of the final report was submitted to the Regional Office (South Zone), MOEF&CC at Chennai on 25th November 2018. The health status of study population (both human and animal) was found to be satisfactory. The health-related problems found during the study like General health related complains, Under nutrition, Over nutrition, Anemia and Refractive error were due to life style related factors and not due to above			

			pollutants in emission from NTPC plant at Ramagundam.			
16.2		They stated that NTPC has collected crop fields of their village, but the NTPC has not taken care of them when their village is facing difficulties. Hence, their villagers had no crop fields or no employment. Many villagers are struggling with unemployment. NTPC has not even cooperated with the villagers in this regard.	Employment is being provided mainly through contract agencies and priority is given to local unemployed youth as per NTPC policy subject to opportunity, suitability and eligibility of candidates. Employment details are as mentioned above in reply at sl. no. 14.4			
16		They reported that NTPC is currently trying to build three more plants, their villagers are not in a position to withstand the pollution and in these situations, rehabilitation to them elsewhere to be the solution to this problem.	Pollution control measures adopted at NTPC Telangana Phase -I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1.			
17.1	Sri T. Anil Reddy, President, Green	He suggested the industry to give employment to the local youth and people according to their	Employment is being provided mainly through contract agencies and priority is given to local unemployed youth as per NTPC			

	Innovation Natural and Environment Society, H.No.5-7-54, A.P.H.B Colony, Karimnagar.	qualifications and provide Self Employment schemes for the local people. The industry should provide facilities such as laying of cement roads, drainage, and other village development issues. The industry must facilitate a study circle with well-developed library and coaching to enable the local youth to secure better employment such as Civil services. The industry must spend 20% profit earned by them to be utilized for the benefit of local people.	policy subject to opportunity, suitability and eligibility of candidates. Details of Skill Development programs are as mentioned in reply given at Sl no:1.5 above.			
17.2		He stated that, there will be impact on all living beings and may be subjected to health problems. There should not be any sort of air, water and soil pollution. He appealed to the management of the industry to ensure that the environment will be maintained for survival of	Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1.			

		all living beings. The industry should do the plantation and must grow many tresses and should water daily to them and the soak pits should be build and ground water should be made to store for the future and the water must be saved. The industry should be benefit to the people and pollution free environment will be ensured.				
17.3		He stated that, they are giving full support for the proposed industry because Industrialization improves the socio-economic conditions to the local people.	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			
18.1	Sri A. Gopal Reddy, President, Think Green Environment Society, H.No.6-151,	He stated that the proposed project beneficial to the local village people as more infrastructure development and improvement to the network of the roads in the village area.	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			

18.2	Peramandla bavi, Ammanabolu, Narketpally, Nalgonda District.	He suggested the management to provide dust masks and personal protective equipments to prevent exposure of dust to the workers, Avenue the plantations at the project area and in the surrounding villages, Tarpaulin sheets on the loading vehicles. He suggested the management to conduct the medical camps to the local village people for the health point of view and issues the health cards to them. He requested the authorities to recommend to MoEF&CC to issue the environmental clearance to the project.	Details of dust control measures are as mentioned above in reply at sl. no. 2.3 Avenue Plantation details are as mentioned above in reply at sl. no. 1.1. Details of medical Camps are as mentioned in reply given at Sl no:1.2 above.			
19.1	Sri Janagama Shankar, State President, Telangana Singareni, NTPC Prabhavitha Gramala	He stated that, he is expressing full support to the proposed project. He reported that in the process of expanding the project, the proponent should take steps to prevent air, water and land pollution. He	NTPC Ramagundam, being a responsible corporate citizen, is committed to environmental protection. All necessary measures are being taken to control dust emissions at the Ash Dyke, including:			

	Samkshema Sangham.	suggested that steps should be taken to prevent falling of ash on the roads and any harm to the people from while moving the ashes coming from the project. Tippers and other vehicles transporting the ash should be fully covered.	1. Ash Pond water ponding. 2. Sprinkling water on the Ash Pond using a sprinkler system and fog cannons. 3. Water sprinkling on the roads by water tankers. Ash-loaded trucks are being covered with tarpaulin, and this practice will be ensured in the future as well.			
19.2		He suggested the management to take up air, water and land pollution preventive measures regularly as per the instructions of the environmental scientists in the affected villages located in 10 Km radius from the project.	Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1.			
19.3		He stated that in addition to the development of the project, 100% permanent jobs, contract / outsourcing jobs should be provided to the unemployed people of affected villages and he requested the management	Addressed employment data in point No. 14.4			

		to provide all the infrastructure in the affected villages through CSR funds.				
19.4	Sri Vasudev Raju, Vice President, M/s. Savitri Bai Phule Foundation, NGO, Mature, Health & Wealth environmental (CSR Division), H.No.1-4-81/B, Bholakpur, Musheerabad, Hyderabad	He suggested the industry to give employment to the local youth and people according to their qualifications and provide Self Employment schemes for the local people. The industry should provide facilities such as laying of cement roads, drainage, and other village development issues. The industry must facilitate a study circle with well-developed library and coaching to enable the local youth to secure better employment such as Civil services. The industry must spend 4% profit earned by them to be utilized for the benefit of local people.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment. CSR budget is being allocated as per Companies Act, 2013 provides for CSR under section 135.			

19.5		He stated that, there will be impact on all living beings and may be subjected to health problems. There should not be any sort of air, water and soil pollution. He appealed to the management of the industry to ensure that the environment will be maintained for survival of all living beings. The industry should do the plantation and must grow many tresses and should water daily to them and the soak pits should be build and ground water should be made to store for the future and the water must be saved. The industry should be benefit to the people and pollution free environment will be ensured.	Pollution control measures adopted at NTPC Telangana Phase - I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details are as mentioned above in reply at sl. no. 1.1. Ground water/Rain Water Harvesting As per Answer 5.1			

19.6		He stated that, they are giving full support for the proposed industry because Industrialization improves the socio-economic conditions to the local people. He requested the authorities to recommend to MoEF&CC to issue the environmental clearance to the project.	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			
20.1	Smt. O. Rama, Vice President, M/s. Avani Varadhi Charitable Trust, # 16-2-752/K/61, Sai Ramcolony, Gaddiannaram, Hyderabad.	She suggested the industry to give employment to the local youth and people according to their qualifications and provide Self Employment schemes for the local people. The industry should provide facilities such as laying of cement roads, drainage, and other village development issues. The industry must facilitate a study circle with well-developed library and coaching to enable the local youth to secure better employment such as Civil	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Community development work will be done as per requirement subject to availability of budget. CSR budget is being allocated as per Companies Act, 2013 provides for CSR under section 135.			

		services. The industry must spend 6% profit earned by them to be utilized for the benefit of local people.				
20.1		She stated that, there will be impact on all living beings and may be subjected to health problems. There should not be any sort of air, water and soil pollution. He appealed to the management of the industry to ensure that the environment will be maintained for survival of all living beings. The industry should do the plantation and must grow many tresses and should water daily to them and the soak pits should be build and ground water should be made to stored for the future and the water must	Pollution control measures adopted at Telangana Phase -I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1. Ground water/Rainwater Harvesting as per response at 5.3.			

		be saved. The industry should be benefit to the people and pollution free environment will be ensured.				
20.2		She stated that, they are giving full support for the proposed industry because Industrialization improves the socio-economic conditions to the local people. He requested the authorities to recommend to MoEF&CC to issue the environmental clearance to the project.	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			
21.1	Smt. Burra Bhavani, Member, Mayura (T.C) Society Ltd., Environmental & Earth, Health, H.No.2-6-258/3, Mukarampura, Karimnagar.	She suggested the management to take up water sprinkling at regular interval on the main road and other service roads to suppress dust and Over filling of tippers and consequent spillage on the roads should be avoided. The trucks should be covered with tarpaulin.	NTPC Ramagundam, being a responsible corporate citizen, is committed to environmental protection. All necessary measures are being taken to control dust emissions at the Ash Dyke, including: 1. Ash Pond water ponding. 2. Sprinkling water on the Ash Pond using a sprinkler system and fog cannons.			

			3. Water sprinkling on the roads by water tankers. Ash-loaded trucks are being covered with tarpaulin, and this practice will be ensured in the future as well.			
21.2		She stated that, they are giving full support for the proposed industry because industries will improve the socio-economic conditions to the local people and employment to the local youth.	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			
22.1	Sri R. Lakshman, President/Member, M/s Om planet Enterprises India Ltd., NGO, Nature, Health & Wealth environmental (CSR Division), Regd. Off: H.No.2-3-59, Kaman Road,	He suggested the industry to give employment to the local youth and people according to their qualifications and provide Self Employment schemes for the local people. The industry should provide facilities such as laying of cement roads, drainage, and other village development issues. The industry must facilitate a study circle with well-	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Community develpolent work will be done as per requirement subject to availability of budget. CSR budget is being allocated as per the Companies Act, 2013 provides for CSR under section 135.			

	Karimnagar.	developed library and coaching to enable the local youth to secure better employment such as Civil services. The industry must spend 3% profit earned by them to be utilized for the benefit of local people.				
22.2		He stated that, there will be impact on all living beings and may be subjected to health problems. There should not be any sort of air, water and soil pollution. He appealed to the management of the industry to ensure that the environment will be maintained for survival of all living beings. The industry should do the plantation and must grow many tresses and should water daily to them and the soak pits should be build and ground water should be made to store for the future and the water must be saved. The industry	Pollution control measures adopted at Telangana Phase -I and provisioned for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1. Ground water/Rainwater Harvesting As per Answer 5.3.			

		should be benefit to the people and pollution free environment will be ensured.				
22.3		He stated that, they are giving full support for the proposed industry because Industrialization improves the socio-economic conditions to the local people. He requested the authorities to recommend to MoEF&CC to issue the environmental clearance to the project.	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			
23.1	Sri Puli Sathyanarayana Goud & Others, R/o Elaklapalli villagers & NTPC Bhunirvasithulu.	They stated that, they are the residents of Elkalapalli village affected by NTPC. Earlier, as part of the establishment of NTPC power plant, they have lost their agricultural lands in Elkalapalli village. At that time NTPC management promised to solve all the problems in their village and develop their village, but the NTPC has not taken	NTPC taken lot of initiatives in the village like Construction of CC Roads, RO water plant, community center, culvert on water pond and Solar lights. Also, mobile medical unit visits every month. Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment.			

		care of their village.				
24		They reported that following problems are arising in their village due to the NTPC power plant:				
23.2		Unemployed youth have no jobs and employment opportunities.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
23.3		Increase in air pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
23.4		Cancer diseases and respiratory problems.	Occupational health study details are mentioned above at s.no. 5.2			
23.5		Toddy tappers lost their employment.	NTPC taken action in coordination with DM & Exesice department			
23.6		Accumulation of ash on crop fields and decrease in yield.	Dust control As per Answer 2.3			

23.7		Ground water depletion.	The water source for NTPC Power Stations is the Sreepada Yellampalli Barrage. Since NTPC does not extract groundwater for plant operations, there will be no impact on hydrology or groundwater resources due to the proposed Telangana Phase-II.			
23.8		At the beginning of NTPC, their land was taken for water pond, but now the pond has been filled with ash.	The location of the ash pond was selected after a detailed techno-feasible examination of all available options. A protection bund has been constructed between the ash pond and the reservoir area. To prevent the impact on groundwater quality, an impervious liner consisting of a layer of sand cushion, HDPE, geotextile, and finally overlain by PCC (Plain Cement Concrete) has been provided in the ash pond to prevent leaching. Groundwater quality monitoring is being conducted through an NABET-accredited lab on a regular basis to ensure the quality of groundwater.			

			Green belt has been developed around the ash pond. Dust control measures are being implemented as per reply at 2.3.			
23.9		They requested the NTPC management to solve the above mentioned problems as well as the following major problems at the earliest.				
23.10		Job and employment opportunities should be provided to the unemployed youth.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
23.11		Help the Toddy tappers who have lost their Toddy trees and give them due justice.	NTPC taken action in coordination with DM & Exesice department and the issue has been resolved.			

23.12		Reduce environmental Pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1.			
23.13		Employment opportunities should be provided to land losers under special quota.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
23.14		Farmers should be provided with necessary agricultural equipment.	NTPC implemented Integrated Farming System (IFS) program for capacity building of Farmers & provided few inputs to the farmers and future also will implement the activities.	We will take representations through DM and will take up the activities in phased manner.	2026	75
23.15		Sufficient space should be allocated for setting up the permanent I.K.P. centre for their village.	Infrastructure facility can be developed on providing land. NTPC land cannot be used for the development of facility under CSR .			
23.16		Primary health center should be established.	NTPC is committed for development of nearby	NTPC will take	2030	200

23.17		A veterinary hospital should be established.	communities in consultation with local authorities & based on need Assessment. NTPC is following all the directions and guidelines issued by District Collector, Peddapallly from time to time.	representations through DM and will take up the activities in phased manner.	2030	200
23.18		Community hall should be established.			2032	75
23.19		Sports equipment should be provided to the youth.			2027	10
23.20		Bicycles should be provided to the students.			2027	30
23.21		Self-employment should be provided to the women.			On going	5
23.22		A permanent CC road should be constructed along the wall built by the for the farmers.			2030	200
23.23		Internal roads should be constructed in the village.			2030	150
23.24		Chinthala water tank should be dredged / de-silted, and street lights should be installed on the tank embankment and a CC road should be constructed.			2030	75
23.25		Street lights should be provided from Elkalapalli			2026	5

		gate into the village.				
23.26		Every house should be provided with drinking water facility.			2026	50
23.27		Free electricity should be provided.	There is no provision in policy.			
24.1	Villagers of Kazipally ward no. 39 of Ramagundam Municipal Corporation.	They stated that they are the residents of Kazipally Village Ward no 39 of Ramagundam Municipal Corporation. Kazipally village is the nearest project affected village for NTPC, Ramagundam. They are facing pollution problems, there is no drinking water facility to them. Opposite to their village NTPC sewerage system is there and they are getting bad smell.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 5.2			
24.2		They requested the NTPC management to arrange for Drinking water line in MM colony, Underground drainage facility, Roads and other social development	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment. NTPC is following all the directions and guidelines	Providing New RO plant, Drainage system development	2027	0.70

		works in their area.	issued by District Collector, Peddapallly from time to time.	at Mathangi colony.		
25.1	Sri Bodige Bharath Goud, 4th Division President, Congress Party, RMC.	He stated that, they are the people of 4th division, since 50 years they have been very badly affected with air pollution, water pollution, sound pollution which are been released from NTPC power plant units. These pollutions are the main causes for cancer, Kidney failure, and lung diseases.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 4.3			
25.2		They demanded the NTPC management to provide the following under the CSR;				
25.3		Construction of Concrete wall for Nala between Medipally centre to New Poratpally (nearby), covering 3rd and 4th division.	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment. NTPC is following all the directions and guidelines issued by District Collector, Peddapallly from time to time. Medical facility details are	Representations will take through DM and further activities will planned in phased wise manner.	2030	200
25.4		Adoption of Annapurna colony and Krishnanagar of 4th division by			2028	200

		Constructing Roads, Underground Drainage (UGD), Plantation (Greenery).	mentioned in reply 1.2 Employment details are as mentioned above in reply at sl. no. 14.4			
25.5		Providing multi-specialty Hospital with separate Dialysis centre.			2032	200
25.6		Providing Employment for local youth.				
26.1	Sri Bayyapu Prabhanjan Reddy, President, Ramagundam NTPC Land Oustees Welfare Association, H.No.6-64/5, Razvi Colony, Kannala (V), Palakurthy (M), Peddapalli District.	They reported that they are from 17 villages who lost their houses and lands under N.T.P.C project, Ramagundam. In 1978, the revenue officials and N.T.P.C officials promised to provide jobs to every household from 17 revenue villages and acquired 10,300 acres of their land, but the promise of giving permanent jobs has not been fulfilled till now. They requested the authorities to provide permanent jobs to all the land losers.	Addressed employment data in point No. 14.4			

26.2		Further, they reported the following demands:				
27		Permanent jobs should be given to eligible people those who lost their lands and age in terms of employment without any conditions.	Addressed employment data in point No. 14.4			
26.3		According to the Employment notification issued in the year 2013, the eligible land losers in Karimnagar District is 463 and in the year 2022 the eligible land lost people in Peddapalli District is 216. Taking these two lists into consideration, jobs should be given to all the land lost people.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
26.4		According to the notification of land losers, 12 jobs are left out of 59 jobs in 2013 and 07 out of 25 jobs in 2015, 2017 and 2022, the remaining 05 jobs are left out of 25 jobs in 1988. Jobs should be	Employment details are as mentioned above in reply at sl. no. 14.4. There is no pending vacancies from NTPC side. Issue is related to authenticity of Land Oustee certificate. The matter is			

		given to all the land losers immediately without any conditions.	subjudice.			
26.5		Permanent jobs should be given in NTPC, Ramagundam to eligible land losers and one of their family member who lost their age and for Castes like SC, ST, BC including general equally without any discrimination of land area.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
27.1	Sri M. Rama Chari, Secretary, CPI (M)- NTPC, Ramagundam Area committee, H.No.4-2-14, Medipally Road, NTPC, Jyothinagar, Peddapalli District.	They stated that, there are about 150 families living in Mathangi Colony, located adjacent to the NTPC compound wall near FCI road. Since the construction of the Telangana Super Thermal Power Plant (2X800=1600MW) as part of the expansion of the Ramagundam project, difficulties have started for the residents of this colony. During the construction of this plant (2X800=1600MW) and	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 5.2 Mathangi colony reply at Sl.no. 8.11.			

		since the start of electricity generation, the lives of the residents of Mathangi colony have become miserable. Uninhabitable conditions have emerged. Their houses are filled with coal dust and ash. They are unable to sleep due to the sound of sirens and machines as long as the conveyor belts transporting coal are running. Due to the air, water and noise pollution, they are suffering from diseases like lung diseases, heart diseases, cancer and asthma. To them living in such vulnerable conditions, installing three more (3×800=2400MW) power units in that area would create unlivable conditions. They requested the authorities to take the initiative and instruct the NTPC to move their Mathangi colony from there to a safe place, pay appropriate compensation				

		under the RR package, provide all the facilities as an alternative and construct house.				
28.1	Sri K. Rajanna (Secretary) & Others, CPI (ML) New Democracy, H.No.3-38, Bagathsingh nagar, Peddampet (V), Anthargoan (M), Peddapalli District.	At the beginning in the subject matter they requested the authorities to drop/discontinue the proposed NTPC (Telangana) "3×800=2400 MW plants" and asked to provide employment opportunities to the land losers.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
28.2		They stated that, the NTPC Ramagundam Thermal Project was commissioned on 14.11.1978, for the Thermal Project, 17 villages, 1000 houses and 10,300 acres of land were acquired through land acquisition. They promised to provide employment opportunities to the people of 17 villages in this area. Already 4200 MW is being produced in	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 5.2 Mathangi colony reply at Sl.no. 8.11.			

		Ramagundam (NTPC (Ramagundam) – 2600 MW + NTPC (Telangana) – 1600 MW). Due to these existing thermal power plants, environment has been polluted in the Ramagundam industrial area. Due to this environment, people are suffering from many types of diseases like asthma, TB, BP, sugar, cancer, and kidney diseases. With the coming of new plants, the people of this area are likely to be exposed to even more pollution.				
28.3		They reported that it was agreed in the 2018 agreement that the children of contract workers in the project would be provided employment in the Telangana project (2x800 MW). NTPC management has not provided any job opportunities to the children of contract	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. NTPC is following all the statutory guidelines and prevailing labour laws in regulating contractual employment.			

		workers or land losers in the newly constructed Telangana plants. In the name of contract jobs, contractors are getting tenders through low quotations and selling contract jobs. They stated that at present, even though a huge contract workers scam is going on in NTPC, the "NTPC management" is not paying attention and demanding to stop the corruption of contract workers' jobs in NTPC.				
28.4		The requested the NTPC management to take a decision on the following issues.				
28.5		Since many land losers have died and reached the age bar, all their descendants should be provided with permanent jobs in the newly-created 2x800 MW plant, and all	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Further there is no provision of such pension.			

		the land losers who cannot work should be provided with a pension of Rs.10,000/- per month from CSR funds along with free hospital treatment.	NTPC is following all the statutory guidelines and prevailing labour laws in regulating contractual employment.			
28.6		Job opportunities should be provided to the descendants of contract workers and locally educated unemployed people, and these contract jobs should be recruited transparently without any scope for corruption.				
28.7		NTPC should provide all necessary infrastructure facilities to the land acquired villages from CSR funds.	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.			
28.8		Also, free electricity should be provided to the villages within five kilometers of NTPC.	Electricity distribution is beyond the scope of NTPC.			

28.9		The surplus lands with the NTPC should be given to the farmers.	There is no such land available with NTPC Ltd.			
28.10		Especially in the Ramagundam industrial area, trees should be planted and protected in large numbers so that the environment is not damaged. And pollution prevention programs should be taken up.	Plantation details as mentioned above in reply at sl. no. 1.1.			
28.11		Since the Ramagundam area will have to face more pollution, the newly proposed 3x800=2400 MW Telangana Thermal Power Plants should be cancelled.	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			
29.1	Sri Erukulla Santhosh, (President) & Others, Chaithanyapuri Colony Welfare Association, RFCL, Fertilizer city,	They stated that, there are the residents of Chaitanyapuri Colony, 14th division, RFCL, Ramagundam Mandal, Peddapalli District. They are living there for about 40 years in 300 houses, but till now, no development work has been done for	Community development work will be carried out as per requirements & NTPC will take development works in consultation with local authorities & based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.			

	Ramagundam.	them. The colony drainage system is not completed, there is not enough clean drinking water and also the roads are not in good condition.				
29.2		They reported that they are facing noise pollution and air pollution from ash pond of NTPC. They requested the authorities to solve their problems.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1.			
30.1	Sri Balagoni Kumar Goud (Ex-Sarpanch) &Others Ranapur Village, Palakurthi Mandal, Peddapalli District.	They stated that they are the villagers of Ranapur. They reported that they have the following problems and demands.				
30.2		Our village has already gone into pollution, so that pollution control measures should be taken.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
30.3		If land acquisition is there, employment should be provided to those who have land ranging from 1 gunta	Land acquired in Ranapur village Acre 59.37 Gts (Pvt 36.25 + Govt 23.12) and these lands are acquired in 1980 and now, there is			

		to an acre.	no acquisition for Telangana Phase 1 and earlier we gave 16 nos of permanent jobs in Ranapur Village.			
30.4		Land should be purchased at the farmer's demand rate.	No acquired land for Telangana Stage II from Ranapur village and land rate decided as per RFCTLARR Act 2013.			
30.5		Land should be allocated for the cattle of their village and for animal fodder.	No acquired land for Telangana Stage II from Ranapur village.			
30.6		Few development works has been done in their village for the last two to three years. A hospital for public health and large-scale development work should be done.	Community development work will be carried out as per requirements & NTPC will take development works in consulation with local authorities & based on need Assessment. The proposal may be forwarded through District Collector, Peddapally. Medical facility details are mentioned in reply 1.2			
31.1	Sri A. Rajaiah & Others, Geetha Parishramika Sangham, Ranapur Village, Palakurthi	They stated that they are members of Ranapur Grama Geetha Parishramika Sahakara Sangam. They have been earning a living from Palm trees since before the	NTPC Ramagundam has acquired land in Poratpalli Village since 1980 and same land is mutated on the name of NTPC. Further, Based on the verification of Excise department and District Collector Peddapalli on the humanity			

	Mandal, Peddapalli District.	establishment of the NTPC plant. As part of the NTPC plant expansion, their Palm trees are being removed. With this, 70 families who rely on their profession have lost their employment.	grounds, NTPC had paid payment to toddy tappers for removal of toddy trees.			
31.2		They requested the authorities to give orders to the concerned department to pay compensation as per the government GO and also to provide jobs to them in the plant. The requested that 20 acres of land should be purchased and allocated for raising the Palm trees.	NTPC Ramagundam has acquired land in Poratpalli Village since 1980 and same land is mutated on the name of NTPC. Further, Based on the verification of Excise department and District Collector Peddapalli on humanity grounds, NTPC had paid payment to toddy tappers for removal of toddy trees.			
32.1	Sri Nerella Srinivas (President) & Others, Geetha Parishramika Sahakara Sangham, Kannala Village, Palakurthi Mandal, Peddapalli	They stated that they are members of Kannala Grama Geetha Parishramika Sahakara Sangam. They have been earning a living from Palm trees since before the establishment of the NTPC plant. As part of the NTPC plant expansion, their Palm trees are being removed. With this, 50	NTPC Ramagundam has acquired land in Poratpalli Village since 1980 and same land is mutated on the name of NTPC. Further, Based on the verification of Excise department and District Collector Peddapalli on humanity grounds, NTPC had paid payment to toddy tappers for removal of toddy trees.			

	District.	families who rely on their profession have lost their employment.				
33		They requested the authorities to give orders to the concerned department to pay compensation as per the government GO and also to provide jobs to them in the plant. The requested that 20 acres of land should be purchased and allocated for raising the Palm trees.	NTPC Ramagundam has acquired land in Poratpalli Village since 1980 and same land is mutated on the name of NTPC. Further, Based on the verification of Excise department and District Collector Peddapalli on humanity grounds, NTPC had paid payment to toddy tappers for removal of toddy trees.			
33.1	Dr. Krishna Kumar, President, Parents Association for the Mentally Handicapped Persons (PAMENCAP), Founder	They stated that, there are very much thankful to NTPC for continues and humanitarian concerned help to their Manochaitanya Vocational Training Centre (VTC) for mentally retarded children run by PAMENCAP, Godavarikhani.	NTPC is committed for development of nearby communities.			

33.2	Manochaitanya , H.No.B-28, Sector-I, Opp: Community Hall, Godavarikhani, Peddapalli District.	Further, they humbly appealed to the NTPC to accord permission to sanction 1 Xerox machine, 1 Computer, 1 Printer-cum-Scanner for accounting inventory, stores material and other office works etc. and 1 laptop (for attending webinars, zoom meetings etc.) for the use of mentally challenged (Divyaang) Children of Manochaitanya VTC, Godavarikhani.	NTPC will take development works in consulation with local authorities & based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.			
34.1	Sri Chiluka Prasad & Others, Moghalpahad village, Anthargaon Mandal, Peddapalli District.	They stated that they are the SC / BC people belongs to Moghalpahad village, Anthargaon Mandal and they lost their lands due to NTPC. They requested the authorities to refuse to grant any permission for the ash pond to NTPC, as the diversion of ash from the NTPC into the ash pond will not only endanger their livelihood	NTPC has acquired lands in Moghalapahad village to extent of Ac. 793.21 Gts (Pvt 632.06 + Govt 161.15) for construction of Ash Dyke and land acquired through the District Administration. NTPC has given opportunity to 24 nos of permanent employment and other outsourcing employment. • To control the fugitive dust emissions in Coal Handling and Ash handling areas, dust control			

		but also pollute the environment and cause harm to people and living creatures (deer, rabbits, peacocks, etc.). They reported that in the past in 1982, NTPC took 553 acres of their land for the construction of ash pond, and NTPC promised that they would provide us with a job and employment for each house, but NTPC have damaged their lives by not providing with any job or employment till today to them. They stated that due to the ash pond, the air and water are polluted, they are suffering from various types of diseases, hospitalized and suffering financially.	systems as Dust Extraction & Dust Suppression, Water sprinklers, Fog Canons etc. are being used. Water sprinkling is being done in other dust prone areas like unpaved roads. • Under the direction of the Government of India, the National Highways Authority of India (NHAI) is building major highways in the country by taking ash from NTPC. We are also committed to providing them ash for the development of the nation. • Along with this, ash is sent to cement factories and bricks, block and tiles companies through closed vehicles (bulkers). But for road construction, transportation of ash is possible only through Hyva. Arrangements have been made to cover the trucks engaged in ash transportation.			
34.2		They expressed that earlier after losing their agricultural land under NTPC, their grandparents and fathers purchased the	NTPC proposed to acquire land in Moghalapahad to extent of 606 acre for construction of ash pond for the Telangana Phase II and it is in progress with District			

		remaining lands from the landowners before the 1973 ceiling act and are earning a living by farming. But again, with malicious intent, NTPC is trying to take away the 606 acres of their cultivating agricultural land for the second ash pond.	Administration as per the land acquisition act 2013. The proposed land acquisition shall be done in line with extant rules and concerned authorities.			
34.3		They stated that they have previously submitted a representation to the district authorities reporting that the construction of the 2nd Ash pond will not only result in the loss of their valuable agricultural lands but also in the absence of any livelihood and a miserable life. The air and water will be poisoned, making it difficult for the people of the four surrounding villages, namely 1) Mogalpahad, 2) Kundanapalli, 3)	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1.			

		Akenapalli, and 4) Lambadithanda, to survive, and there is a risk of extinction of living creatures (deer, rabbits, peacocks, etc.).				
34.4		They reported that due to the construction of the 2nd Ash pond, the road leading to Mancherial via Mogalpahad village will be blocked, which will hamper the development of the entire Antargaon Mandal. Apart from that, the Poshampadu Canal passing through Mogalpahad village and due to accumulation of Ash into the canal there is a risk of loss to the farmers as the crop fields of about 10 villages will not receive water.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Plantation details as mentioned above in reply at sl. no. 1.1.			
34.5		Finally, they appealed to the authorities to examine the above matters and requested to save their	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			

		lands and lives by stopping giving permissions to NTPC.				
35.1	Sri Korukanti Chandar, EX-MLA, Ramagundam Constituency.	He stated that, it has been 47 years since NTPC started the Ramagundam Thermal Project. 17 villages, 1000 houses, and 10,300 acres of land were acquired for the thermal project through land acquisition. Farmers were paid Rs. 5,000 to Rs. 6,000 per acre for this land. NTPC promised to provide employment opportunities to the people of 17 villages in this area. Earlier, NTPC (Telangana) started production in 2×800=1600 MW plants and now it is known that NTPC (Telangana) proposed for "3×800=2400 MW" power plant. Already 4200 MW Thermal Power is being produced in Ramagundam. These thermal power	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 4.3			

		plants have created a polluted environment in the Ramagundam industrial area. Due to this environment, people are suffering from many types of diseases viz., asthma, TB, BP, sugar, cancer, kidney diseases.				
35.2		He stated that, according to the registration with the employment office, there are 450 land oustees and they have crossed the employment age limit. Apart from this, it was agreed in the 2018 agreement that the children of contract workers in the project will be provided jobs in the Telangana project.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Further there is no provision of such pension. Employment details are as mentioned above in reply at sl. no. 14.4			
35.3		He reported that, NTPC has done injustice to the people by acquiring 10,300 acres of land beyond the requirement of NTPC plants. Now the value of	NTPC acquired land extent of 10300 acre (Pvt land 5278 + Govt land 5028) and NTPC transferred land to SCCL extent of 727 acres based on MoU Between NTPC and SCCL. The compensation of land is			

		that land is from Rs.50 lakh to Rs.1 crore per acre. Out of this land, NTPC has give away 727 acres of land to Singareni under the name of lease. In fact, the lands acquired from the farmers should belong to the farmers but the "NTPC" management did not do so. It is not right to bring new 3×800=2400 megawatts power plants after all these years, because the people of this area are likely to be exposed to even more pollution due to the coming of these plants.	decided by the State Revenue of the land acquisition as per land acquisition act 1894. NTPC acquired land through State Government for construction of Power Plant as per extent LA Act of 1894 between the years 1980-1984. Further, compensation as determined by the appropriate authority of the state govt. was deposited by NTPC with the concerned authorities for further distribution of the compensation. No cases are pending with NTPC for payment of compensation.			
35.4		He reported that, NTPC management has not provided any job opportunities to the children of contract workers or land oustees in the newly-created 2x800=1600 MW Telangana plants. In the name of contract jobs, contractors are getting	Employment details are as mentioned above in reply at sl. no. 14.4. As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. NTPC is following all the statutory guidelines and prevailing labour laws in regulating contractual			

		tenders through low quotations and selling contract jobs for Rs. 4 lakh to Rs. 5 lakh. At present, even though a huge contract workers scam is going on in NTPC, the "NTPC management" is not paying attention. We are still demanding that the corruption in the employment of contract workers in NTPC be stopped.	employment.			
35.5		He stated that, NTPC management needs to take appropriate decisions on the following issues.				
35.6		Since many land oustees have died and have crossed the employment age limit, all their descendants should be provided permanent jobs in the newly-constructed 2x800 MW plants. Also, all land oustees who cannot get jobs should be provided	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Further there is no provision of such pension.			

		with a monthly pension of Rs. 10,000 each from CSR funds along with free medical facilities.				
35.7		Employment opportunities should be provided to the descendants of contract workers and the unemployed who have studied locally. These contract jobs should be recruited transparently without any scope for corruption.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. NTPC is following all the statutory guidelines and prevailing labour laws in regulating contractual employment.			
35.8		NTPC should provide all necessary infrastructure facilities from CSR funds to the land lost villages. Also, free electricity facility should be provided to the villages within five kilometers of NTPC.	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment. The proposal may be forwarded through District Collector, Peddapally. Electricity distribution is beyond			

			the scope of NTPC.			
35.9		The surplus lands with the NTPC should be given to the farmers.	There is no such land available.			
35.10		Especially in the Ramagundam industrial area, plantation should be made and protected to prevent environmental damage. And pollution prevention programs should be undertaken.	Plantation Details are as mentioned above in reply under sl. no. 1.1			
35.11		Since the Ramagundam area will be exposed to more pollution, based on public opinion a decision should be taken on the newly proposed 3×800=2400 MW Telangana Thermal Power Plant.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
35.12		Free education should be provided from KG to PG to the children of families from land lost villages and contract workers. A corporate style school	NTPC is committed for development of nearby communities in consultation with local authorities & based on need Assessment. Vocational Trainings details given			

		should be established.	at Sl no:1.5 above. As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
35.13		A corporate hospital should be established to provide better medical care to the families of contract workers in land lost villages.				
35.14		Self-employment should be provided to women from land lost villages and their children should be given priority in jobs.				
35.15		Kundanapally, Malayalapally, Badripally, and Akbar Nagar should be saved from the ash pond. They should be moved to safer areas. Finally, he requested to the NTPC management to consider all the above issues positively and take a decision.				
36.1	Sri N. Srinivas & Others, Protected tenants over	They stated that they are the protected tenants over lands situated in various survey numbers at	The District Collector Peddapalli had order issued on 31.01.2025 for who are pattadar on the moghalapahad lands and W.P No.			

	lands situated at Moghalpahad & Anthargaon villages of Peddapalli District.	Moghalpahad Village, Anthargaon Mandal, Peddapalli District. Their names have been recorded in the revenue records for an extended period, and they have been cultivating, possessing and enjoying these lands. However, during the issuance of e-pattadar passbooks under the Telangana Rights in Land and PPB Act, 2020, the concerned revenue authorities have made changes to the entries in the revenue records without prior notice to them and without conducting an inquiry. In light of the above, they approached the Hon'ble High Court by filing W.P. No. 36394 of 2024 and I.A. No. 1 of 2024 and the same was disposed of in our favor by order dated 26th December 2024.	36394 of 2024 filed by some petitioners for entering their name in the dharani portal and District Collector had filed Counter to this case and case pending in the High Court.			

36.2		They finally requested that the concerned revenue authorities take appropriate action to protect our rights in accordance with the order passed by the Hon'ble High Court.	W.P. No. 36394 of 2024 case pending before High Court Hyderabad and District Collector has filed counter to this case on 12.02.2025.			
37.1	Sri Chander Shekar, Cloud Tech Private Limited, Manakpur Industrial Estate, Haryana.	He is submitted a representation / PPT on smog free towers and air purification process.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
38.1	Smt. Edula Janaki, D/o. Kanakaiah, R/o Narrashalapalli, NTPC, Ramagundam.	It is to submit that, Smt. Edula Janaki, D/o. Kanakaiah has submitted a letter dated 18.04.2022 and the said letter was forwarded by Revenue Divisional Office (RDO), Peddapalli to District Employment Exchange Office, Peddapalli. In the letter, he stated that, Smt. Edula Janaki D/o	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates. Employment details are as mentioned above in reply at sl. no. 14.4.			

		Kanakaiah has submitted a petition with a request to refer her name to District Employment Exchange Office, Peddapalli for providing the Job in NTPC under land oustees quota in place of her parents i.e., Sri Edula Kanakaiah S/o Bheemaiah. Further, RDO, Peddapalli stated that, as per the records land of Sri Edula Kanakaiah situated at Medipalli village was acquired for NTPC purpose.				
39.1	Sri Kandi Chandraíah, R/o Medipalli, NTPC	He stated that, residents of Medipalli & Bheemunipatnam lost their lands due to NTPC project and since 40 years the local unemployed youth have not been getting employment opportunities from NTPC.	NTPC acquired land in Medipalli Village to extent of Acre 3428 (Pvt 1432 + Govt 1995) and NTPC gave job opportunities to104 Nos permanent position and other contractual and outsourcing jobs. Employment details are as mentioned above in reply at sl. no. 14.4			

39.2		He demanded the NTPC management to provide the following welfare activities under the CSR for residents of affected villages located in a radius of 10 km from NTPC project as they have been affected with air pollution & Environmental pollution which are being released from NTPC power plant units. Many people from their village are suffering from various health problems with NTPC pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 5.2			
39.3		Super Specialty Hospital should be established with free treatment facility for affected village's people.	Medical facility details are mentioned in reply 1.2.			
39.4		· Well Developed Library should be provided for local youth to enable them to get knowledge.	NTPC will take development works in consultation with local authorities based on need Assessment.			
39.5		· The industry must facilitate free Computer Coaching Centers, Skill Development Centers for	Vocational Trainings details given at Sl no:1.5 above.			

		local unemployed youth which enable them to get better employment opportunities.				
39.6		· Free Electricity should be provided for local people.	Electricity distribution is beyond the scope of NTPC.			
40.1	Sri Panaganti Kumaraswamy, S/o Poshalu, R/o NTPC	He stated that his father resident of Poratpalli village lost his residence & agricultural land under NTPC project. Hence He demanded the NTPC management to provide job opportunity based on his qualification.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
41.1	Arya Vysya Sangham, NTPC	They stated that, they are giving full support for the proposed industry because Industrialization improves the socio-economic conditions to the local people.	NTPC is committed for following all the directions and guidelines issued by MoEF&CC from time to time.			
41.2		But many of the local people have been facing respiratory health problems and cancer	Medical facility details are mentioned in reply 1.2			

		diseases. Hence He reported to provide hospital with all facilities to be established for providing medical facilities.				
42.1	Sri Jangapally venkataswamy, R/o Ramnagar, Mancherial	In the representation, he has listed some land survey numbers and extent of land in it. He requested the authorities to send any notice or letter in respect of the said survey numbers to him.	Issue pertains to State government.			
43.1	Sri Brahmananda m, R/o Kazipally Village	He requested the management to regularize the NTPC hospital temporary employees.	There is no such provision in policy.			
44.1	NTPC Contract Drivers	They stated that they have been working since 20 years and there are 66 contract drivers' families are depending on NTPC Plant .They reported to give instructions to contractors to increase minimum wages and allowance to all contract drivers.	Wages are being paid as per Government Norms.			

45.1	Ch. Shilpa, R/o Mancherial	In the representation, She has listed some land survey number and extent of land in it. She requested the authorities to send any notice or letter in respect of the said survey numbers to her.	Issue pertains to State government.			
46.1	Sri Konda Venkatesham, Ex-Sarpanch, R/o Penchikalpet, Kamanpur (M), Peddapalli District	He stated that the industry should provide following facilities.				
		· Utilization of CSR funds	NTPC will take development works in consultation with local authorities based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.	Representations will take through DM and further activities will planned in phase wise manner.		
		· Laying of link road from Penchikalpet to Repallewada and CC roads drainages.			2030	200
		· Solar Lighting			2027	40
		· Open gym walking track			2027	35
		· Community Health centre should be provided.			2030	75
		· Self-employment should be provided to the			On going	5

		women				
		· Errakunta,Laxmipur lake way Road & lake restoration			2030	200
		· Playing ground walking track should be provided			2028	50
		· To provide job opportunities for local unemployed youth.				
		· Avenue Plantation & distribution of fruit plants for local people.	Plantation details as mentioned above in reply at sl. no. 1.1.			
47.1	Sri Potharaju Anjalah	He stated that Many people (about 60% of local affected village people) have been suffering with number of diseases such as cancer & lungs diseases due to air pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. Health study details as mentioned above in reply at sl. no. 4.3			
47.2		He demanded the NTPC management to provide following facilities.				
47.3		· Cancer Hospital should be established with	Details of Medical facilities and Health Camps are as mentioned in			

		all facilities.	reply given at Sl no:1.2 above.			
47.4		· Dialysis centre should be provided.				
47.5		· Pollution control measures should be taken by NTPC with advanced technology to achieve zero pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
48.1	Sri Bandari Prasad, Resident of Elakalapalli Village, Ramagundam	He stated that, they are the residents of Elkalapalli village affected by NTPC Power Project. Earlier, as part of the establishment of NTPC power plant, they have lost their agricultural lands in Elkalapalli village. At that time NTPC management promised to solve all the problems in their village and develop their village, but the NTPC has not taken care of their village.	NTPC will take development works in consultation with local authorities based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.			
48.2		They reported that following problems are arising in their village due				

		to the NTPC power plant:				
48.3		Unemployed youth have no jobs and employment opportunities.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
48.4		Increase in air pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
49.1		Cancer diseases and respiratory problems.	Health study details as mentioned above in reply at sl. no. 4.3 Details of Medical facilities and Health Camps are as mentioned in reply given at Sl no:1.2 above.			
49.2		Toddy tappers lost their employment.	NTPC Ramagundam has acquired land in Poratpalli Village since 1980 and same land is mutated on the name of NTPC. Further, Based on the verification of Excise department and District Collector Peddapalli on the humanity grounds, NTPC had paid payment to toddy tappers for removal of toddy trees.			

49.3		Accumulation of ash on crop fields and decrease in yield.	A scientific study for assessment of impact on vegetation within 10 km radius of the Telangana STPP was conducted through Tropical Forest Research Institute – Jabalpur. Study report was submitted to MOEF&CC Integrated Regional Office-Hyderabad on 29.11.2021. As per the report findings "any detrimental impact on the quality of food grain grown using the decanted water from ash pond area is not evident".			
49.4		Ground water depletion.	The water source for NTPC Power Stations is the Sreepada Yellampalli Barrage. Since NTPC does not extract groundwater for plant operations, there will be no impact on hydrology or groundwater resources due to the proposed Telangana Phase-II.			
49.5		At the beginning of NTPC, their land was taken for water pond, but now the pond has been filled with ash.	The location of the ash pond was selected after a detailed techno-feasible examination of all available options. A protection bund has been constructed between the ash pond and the reservoir area.			

			To prevent the impact on groundwater quality, an impervious liner consisting of a layer of sand cushion, HDPE, geotextile, and finally overlain by PCC (Plain Cement Concrete) has been provided in the ash pond to prevent leaching. Groundwater quality monitoring is being conducted through an NABET-accredited lab on a regular basis. Green belt has been developed between the ash pond and the reservoir. Dust control measures are being implemented as per Answer 2.3.			
49.6		They requested the NTPC management to solve the above mentioned problems as well as the following major problems at the earliest.				
49.7		Job and employment opportunities should be	As per R&R policy, priority will be given project affected people			

		provided to the unemployed youth.	subject to availability of opportunity, suitability and eligibility of candidates.			
49.8		Help the Toddy tappers who have lost their Toddy trees and give them due justice.	NTPC has taken action in coordination with DM and Excise department and the issue has been resolved.			
49.9		Reduce environmental Pollution.	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1.			
49.10		Employment opportunities should be provided to land losers under special quota.	As per R&R policy, priority will be given project affected people subject to availability of opportunity, suitability and eligibility of candidates.			
49.11		Farmers should be provided with necessary agricultural equipment.	NTPC will take development works in consultation with local authorities based on need Assessment. The proposal may be forwarded through District Collector, Peddapally.	Representations will take through DM and further activities will planned in phase wise manner.	2028	30
49.12		Sufficient space should be allocated for setting up the permanent I.K.P. centre for their village.			Already address in previous points	
49.13		Primary health center				

		should be established.			
49.14		A veterinary hospital should be established.			
49.15		Community hall should be established.			
49.16		Sports equipment should be provided to the youth.			
49.17		Bicycles should be provided to the students.			
49.18		Self-employment should be provided to the women.			
49.19		A permanent CC road should be constructed along the wall built by the for the farmers.			
49.20		Internal roads should be constructed in the village.			
49.21		Chinthala water tank should be dredged / de-silted, and street lights should be installed on the tank embankment and a CC road should be constructed.			

49.22		Street lights should be provided from Elkalapalli gate into the village.	Already provided Solar street lights to the Elkalapally village.			
49.23		Free electricity should be provided.	There is no provision in policy.			
49.24		Every house should be provided with drinking water facility	Already address in previous points			
50.1	Dahegam Uma Maheshwar & P. Ranjith Kumar, Peddapalli & Mancherial District Paryavarana Parirakshana Vedika.	He submitted a detailed representation in the shape of a pamphlet to the District Collector, Peddapalli. He alleged that the NTPC made several promises when 1600 MW Power Project was proposed, but they forgot everything, even ignored the court orders. He stated that the case moved to Supreme Court which could be surfed on Google Search Engine by typing 'Umamaheshwar, NGT' Case No.46/2016. He stated that the installed capacity at Ramagundam was 4200 MW and one more power	Pollution control measures adopted at Telangana Phase –I and envisaged for Phase-II are as mentioned above in reply at sl. No. 3.1.			

		station with 1200 MW was located at a distance of 13 Km from this place. He stated that the cement unit located at a distance of 9 Km was using around 1.9 crore tons of coal. He stated that the cumulative coal burning capacity would be about 4.0 crore tones per annum.				
50.2		He preferred to withdraw from here, if ordered. He expected the Chair as well as audience to pay attention to his views. He stated the employment potential of the proposed expansion of 2400 MW (3 X 800 MW) was indicated as 96, this means that one job will be generated for every 25 megawatts. which worked to 4 members to 100 MW and 1 member to 25 MW. It was indicated in the report that the cost of generation of 25 MW was Rs.320 crores. There would	Wages are being paid as per Government Norms.			

		be employment to the contract labour of 216, who were paid paltry sum. He felt that they could be paid Rs.15,000/- freely for surviving in polluted environment by inhaling dust and obnoxious air. He stated that there were 4000 labours working in NTPC and they incurred expenditure of Rs.60 crores on payment of wages to them. He stated that the officers who were in the cadre of E6 to E11 they get each Rs.1.0 crore per year. He stated that the officers were brilliants and well versed with Thermo-mechanical properties.He pointed out that that there would be no generation of ash, but they were actually selling the ash worth of Rs.1,000 crores. M/s. NTPC Ltd demanded money for the supply of bottom ash as M/s. SCC Ltd refused to make payment for bottom				

		ash.				
50.3		He stated that Air Sampler was available and people could own it to test the quality of Air. He reiterated his previous remark against the display of various parameters related to Air Quality on NTPC dashboard was incorrect. He found fault with the Air Quality sampling procedure as they collect the samples in opposite directions of wind rose. He concluded his exhaustive opinion, views, suggestions and objections with a request to the Chair not to permit the expansion of Phase-II project or else rehabilitate and resettle all the 10 lakh residents from the impact area.	The Online Continuous Ambient Air Quality Monitoring Stations have been installed at the locations, finalized in consultation with Telangana Pollution Control Board. The online ambient air quality monitoring data is being displayed on digital display board at Telangana Plant gate. The data is linked up with TGPCB. In addition to the online monitoring offline ambient air quality monitoring is being done at different locations through NABL accredited lab.			
51.1	Sri Bheemsen Godisela, President, Godavari	He stated that, no doubt, industrialization is the source of economic growth. At the same time, the	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no.			

	Pradushana Pariharana Paryavarana Parirakshana Gavakshamau, Room No.9, Singareni Kodanda Ramalaya Shopping Complex, Opp:Singareni RG Area Hospital, Godavarikhani.	human beings, living beings, environment around will get affected, accordingly. Certain remedial activities and adoption of colonies are required to be taken up by the management. He suggested the industry to take up specific remedial activities and adoption of colonies.	3.1.			
51.2		He stated that,most of the data and details presented in the Executive Summary pertaining to the expansion of TSTPP are far away from truth. He reported that the Coal Yard of the Plant is within the compound wall, however it is located just other side of the residential houses, and it will cause heat radiation, will spread the coal dust on the houses and on all the domestic utilities and that leads to lungs infection not only to the residents, as well as all	EIA study has been done by NABET accredited consultant in line with the Terms of References stipulated by MoEF & CC.			

		other living beings. The continuous sound from the Machinery, Vehicles, Merry Go Round Railway System is not at all bearable, also abnormally affecting on all the organs.				
51.3		He stated that, a like Eelctro Static Precipitator for Ash disposal, De-Sulpher Unit is to be made part of the Project. Further, Green Belt under Social Forestry is to be enhanced, Awareness Programmes on Health, Pollution and Environment Protection and also on consuming water are to be imparted in specific for the public and Coaching Camps for Competitive Examinations are to be improved with local NGOs involvement under CSR Programmes. Further, more the affected residential colonies are to be adopted for needful amenities including	Pollution control measures adopted at Telangana Phase -I and envisaged for Phase-II are as mentioned above in reply at sl. no. 3.1. HR/CSR point already addressed			

		employment to locale within the norms assured. Failing which it will be constrained to approach National Green Tribunal at any point of time during the life time of this TSTPP with 3 x 800 MW TGSTPP.				
51.4		Finally he stated that, he is opined to support to this expansion of Phase-II of TSTPP for National Empowerment.				

Note: As per MOEF&CC notification dated 11/07/2025 installation of FGD is not mandatory for the projects falling in the area of Category C. Hence installation of FGD is not envisaged in the proposed project.

Table 7.3: Action Plan for issues raised during the Public Hearing with Budget for Telangana STPP Phase-II(3x800MW)

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
A	**Educational Initiatives**							
1	**Rehabilitation of mentally handicapped children of**	0.10	0. 10	0.15	0.15	-	**0.50**	Financial support to Manochaithanya for

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
	Manochaithanya.							rehabilitation of mentally handicapped children and Tie-up for utilization of products made by Manochaithanya as per the proposal.
2	**Support rural primary education for weaker sections.**	0.40	0.20	0.20	0.20	0.20	**1.20**	Distribution of water coolers, Smart classrooms systems, Books, cycles to schools of Anthergaon area, Rompikunta, Jangaon, manthani areas.
3	School facility in Elkalapalli	-	-	0.20	0.80	-	**1.00**	Additional 4 rooms in existing school building in Elkalapalli.
	Sub Total	**0.50**	**0.30**	**0.55**	**1.15**	**0.20**	**2.70**	
B	**Community Health Initiatives**							
4	**Aids for Primary health centre & Veterinary hospital in Elakalapalli and other area**	0.30	0.30	0.30	0.30	0.30	**1.50**	Health equipment's will be provided to Govt. PHC & Govt. veterinary hospital as per requirement near project vicinity.

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
5	**Medical Facilities**	1.00	1.00	1.00	1.00	1.00	**5.00**	Medical camps will be conducted through Mobile Medical Unit with two doctors (including 01 lady doctor) for general health check-up, ANC & PNC check-up etc in all the project affected villages. Free Medicines distribution during Medical camps. Other than this, oral cancer detection camp, dental camp will be conducted for children and others.
	Sub Total	**1.30**	**1.30**	**1.30**	**1.30**	**1.30**	**6.50**	
C	**Sustainable Livelihood and Women Empowerment**							
6	**Women welfare and other development activities.**	0.50	0.50	0.50	0.50	0.50	**2.50**	Development of infrastructure & training of local women for dairy farms, poultry, agriculture, food processing, plastic moulding

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
		0.50	0.50	0.50	0.50	0.50	**2.50**	Vocational training to local women for skill development
	Sub Total	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**5.00**	
D	**Community Rural Infrastructure Development**							
7	**Road works in Malkapur village.**	-	0.50	0.50	0.50	1.00	**2.50**	CC road laying 3 Kms approx.
8	**Infrastructure facilities at Ramagundam.**	4.00	4.00	5.00	5.00	2.00	**20.00**	Medipalli Crossroad to Medipalli village:CC/BT Road from Greenery, Central lighting & Dividers Internal CC roads, storm water drains & Underground drains in Annapurna colony, Auto nagar, Shalapally, poratpalli, CP office, Malkapur, nallah channelisation works in medipally area. Desilting at Ramagundam Cheruvu & Park development in Malkapur area.

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
9	**Laying of CC Roads (2 Kms approx) in Penchikalpet.**	0.50	0.50	-	-	-	**1.00**	CC road will be constructed in Penchikalpet village as per proposal.
10	**CC Road laying Road along with Side drain works from Penchikalpet to Repallewada.**	0.50	1.00	0.50	-	-	**2.00**	CC road will be constructed in Penchikalpet to Repallewada village as per proposal.
11	**Laying of CC Road Errakunta at Laxmipur lake way Road.**	0.50	1.00	0.50	-	-	**2.00**	CC road will be constructed in Errakunta at Laxmipur village as per proposal.
	Sub Total	**5.50**	**7.00**	**6.50**	**5.50**	**3.00**	**27.50**	
E	**Development of Playgrounds for Sports**							
12	**Conducting Rural sports Programs in every year in all PAV's.**	0.20	0.20	0.20	0.20	0.20	**1.00**	Rural sports will be conducted for school children of govt school in the nearby area and promoting local sport with sponsorship.
	Sub Total	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**1.00**	

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
F	**Development of local youth & women for various activities at village level**							
13	**Distribution of agriculture implements in Elkalapalli and others.**	0.20	0.20	0.20	0.20	0.20	**1.00**	Distribution of agricultural implements & seeds. Training will be provided for using new technologies such as solar pump in agriculture and providing equipment.
14	**Avenue plantation in Penchikalpet.**	0.20	-	-	-	-	**0.20**	Raising of Avenue plantation through self-help groups. Distribution of fruit yielding saplings.
15	**Skill development programs in Elkalapalli.**	0.30	0.30	0.30	-	-	**0.90**	Training programs for professional services, competitive exams, physical fitness for police recruitment, plastic moulds, Tailoring etc for local youth in Elkalapalli.
	Sub Total	**0.70**	**0.50**	**0.50**	**0.20**	**0.20**	**2.10**	
G	**Providing water facilities to PAV's**							

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
16	**Drinking Water supply arrangement in Kundanpalli village.**	0.50	0.25	0.25	-	-	**1.00**	Pump house readiness, Pipeline laying till OH tank, Distribution lines connection.
17	**Drinking Water supply arrangement in Moghalpad village.**	0.30	0.70	-	-	-	**1.00**	Extension of lines from pump house till Moghalpahad Distribution lines connection.
18	**RO Drinking Water plants at various villages.**	0.25	0.50	0.50	0.25	-	**1.50**	New RO plant in Palakurthy, anthergaon and uplifting of existing 33 nos. RO plants at other villages.
19	**Providing New RO plant at Mathangi colony.**	0.20	0.10	-	-	-	**0.30**	RO plant will be provided to Mathangi Colony.
20	**Desilting/Dredging of Chinthala water tank.**	0.10	0.10	0.10	-	-	**0.30**	Desilting/ Dredging of Chinthala water tank.
	Sub Total	**1.35**	**1.65**	**0.85**	**0.25**	**-**	**4.10**	
H	**Sanitation**							
21	**Drainage system development in Mathangi**	0.50	-	-	-	-	**0.50**	Drainage system development in Mathangi Colony.

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
	Colony.							
	Sub Total	0.50					0.50	
	Total (A+B+C+D+E+F+G+H)	11.05	11.95	10.90	9.60	5.90	49.4	

7.2 RISK ASSESSMENT

7.2.1 Introduction

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions) that exist in the power plant. On the other hand, risk analysis deals with the assessment and computation of risks to the equipment in the plant and personnel due to accidents resulting from the hazards present in the plant. Risk analysis follows an extensive hazard analysis. It involves the identification and assessment of risks the neighboring populations are exposed to as a result of hazards present. This requires a thorough knowledge of failure probability, credible accident scenario, vulnerability of population etc. Much of this information is difficult to get or generate. Consequently, the risk analysis is often confined to maximum credible accident studies.

In the following sections, the identification of various hazards, probable risks in the power plant, maximum credible accident analysis, consequence analysis are addressed which gives a broad identification of risks involved in the plant. The Disaster Management Plan (DMP) has already been in practice based on the risk estimation done in the previous EIA Report for the present level.

7.2.2 Approach to the study

Risk involves the occurrence or potential occurrence of some accidents consisting of an event or sequence of events. The risk assessment study covers the following:

- Identification of potential hazard areas
- Identification of representative failure cases
- Visualization of the resulting scenarios in terms of fire (thermal radiation) and explosion
- Assess the overall damage potential of the identified hazardous events and the impact zones from the accidental scenarios
- Assess the overall suitability of the site from hazard minimization and disaster mitigation point of view
- Furnish specific recommendations on the minimization of the worst accident possibilities
- Advisory suggestions on the current Disaster Management Plan (DMP), On-site and Off-site Emergency Plan, which includes Occupational Health and Safety Plan.

7.2.3 Consequence analysis

Consequence analysis involves the application of the mathematical, analytical and computer models (PHAST software) for calculation of the effects and damages subsequent to a hydrocarbon/toxic release accident.

PHAST Software is used to predict the physical behavior of hazardous incidents. The model uses below mentioned techniques to assess the consequences of identified scenarios:

- Modeling of discharge rates when holes develop in process equipment/pipe work
- Modeling of the size & shape of the flammable gas (vapors) clouds from releases in the atmosphere
- Modeling of the flame and radiation field of the releases that are ignited and burn as jet fire, and flash fire.
- Modeling of the explosion/ toxic fields of releases which are ignited away from the point of release

Table: 7.4 Consequence Analysis Results for Worst case scenarios

S. No.	Scenarios considered (Catastrophic Rupture)		Storage capacity	Type of storage	Consequence Analysis
					Flash Fire (12.5 kW/m²)
1.	Hydrogen Storage		7 Nm^3 of each cylinder	Cylinders (510 nos.)	32.823 m
2.	LDO Storage		3000 m^3 of each tank	Tanks (2 nos.)	191.698 m
Distance to Concentration Results for Hazardous Chemical Material					
	Chemical	**LFL Concentration (ppm)**	**Storage capacity**	**Type of storage**	**Distance(m)**
1.	Ammonia	160000	Measuring Tank: 125 m^3 Mixing Tank: 2300 m^3	No. of Tanks 3 + 3	4.69293
2.	HCl	Not Applicable	2x20 m^3 for ClO_2 dosing 3x50 m^3 for DM plant 2x 180 m^3 for CPU regeneration Atmospheric tank	7	-

7.2.4 Coal handling plant: dust explosion

Coal dust when dispersed in air and ignited would explode. Crusher house and conveyor systems are most susceptible to this hazard. To be explosive, the dust mixture should have:

- Particles dispersed in the air with minimum size (typical figure is 400 microns);
- Dust concentrations must be reasonably uniform; and
- Minimum explosive concentration for coal dust (33% volatiles) is 50 gm/m^3.

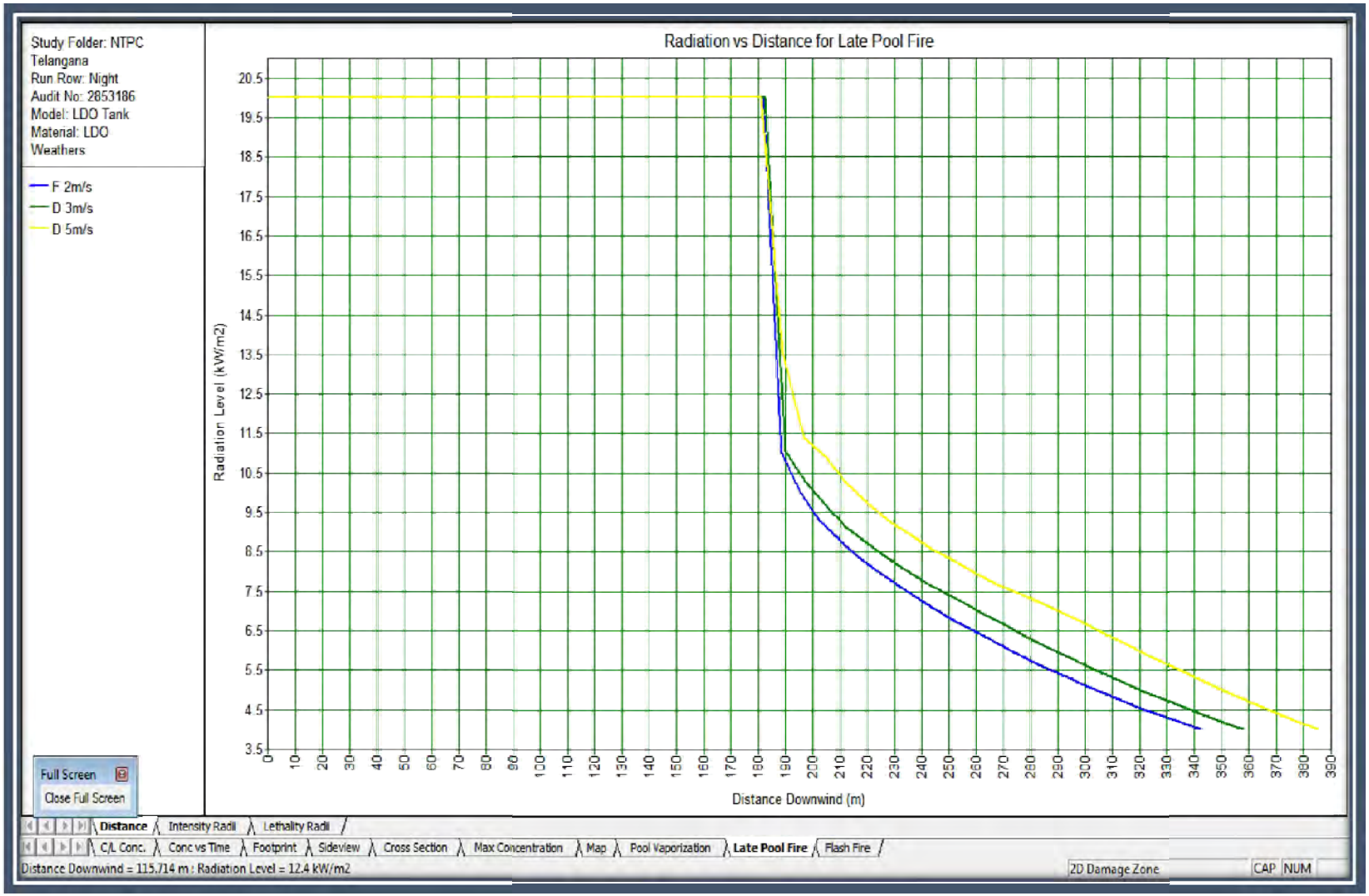


Figure 7.5: Graph showing Distance of pool fire for LDO Storage Tank

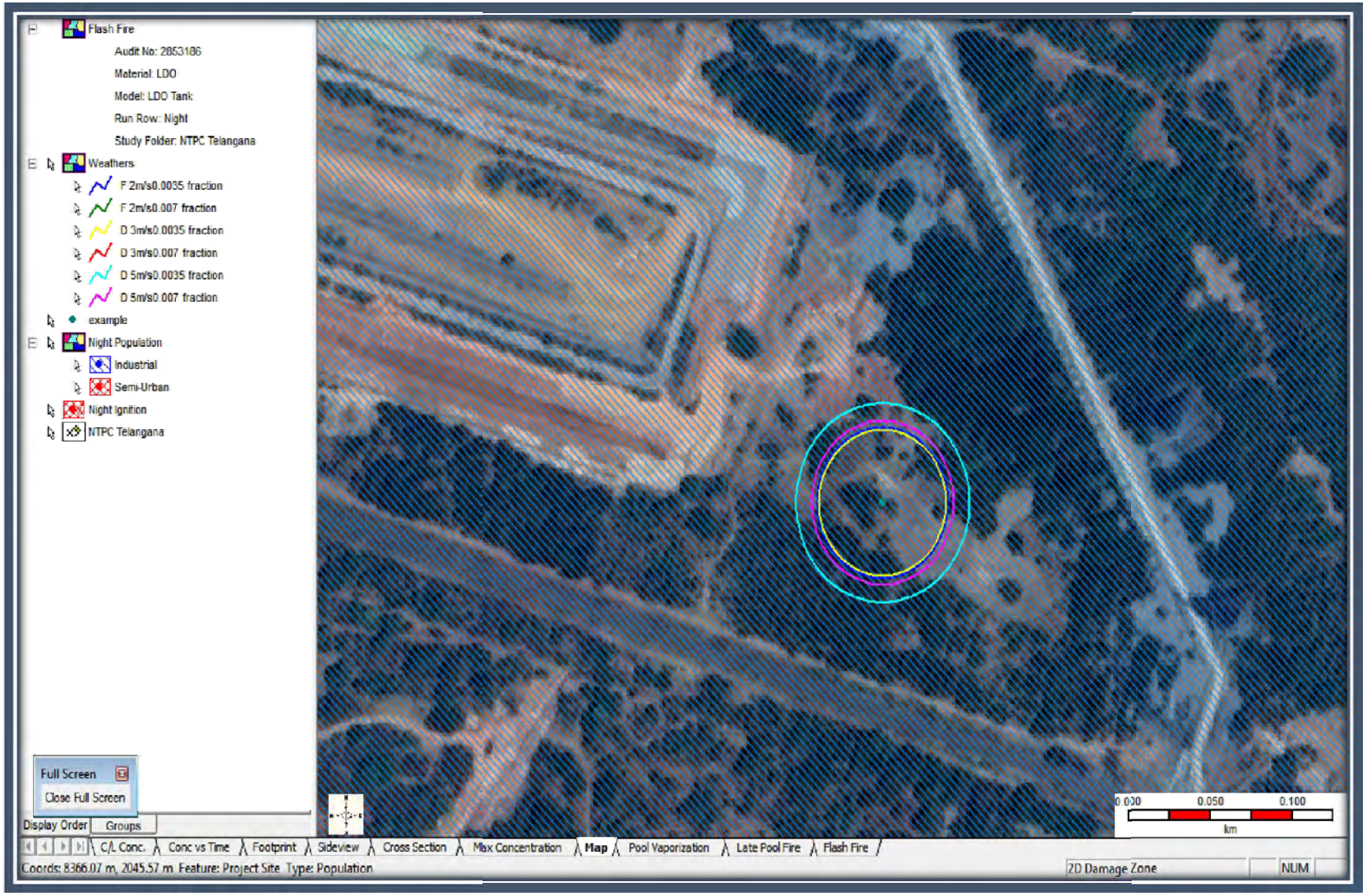


Figure 7.6: Map showing intensity radii of Flash fire for LDO Storage Tank

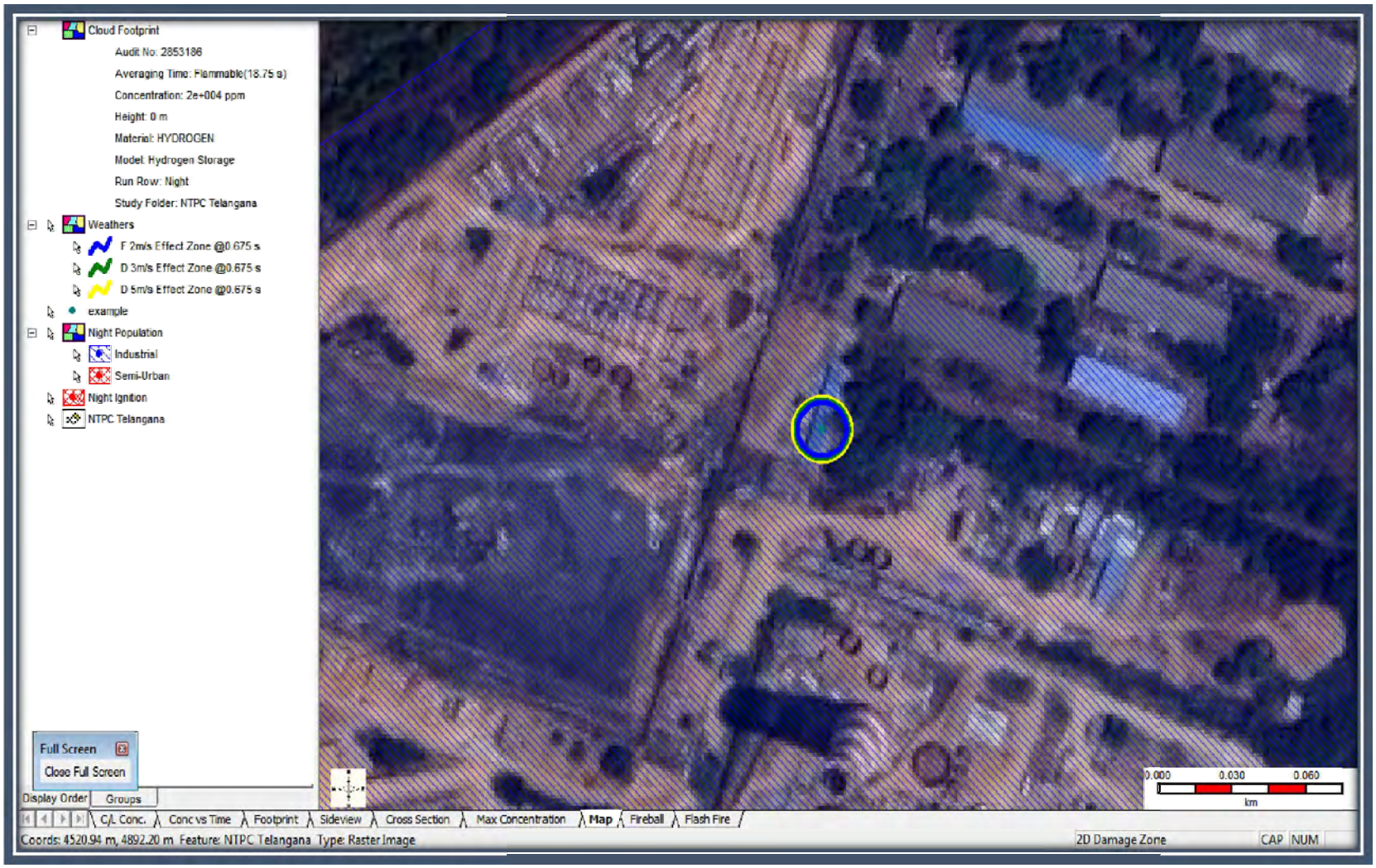


Figure7.7: Map showing intensity radii of Cloud footprint for Hydrogen Storage



Figure 7.8: Map showing intensity radii of Flash fire for Hydrogen Storage

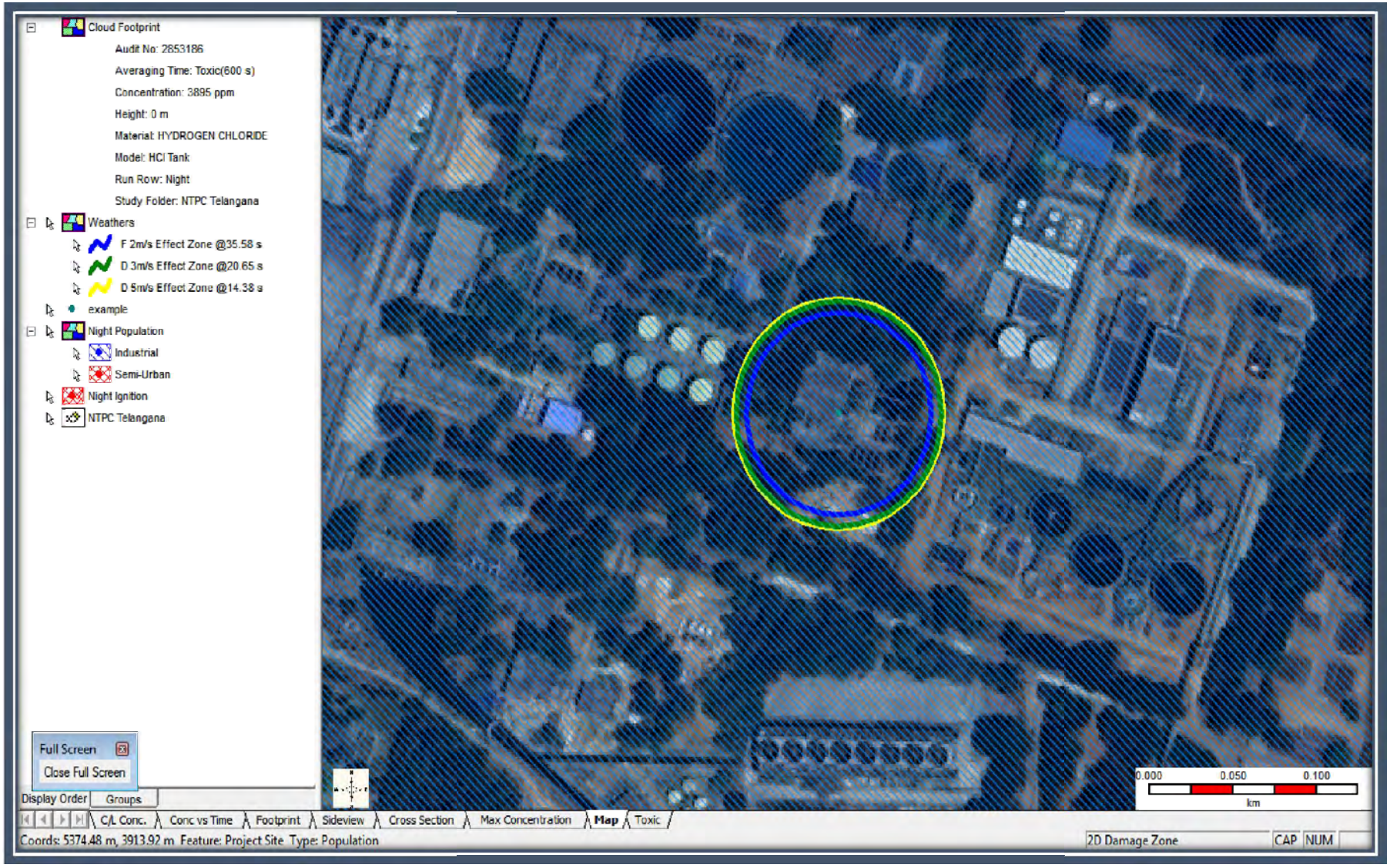


Figure7.9: Map showing intensity radii of Cloud footprint for HCl Tank

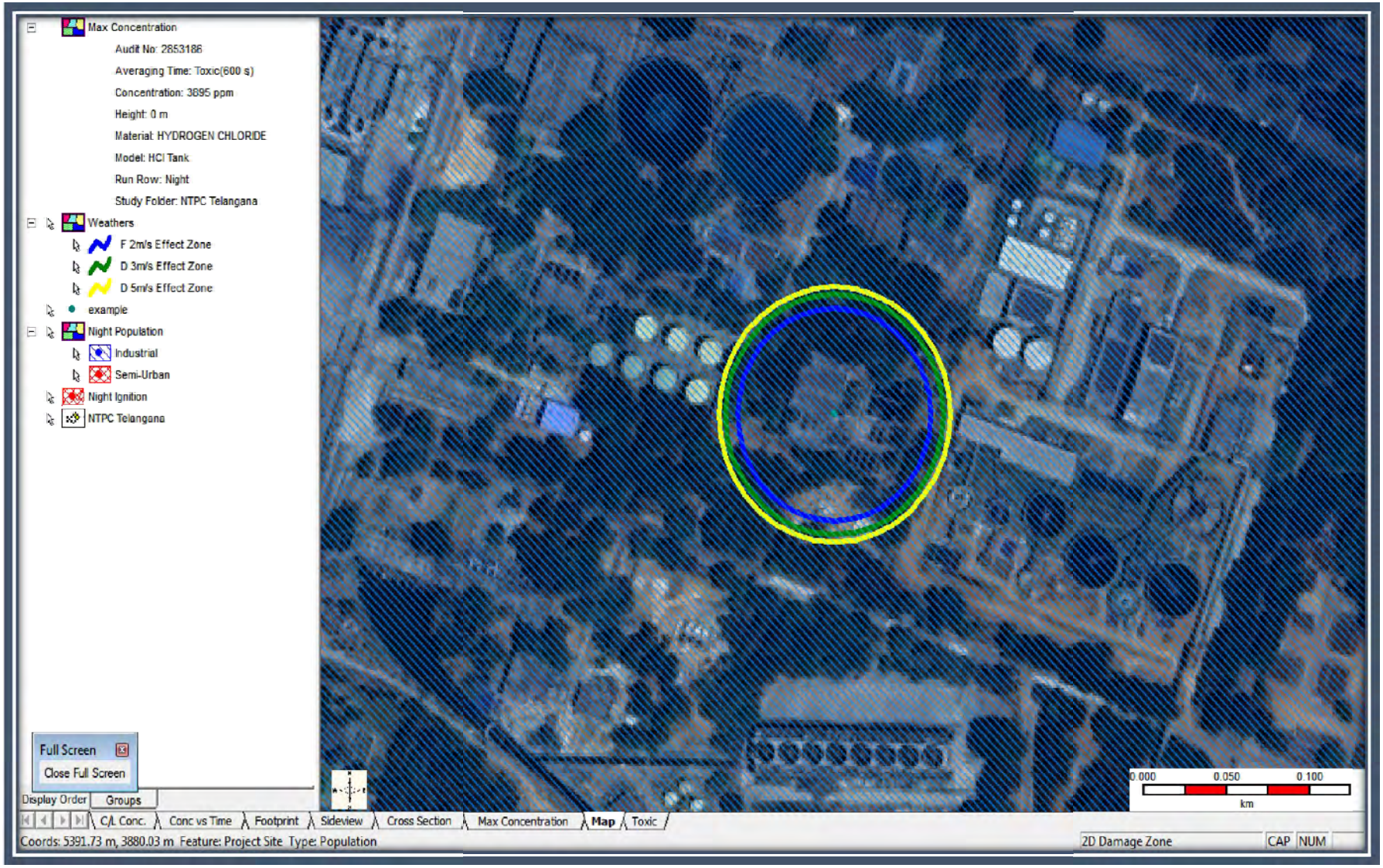


Figure 7.10: Map showing intensity radii of Maximum Concentration for HCl Tank



Figure 7.11: Map showing intensity radii of Maximum Concentration for Ammonia Tank

7.2.5 Risk Criteria

Individual risks are the key measure of risk acceptability for this type of study.

Risks to the public can be considered to be broadly acceptable (or negligible) if below 10^{-6} per year (one in 1 million per year). Although risks of up to 10^{-4} per year (1 in 10,000 per year) may be considered acceptable *if* shown to be As Low As Reasonably Practicable (ALARP), it is recommended that 10^{-5} per year (1 in 100,000 per year) is adopted for this study as the maximum tolerable criterion.

Risks to workers can be considered to be broadly acceptable (or negligible) if below 10^{-5} per year and where risks of up to 10^{-3} per year (1 in 1000 per year) may be considered acceptable if ALARP.

After assessment of the risk, it is found that risk to worker and public from the site is in the ALARP region i.e., 10^{-6} per year (one in 1 million per year) which is broadly acceptable or negligible.

The overall worst-case scenario for Telangana Super Thermal Power Project, Phase-II (3x800 MW) is shown below:

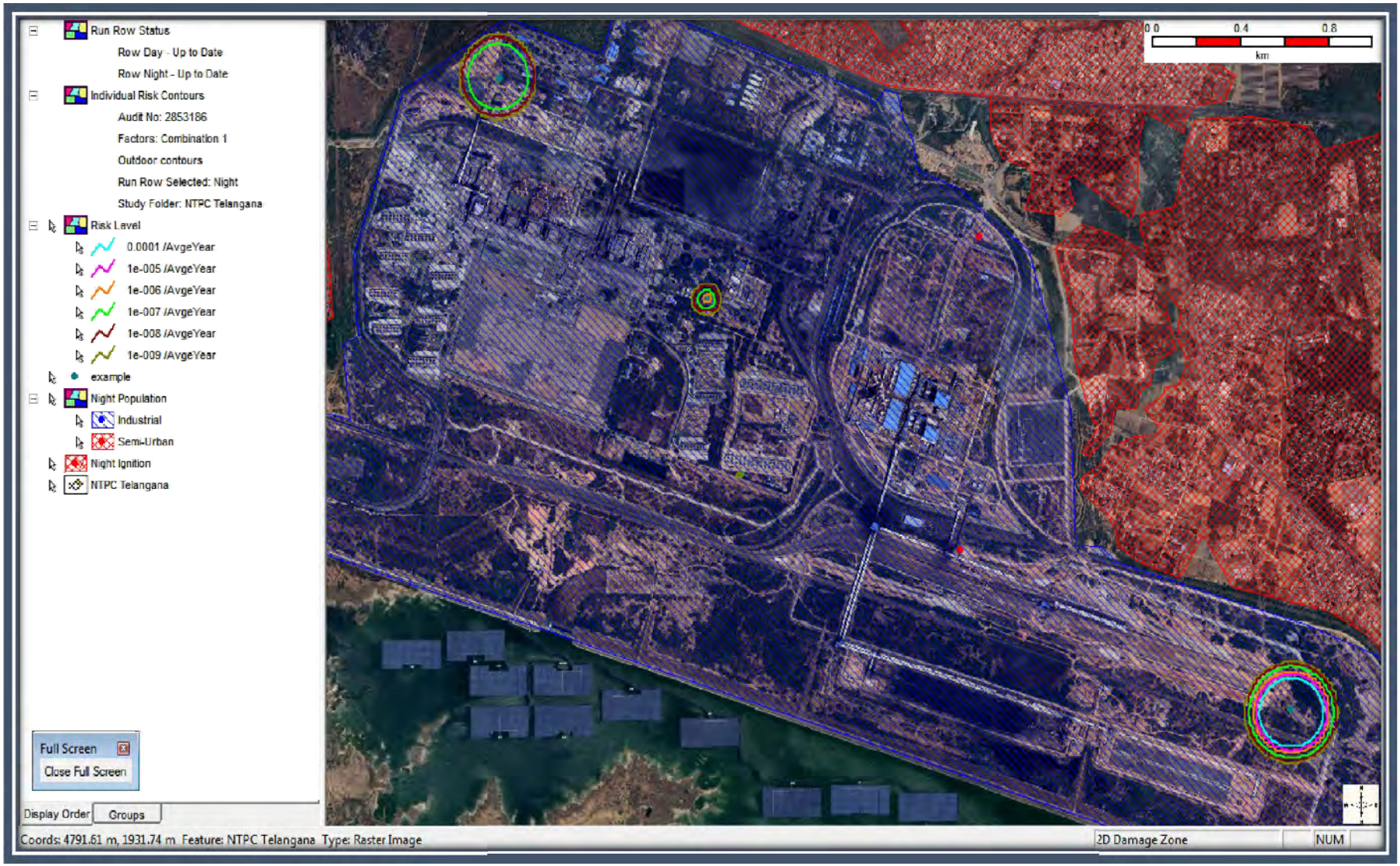


Figure 7.12: Overall worst-case scenario for Telangana Super Thermal Power Project, Phase-II (3x800 MW)

Location Specific Individual Risk (LSIR)

The Location specific individual risk (LSIR) is risk to a person who is standing at that point 365 days a year and 24 hours a day. The maximum LSIR in the units is given below-

Table 7.5: Maximum Location Specific Individual Risk

S. No.	Unit	Maximum LSIR
1.	Telangana Super Thermal Power Project, Phase-II (3x800 MW)	6.28E-04 Avg/ Year

7.2.6 Individual Risk to Worker (ISIR)/ Individual Risk per Annum (IRPA)

The personnel in Plants are expected to work 8-hour shift as well as general shift. The actual risk to a person i.e., "Individual Specific Individual Risk (ISIR)" would be far less after accounting for the time fraction a person is expected to spend at a location.

$ISIR_{Area} = LSIR \times (8/24)_{(8\ hours\ shift)} \times (Time\ spent\ by\ and\ individual/8\ hours)$

The maximum ISIR in the unit is listed in table below:

Table 7.6: Maximum Individual Risk per Annum (IRPA)

S. No.	Unit	Maximum ISIR	Risk Category
	Telangana Super Thermal Power Project, Phase-II (3x800 MW)	2.09E-04 Avg/ Year	ALARP Region

ALARP summary & comparison of Individual risk with acceptability criteria

The objective of this RA study is to assess the risk levels at Telangana Super Thermal Power Project, Phase-II (3X800 MW) with reference to the defined risk acceptability criteria and recommend measures to reduce the risk level to **A**s **L**ow **A**s**R**easonably **P**racticable (ALARP). The comparison of maximum individual risk with the risk acceptability criteria is shown below:

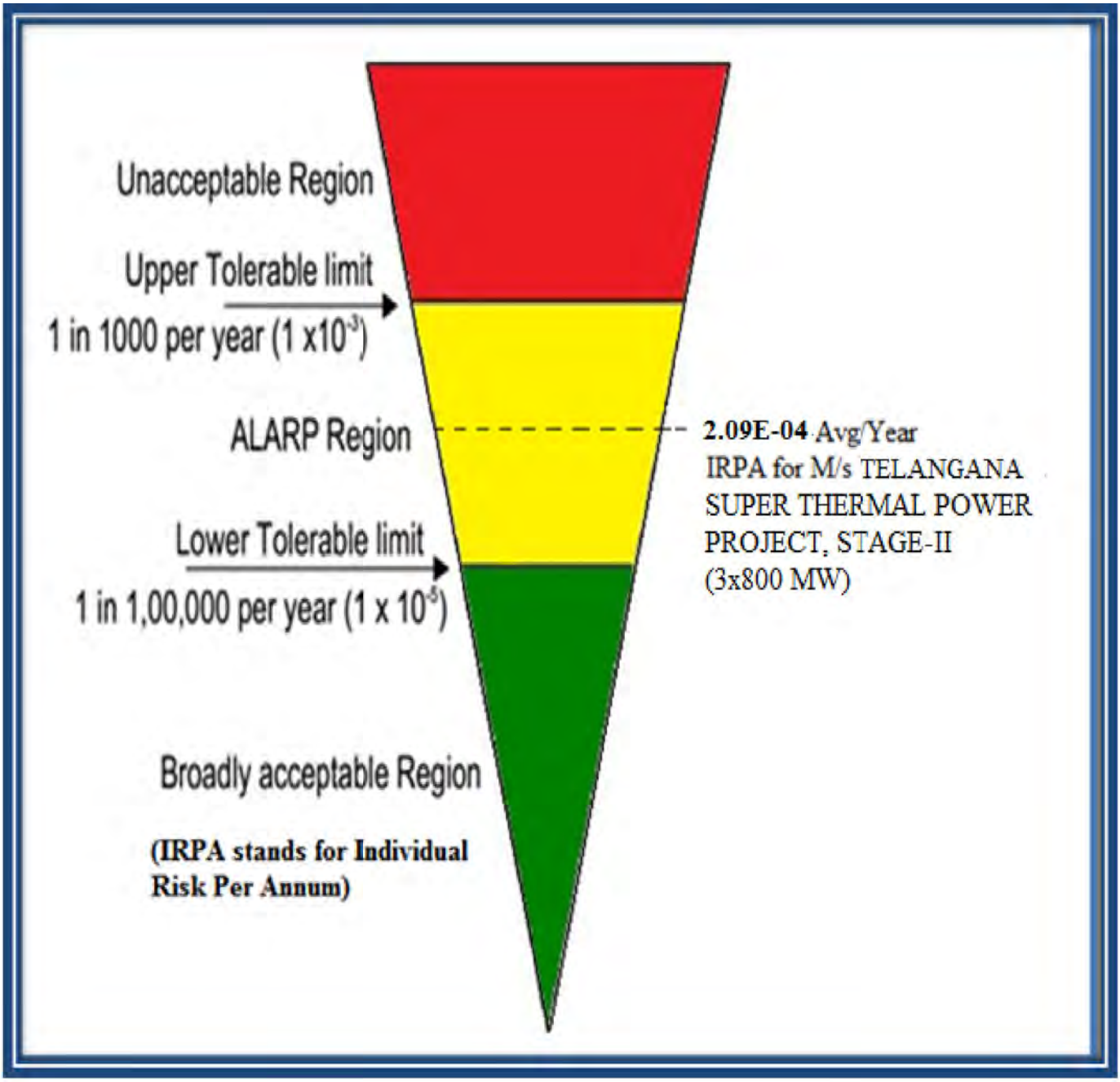


Figure 7.13: Individual Risk per Annum (IRPA) for Telangana Super Thermal Power Project, Phase-II (3x800 MW)

7.2.7 Societal Risk

Assessment of societal risks is even more important than assessment of individual risk because they involve the likelihood of multiple fatalities. Societal risk is the risk to any person or group of persons who are not connected to project facilities and are outside the facility fence line.

Table 7.7: Societal Risk

S. No.	Unit	Maximum Societal Risk
	Telangana Super Thermal Power Project, Phase-II (3x800 MW)	6.28E-04Avg/ Year

F-N CURVE:

It is helpful to consider group risk in the demonstration that risks are Broadly Acceptable Region. This allows consideration to be given to events, which, although low in frequency, may cause multiple injuries or fatalities. Group risk can be presented in the form of a plot of cumulative frequency versus number of fatalities (F-N curve).

F = Frequency (experienced or predicted)

N = No. of multiple fatalities

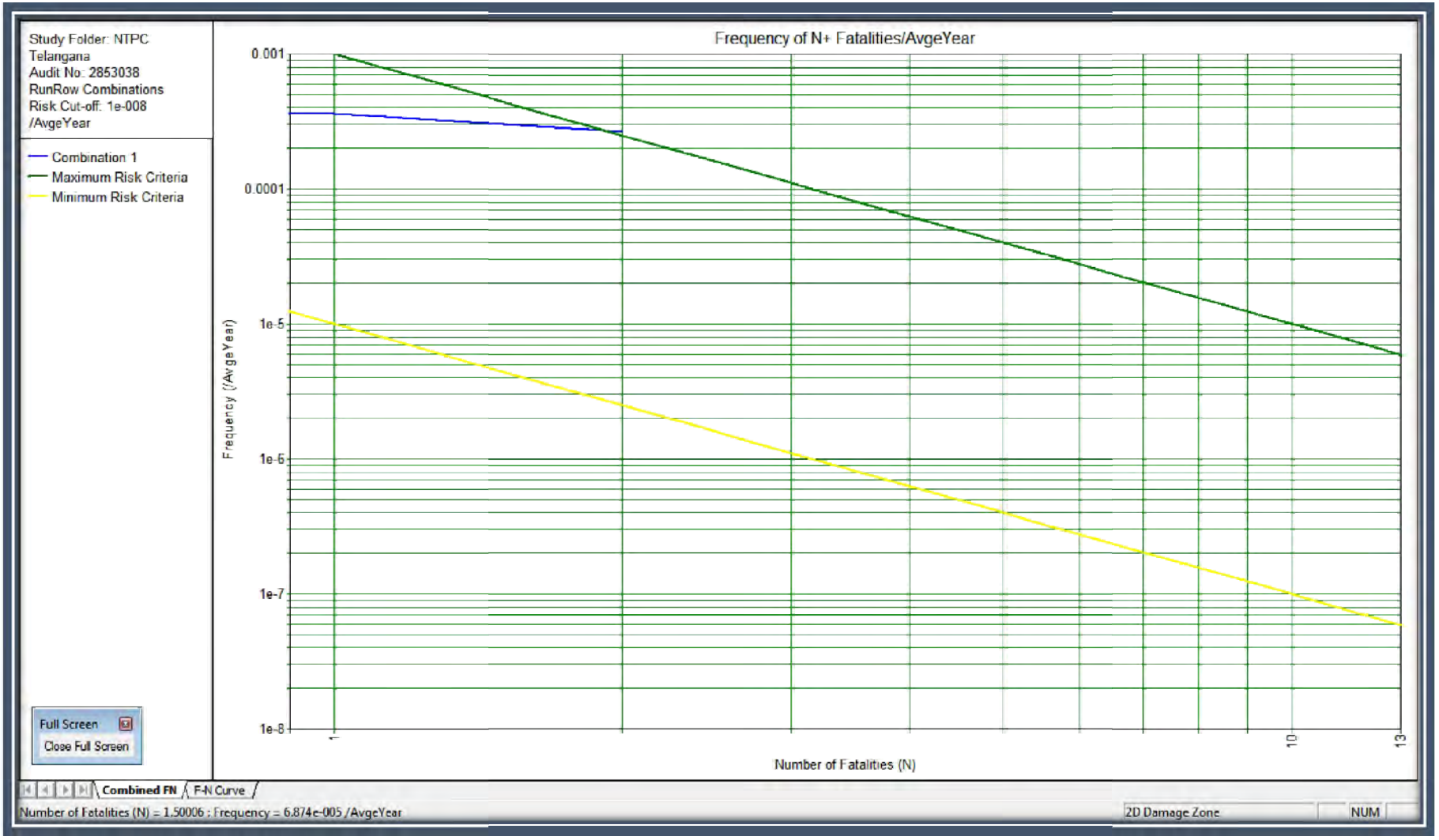


Figure 7.14: Graph showing F-N curve for Telangana Super Thermal Power Project, Phase-II (3x800 MW)

From the above figure, it is observed that the calculated F-N curve for project site falls within the ALARP region.

7.2.8 General Recommendations

The recommendations based on the Quantitative risk analysis study of the identified representative failure scenarios are summarized below:

1. Ensure that the facilities should have necessary fire and gas detection system in the Plant as per applicable guidelines. Operators should be well trained about the detection system.
2. The Plant would be having necessary provision for emergency stop of critical equipment from control room in the event of any incident.
3. Routine checks should be carried to ensure proper working of firefighting equipment.
4. Clearly defined escape and evacuation routes along with proper sign board to guide personnel to escape in case of an emergency.
5. Well defined assembly points in safe locations shall be identified for personnel in case of an emergency.
6. Windsocks visible from all direction would be provided. This will assist people to escape in upwind or cross wind direction from flammable releases.
7. In order to further reduce the probability of failure of pipeline & equipment, critical equipment shall be identified and inspection methodologies to be finalized for continuous monitoring during operation and shutdown maintenance.
8. Mock drills to be well rehearsed to ensure readiness to handle emergency.
9. All the valves and pipeline should be periodically maintained and inspected to prevent the failures.
10. Ensure periodic safety trainings in firefighting, escape, operation of emergency switches etc. should be provided to the officials.
11. Calibration of all instruments to be ensure periodically.
12. The company shall train all employees in Emergency Response, Fire Fighting and First Aid.
13. Proper lighting arrangements and CCTV as per applicable OISD guidelines should be provided at Plant.
14. The adjacent population is to be made aware of the risk associated with the pipeline and the mitigation measures to be taken care of in case of Emergency.

    Failure of dust extraction and suppression systems may lead to abnormal conditions and may increase the concentration of coal dust to the explosive limits. Sources of ignition present are incandescent bulbs with the glasses of bulkhead fittings missing, electric equipment and cables, friction, and spontaneous combustion in accumulated dust. Dust explosions may occur without any warnings with Maximum Explosion Pressure up to 6.4 bar. Another dangerous

characteristic of dust explosions is that it sets off secondary explosions after the occurrence of the initial dust explosion. Many times, the secondary explosions are more damaging than the primary ones. The dust explosions are powerful enough to destroy structures, kill or injure people and set dangerous fires likely to damage a large portion of the Coal Handling Plant, including the collapse of its steel structure which may cripple the lifeline of the power plant.
Stockpile areas shall be provided with automatic garden-type sprinklers for dust suppression as well as to reduce spontaneous ignition of the coal stockpiles. A necessary water distribution network for drinking and service water with pumps, piping, tanks, valves etc. will be provided for distributing water at all transfer points, crusher houses, control rooms etc. A centralized control room with a microprocessor-based control system (PLC) has been envisaged for the operation of the coal handling plant. Except for locally controlled equipment like travelling tripper, dust extraction/ dust suppression/ventilation equipment, sump pumps, water distribution system etc., all other in-line equipment will be controlled from the central control room but will have provision for local control as well. All necessary interlocks, control panels, MCCs, mimic diagrams etc., will be provided for the safe and reliable operation of the coal handling plant.

15. HCl, H_2SO_4 and Alkali (NaOH) are used for water treatment. These acids and alkali are stored in storage vessels at atmospheric conditions. The noteworthy safety features involved are detailed below:

- The vessels for alkali and acid storages are provided with the rubber lining of proper material.
- All the storage vessels have been provided with dike for the containment of spillage from the storage vessels. The dyke and the handling area are provided with acid/ alkali proof brick linings.
- Eye wash and safety showers are available in the vicinity of these storage vessels.
- The workers have been provided with the required type of PPE, Chemical Protective Clothing, Splash Goggles, Boots, safety Shoes, Gloves, etc.
- There is provision of sampling for each lot of acid /alkali before it is unloaded or used in the plant premises. It ensures the safety to equipment and the plant personnel.

7.3 DISASTER MANAGEMENT PLAN IN TELGU LANGUAGE

విపత్తు నిర్వహణ ప్రణాళిక

1.0 ఆన్-సైట్ ఎమర్జెన్సీ ప్లాన్

అనేకకారణాలవల్లఅత్యవసరపరిస్థితులుసంభవించవచ్చుభూకంపం, తుఫాను, వరద వంటి సహజ కారణాల వల్ల ఇది సంభవించవచ్చు. ఇది ఉగ్రవాద కార్యకలాపాల వల్ల సంభవించవచ్చు లేదా ప్రామాణిక పని వ్యవస్థలు లేదా పద్ధతుల పనిచేయకపోవడం వల్ల సంభవించవచ్చు..పరిశ్రమను నిర్వహించడం ప్రమాదకర పదార్థాలను నిర్వహించడంలో, పెద్ద ఎత్తున అత్యవసర పరిస్థితులు తప్పనిసరిగా మండే లేదా విషపూరిత పదార్థాల యొక్క ప్రధాన విడుదల మరియు గణనీయమైన పర్యావరణ ప్రభావాన్ని కలిగి ఉన్న సంఘటనల యొక్క ప్రధాన విడుదల.

ఈ "ఆన్-సైట్ ఎమర్జెన్సీ ప్లాన్" సంఘటనల స్వభావం మరియు స్థాయిని పరిగణనలోకి తీసుకుని, ముఖ్యంగా ఆచరణాత్మక ఆపరేటింగ్ అనుభవంతో సహా అన్ని సంబంధిత సమాచారం ఆధారంగా రూపొందించబడింది.

1.1 "ఆన్-సైట్ ఎమర్జెన్సీ ప్లాన్" లక్ష్యాలు:

ప్రజల భద్రత, పర్యావరణ పరిరక్షణ, సంస్థాపన రక్షణ, ఉత్పత్తి పునరుద్ధరణ మరియు రక్షణ కార్యకలాపాలను ఒకే ప్రాధాన్యత క్రమంలో నిర్ధారించడం ఈ అత్యవసర ప్రణాళిక లక్ష్యం. అత్యవసర ప్రణాళికను సమర్థ వంతంగా అమలు చేయడానికి దీనిని విస్తృతంగా పంపిణీ చేస్తారు మరియు మాక్ డ్రిల్స్. ద్వారా సిబ్బందికి శిక్షణ ఇస్తారు..

క్షీణిస్తున్న పరిస్థితులు లేదా 'నాక్ ఆన్' ప్రభావాల వల్ల ఊహించని సంఘటన యొక్క సంభావ్య పర్యవసాన తీవ్రతలను అత్యవసర ప్రణాళిక ప్రతిబింబించాలి. ఇంకా, పరిణామాల అంచనా, సహాయక ఆధారాల వినియోగం, ప్రస్తుతం అందుబాటులో ఉన్న విశ్వసనీయ సమాచారం మరియు సంఘటన డేటా మరియు అవసరమైతే బయటి కన్సల్టెన్సీల నివేదికల యొక్క ఖచ్చితత్వాన్ని అత్యవసర ప్రణాళిక ప్రదర్శించగలగాలి.

కర్మాగారంలో (పవర్ ప్లాంట్) ఒక పెద్ద అత్యవసర పరిస్థితి (విపత్తు) యొక్క పరిణామాలను పరిష్కరించడానికి ఒక ప్రధాన అత్యవసర ప్రణాళిక రూపొందించబడింది మరియు ఈ పత్రాన్ని "విపత్తు నిర్వహణ ప్రణాళిక" అని పిలుస్తారు.

ప్రధాన అత్యవసర ప్రణాళిక యొక్క లక్ష్యం ఏమిటంటే, ఈ క్రింది వాటిని సాధించడానికి ప్లాంట్ యొక్క వనరులను మరియు బాహ్య సేవలను కలిపి ఉపయోగించడం

1. ఆసుపత్రిలో బాధితులను రక్షించడం మరియు వారికి త్వరగా కోలుకోవడానికి తగిన చికిత్స అందించడం.

2. ఇతరులను సురక్షిత ప్రదేశాలకు తరలించడం ద్వారా వారిని సురక్షితంగా ఉంచండి.

3. ప్రాణాలకు మరియు ఆస్తికి కనీస నష్టం జరగకుండా సంఘటనలను అరికట్టడం మరియు నియంత్రించడం

4. ప్రభావితమైన / చనిపోయినసిబ్బందినిగుర్తి ంచండి

5. మరణించిన/ ప్రభావితమైనవారిబంధువులకుతెలియజేయండి.

6. తదుపరివిచారణకుసాక్ష్యంగాఅవసరమైనసంబంధితరికార్డ్/డేటానుఅందించడం.

7. బాధిత వారికి పునరావాసం కల్పించడం.

2.0 కమ్యూనికేషన్సౌకర్యాలు:

ప్లాంట్లలో పబ్లిక్ అడ్రస్ సిస్టమ్ అందించబడింది. టెలిఫోన్ మరియు ఇంటర్

కమ్యూనికేషన్ సౌకర్యాలు అవసరమైన అన్ని డెస్క్ల వద్ద లేదా అధికారులతో అందుబాటులో ఉన్నాయి.అత్యవసర కమ్యూనికేషన్ కోసం ఈ క్రింది ప్రాంతాలు గుర్తి ంచబడ్డాయి వీటిలో కమ్యూనికేషన్ సౌకర్యాలు అందుబాటులో ఉన్నాయి:

Area/Location	LDBX Nos	BSNL Nos	Mobile No.
Shift charge Engineer (RSTPS)	5700,5710,4700	08728-272106	9494800878
Shift Charge Engineer Telangana Phase–I)	6701/6709/6719	--	8500679889
ECC (Unit-4ControlRoom)	5704,5714	--	9494800878
First Aid (RSTPS)	5562	--	--
First Aid (Telangana Phase–I)	4447	--	--
Fire station (RSTPS)	4222,5222	08728-272100	9493124075
Fire Station (Telangana Phase–I)	6222	--	9491562101
Security Office (Gate-1)	4901	--	--
Security Office (Gate–6)	4906	--	--
Hospital (Emergency wing)	2333/2888/6888	--	--
Safety Centre	4016,4017,4018	08728-272922	9416212630

అగ్నిమాపక నియంత్రణ గదిలో 15W వైర్లెస్ సెట్ మరియు ఫోమ్ టెండర్లో అమర్చబడిన ఒక 25W మొబైల్ VHF సెట్ను కూడా ఏర్పాటు చేశారు. ఉద్యోగులు మరియు వారి కుటుంబాలకు అంతర్గత కమ్యూనికేషన్ కోసం మొత్తం పర్మనెంట్ టౌన్షిప్లో కేబుల్ టీవీ సౌకర్యం అందుబాటులో ఉంది. అన్ని క్లోరినేషన్ ప్లాంట్లలో క్లోరిన్ లీక్ డిటెక్ట ర్లు అందుబాటులో ఉన్నాయి మరియు ఏదైనా క్లోరిన్ లీకేజీ విషయంలో; సంబంధిత క్లోరినేషన్ ప్లాంట్ కంట్రోల్ రూమ్లలో ఆడియో విజువల్ అలారం కనిపిస్తుంది. దీనికి అదనంగా, St-1 DM ప్లాంట్ కంట్రోల్ రూమ్ (ఫేజ్-I క్లోరినేషన్ సిస్టమ్ కోసం) ఫేజ్-II DM ప్లాంట్ మరియు యూనిట్ -7 ప్రధాన ప్లాంట్ కంట్రోల్ రూమ్ (St-2&3 క్లోరినేషన్ సిస్టమ్ల కోసం) లో కూడా అలారం కనిపిస్తుంది.

3.0 అత్యవసరనియంత్రణకేంద్రం (ECC)

షిఫ్ట్ ఛార్జ్ ఇంజనీర్ గదిలో (యూనిట్IV కంట్రోల్ రూమ్) అత్యవసర నియంత్రణ కేంద్రం (ECC) ఏర్పాటు చేయబడింది, ఇది ప్లాంట్ లోపల మరియు వెలుపల కమ్యూనికేషన్లకు తగిన

కమ్యూనికేషన్ సౌకర్యాలను కలిగి ఉంది. అత్యవసర నియంత్రణ కేంద్రంలో సంబంధిత వ్యక్తి గత రక్షణ పరికరాలు అమర్చబడి ఉన్నాయి. అత్యవసర నియంత్రణ కేంద్రంలో క్రింది సౌకర్యాలు అందుబాటులో ఉన్నాయి.

చీఫ్ ఇన్సిడెంట్ కంట్రోలర్ అంటే స్టేషన్ అధిపతి అత్యవసర పరిస్థితుల్లో అత్యవసర నియంత్రణ కేంద్రం నుండి పనిచేస్తారు మరియు సహాయం కోసం పిలువబడే ఇతర సేవలకు కీలక సిబ్బంది మరియు సీనియర్ అధికారులుగా నామినేట్ చేయబడిన అధికారులు. ఇతర సిబ్బందికి నియంత్రణ కేంద్రానికి ప్రవేశం ఉండదు.

అత్యవసర నియంత్రణ కేంద్రంలో ఈ క్రింది సౌకర్యాలు అందుబాటులో ఉన్నాయి

- 4 సంఖ్యలు, ఇంటర్‌కామ్స్. (సంఖ్య: 5700/5710/4700/2700)
- 1 బిఎస్ఎన్ఎల్పోన్యొక్కసంఖ్య. (లేదు: 08728-272106)
- అత్యవసరమాన్యువల్లు.
- సాధారణమొక్కలలేఅవుట్ప్రమాదకరమరియుఅసెంబ్లీపాయింట్లనుసూచిస్తుంది
- జిల్లాఫోన్డైరెక్ట రీ
- పబ్లిక్అడ్రస్సిస్ట మ్ఎమర్జె న్సీలైట్లు
- అత్యవసర లైట్లు

4.0 తరలింపుమరియుఅసెంబ్లీపాయింట్లు

అత్యవసర పరిస్థితిలో, ప్రభావిత ప్రాంతాల నుండి సిబ్బందిని తరలించడం ఖచ్చితంగా అవసరం మరియు ముందు జాగ్రత్త చర్యగా, అత్యవసర పరిస్థితి పెరిగే అవకాశం ఉన్న ప్రాంతాల నుండి మొదటి సందర్భంలో, అనవసరమైన కార్మికులను మరింత ఖాళీ చేయడం అవసరం. ప్రధానఅత్యవసరపరిస్థితినిఅలారంనుపుంజుకోవడంద్వారామొక్కలోపలఉన్నప్రతిఒక్కరికీతెలు స్తుంది. మొబైల్/స్థిర PA సిస్ట మ్ద్వారాఅత్యవసరసందేశంప్రకటించడానికిఏర్పాట్లుచేయండి అగ్నిప్రమాదం మరియు పేలుడు లేదా విష వాయువు లీక్ వంటి వివిధ రకాల ప్రధాన అత్యవసర పరిస్థితులను హెచ్చరించడానికి ప్రత్యేక అలారాలు మోగిస్తారు. అవసరమైన సందేశం అందిన తర్వాత తరలింపు జరుగుతుంది. వారికి తరలింపు మార్గాలు, తరలింపు దిశ, కింది ప్రాంతాలు అసెంబ్లీ పాయింట్లుగా గుర్తి ంచబడ్డాయి మరియు ఉద్యోగులు అత్యవసర ప్రాంతాన్ని బట్టి ఏదైనా అసెంబ్లీ పాయింట్ల వద్ద సమావేశమవుతారు.

01.	**May Day Park (O&M Parking Shed)**	**02.**	**Administrative building**
03.	**Gate–2**	**04.**	**Unit–3 and DM Plant Area**
05.	**CHP Control Room**	**06.**	**Fabrication yard at Unit–7**
07.	**Fire Station**	**08.**	**MGR Workshop**
09.	**Service Building of Telangana Phase–I**	**10.**	**MHP Control Room**
11.	**Suraksha Kendra**	**12.**	**Gypsum Building**

5.0 అత్యవసరఅలారాలు

అత్యవసర సైరన్‌లు ఈ క్రింది ప్రదేశాలలో ఏర్పాటు చేయబడ్డాయి, ఇవి 24 గంటలూ పనిచేస్తాయి
(i) పర్మనెంట్ స్టోర్స్‌లోని సెక్యూరిటీ పోస్ట్ వద్ద కంట్రోల్ స్విచ్‌తో ప్రధాన ప్లాంట్‌లోని పర్మనెంట్ స్టోర్స్ పైకప్పు.

(ii) ఫైర్ స్టేషన్‌లోని టవర్ పైభాగం ఫైర్ స్టేషన్ వద్ద కంట్రోల్ స్విచ్‌తో

నియంత్రణ గది

(iii) తెలంగాణ ఫేజ్ - I లోని TG భవనం పైభాగంలో షిఫ్ట్ వద్ద కంట్రోల్ స్విచ్ ఉంది

కంట్రోల్ రూమ్‌లో ఛార్జ్ ఇంజనీర్

(iv) GM GM బంగ్లా యొక్క భద్రతా పోస్ట్ వద్ద కంట్రోల్ స్విచ్‌తో PTS వద్ద VIP గెస్ట్ హౌస్ యొక్ క్వార్టర్స్..

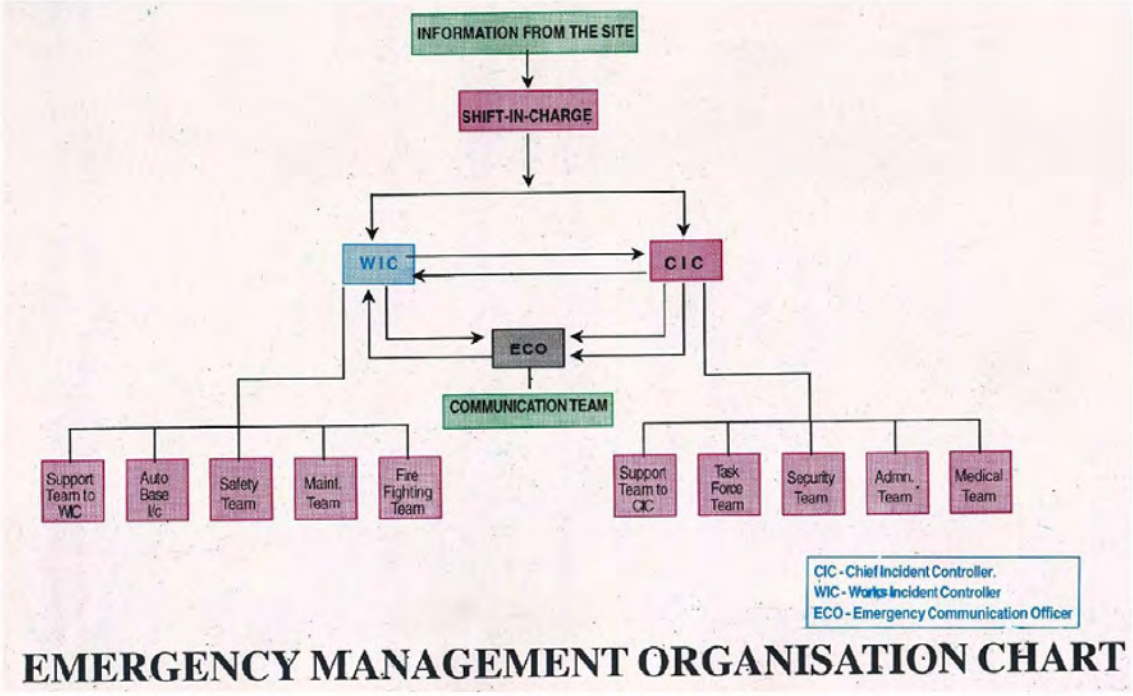
(v) CISF CISF కాంప్లెక్స్ కంట్రోల్ రూమ్ వద్ద కంట్రోల్ స్విచ్‌తో కమ్యూనిటీ హాల్ క్వార్టర్స్‌పై CISF చీఫ్ ఇన్సిడెంట్ కంట్రోలర్ అంటే స్టేషన్ అధిపతి సూచనల మేరకు ప్రధాన ప్లాంట్ (RSTPS) యొక్క SCE తెలంగాణ ఫైర్ కంట్రోల్ రూమ్ & SCE కి సూచన ఇవ్వాలి. సైరన్ మోగించడానికి ప్రణాళిక చేయబడింది. దీని ప్రకారం అత్యవసర సైరన్‌ను తెలంగాణ ఫేజ్ - I యొక్క SCE మరియు ఫైర్ స్టేషన్ కంట్రోల్ నుండి CISF సిబ్బంది మోగిస్తారు. గది, శాశ్వత దుకాణాలు, VIP బంగ్లా మరియు CIS బ్యారక్

5.1 లో చూపిన విధంగా సైరన్ మోగిస్తారు, దీని వలన అత్యవసర స్వభావాన్ని క్లోరిన్ విడుదల లేదా పెద్ద అగ్నిప్రమాదం అని వేరు చేయవచ్చు. సైరన్ దాని ప్రభావవంతమైన పనితీరు కోసం క్రమానుగతంగా అంటే ప్రతి ఆరు నెలలకు ఒకసారి పరీక్షించబడుతుంది. AC (అగ్నిమాపక) అది నిర్ధారిస్తుంది

మరియు రికార్డులను నిర్వహిస్తుంది.

5.1 అత్యవసరసైరన్

Sl. NO.	TYPEOFEMERGENCY	DURATION
01.	InCaseofFire	ShortBlastfor3Times
02.	HeavyChlorineLeak	LongBlastfor5 Times
03.	AllClearSignal	ContinuousSirenfor3Minutesonlyonce



7.4 DISASTER MANAGEMENT PLAN IN ENGLISH LANGUAGE

The objective of DMP should be safe and trouble-free operation this is ensured by taking precautions right from design stage i.e., design of equipment/pipeline as per standard codes, ensuring selection of proper material of construction, well designed codes/rules and instruments for safe operation of the facility. Safety should be ensured afterwards by operating the facility by trained manpower. Despite all precautions accidents may happen due to human error or system malfunction. Any accident involving release of hazardous material may cause loss of human lives & property and damage to environment. Industrial installations are vulnerable to various natural as well as manmade disasters. Examples of natural disasters are flood, cyclone, earthquake, lightening etc. and manmade disasters are like major fire, explosion, sudden heavy leakage of toxic and gas from pipeline, civil war, nuclear attacks, terrorist activities etc.

However, there is already a well-documented Disaster Management Plan for the existing plant under Phase -I.

The damage caused by any disaster is determined by the potential for loss surrounding the event. It is impossible to predict the time and nature of disaster, which might strike on undertaking. However, an effective disaster management plan i.e. pre-planned procedure involving proper utilization of in-house as well as outside resources helps to minimize the loss to a minimum and resume the working condition as soon as possible.

The disaster is a sudden accident or a catastrophic situation that has the potential to cause damage to life and property.

Disaster Management planning is an integral and essential part of loss prevention strategy. Although a great deal of efforts and money is spent to reduce the scale and probability of accidents, there always remains a finite but small possibility that disaster may occur. Effective action has been possible due to existence of pre-planned and practiced procedures for dealing with emergencies.

The Disaster Management Plan comprises two phases as follow-

- *First Phase:* It refers to preventive measures envisaged in the project design, layout, construction, erection, commissioning, operations and maintenance.
- *Second Phase:* It refers to a management plan to be pressed into action, should an emergency occur.

The Disaster Management Plan describes the emergency situations, the organization and line of command, the system and equipment to be used and role and responsibilities of the Key personnel. The plan should be updated on the basis of risk analysis, accidents, changes in regulatory and statutory requirements, learning from emergency mock drills and past experience.

Specific objective of the Disaster Management Plan

The internal resources in the installation like dispatch plants may be inadequate to deal with the on-site situation and will require the support of outside services. It can provide resources to supplement the internal resources and deal with the situation "off-site". They would, however, find it in some situation difficult to operate effectively in isolation from the internal resources. The objective must therefore be to make the most effective use of the combined resources to:

1. Safeguard plant and outside people
2. Minimize damage to property and the environment
3. Initially contain and ultimately bring the incident under control
4. Identify casualties
5. Provide for needs of causalities
6. Provide authoritative and factual information for the news media
7. Secure safe rehabilitation of the affected area
8. Preserve relevant records and equipment for the subsequent enquiry into the circumstances and cause of the incident
9. Restore the facilities at the earliest
10. Disaster Management Plan is basically a containment, Control & mitigation Plan. The plan includes activities before disaster, during disaster and post disaster
11. The objective of disaster management plan is to formulate and provide organizational setup and arrange proper facilities capable of taking part and effective action in any

12. Brief the incident under control making full use of inside and outside resources
13. Protect the personnel inside the Plant as well as public outside
14. Safeguard the Plant as well as outside property and environment
15. Carry out rescue operation and treatment of casualties
16. Preserve relevant records and evidences for subsequent enquiry
17. Ensure rapid return to normal operating conditions

The main objectives of the Disaster Management Plan would be:

1. Ensure that loss of life and injuries to persons are minimized
2. Damage to environment is minimized
3. Property loss is minimized
4. Relief and rehabilitation measures are effective and prompt
5. Minimize the outage duration of the facilities.
6. To outline facilities provided and the organizational response to control & contain risks arising out of loss of containment of flammable material and resultant fire.
7. To outline the roles and responsibilities of the key members of the Emergency Response Team (ERT), to safeguard other employees and contractor workers, the people living in surrounding area, environment and assets
8. To provide a sequence of actions to regain control over the emergency situation and restore the system to normalcy with minimum disruption to the operations.
9. To provide information to local authorities viz. local fire brigade, hospitals, factory inspectorate, state pollution control board and all the concerned government agencies regarding the hazards, equipment, facilities and procedures provided by the management in case of any emergency.

The above objectives are sought to be achieved through some of the following measures:

- Providing information to all concerned on the estimated consequences of the events that are likely to develop as a result of the emergency
- Mobilizing on-site resources
- Calling up assistance from outside agencies
- Initiating and organizing evacuation of affected workmen
- Providing necessary first aid and other medical services that may be required
- Collecting data on the latest developments, other information and requirements
- Proper identification of possible hazards and evaluation of their hazard potential and

identification of maximum credible hazard scenario

- Arrange/augment facilities for firefighting, safety, medical (both equipment and Manpower)
- Evolving proper action plan with proper organizational set-up and communication facilities as well as warning procedure.

7.4.1 Scope and purpose

The purpose of the DMP is to effectively manage and control the emergencies occurring during operations. This DMP ensures-

- Emergency response team is effective & adequate
- Clear roles and responsibilities of key personnel & support groups
- Availability and adequacy of emergency infrastructure & resources
- Efficient emergency communication and emergency response team is trained
- Periodic training of the emergency response team

7.4.2 Brief description about natural and man-made disasters

Natural and manmade disasters are as follows-

i. Natural Calamity

The disaster can take place under natural calamities, which are as follows-

- High wind/storm/cyclone
- Lightning
- Earthquakes

ii. Action Plan for Natural Calamity

iii. High wind/storm/cyclone

All the structures/buildings have been designed to withstand cyclonic storms and hence not much damage is anticipated-

- Switch off all the electrical connection
- Inform location in-charge immediately
- Keep constant touch with local authorities
- Stop all operations and do not resume till clearance is given by the location in-charge/concerned Officer
- Bring all vehicles to halt
- Avoid going on top of high structures

After cyclone has struck, assess the situation and take necessary action as per the direction of location in-charge.

iv. Lightening

It can cause fire and explosion at the Plant-

- Lightening arrester provided at Plant
- Switch off all the electrical connection
- Inform location in-charge immediately
- Keep constant touch with local authorities
- Stop all operations and do not resume till clearance is given by the location in-charge/concerned Officer
- Bring all vehicles to halt
- Avoid going on top of high structures

After lightening has struck, assess the situation and take necessary action as per the direction of location in-charge.

v. Earthquakes

All buildings/equipment are designed to withstand earthquakes and therefore major disaster is not expected. The concerned city belongs to seismic zone-III (moderate Risk Zone) according to Ministry of Earth Science (BIS report).

- Switch off all the electrical connection
- Inform location in-charge immediately
- Keep constant touch with local authorities

After earthquake has struck, assess the situation and take necessary action as per the direction of Chief In-Charge (CIC).

Disaster originating from outside

Some disastrous activities can also happen from outside the Plants which can take place as disaster is given as follows-

- Fire originating from adjacent premises
- Sabotage
- Riots
- War

Action Plan for these Disasters

- Close all gates
- Maintain tight security
- Contact location in-charge and local authority
- Keep round the clock patrolling

Alert all employees of disaster control action plan for need in case of requirement.

A. Terrorist threats

- Both internal and external threats

Action Plan for terrorist threats (Bomb Warning)

- The person noticing an unidentified/unfamiliar object should bring it to be notice of the nearest available Officer.
- The Officer should observe the same from a distance and raise an alarm to declare emergency in the Plant.
- Bomb Detection and Disposal Squad, Police and Fire Brigade should be informed.

7.4.3 Phase of disaster

There are following phases of Disaster-

7.4.4 Warning Phase (Before Disaster)

Disasters are generally preceded by warnings during which preventive measures may be initiated. For example, release of light hydrocarbons, uncontrollable build-up of pressure in process equipment, pipe line weather forecast give warning about formation of vapor cloud, cyclones, equipment failure, cyclones respectively.

7.4.5 Period of Impact Phase (During Disaster)

This is the phase when disasters actually strike and preventive measures may hardly be taken. However, control measures to minimize the effects may be taken through a well-planned and ready-to-act disaster management plan. The duration may be from seconds to days.

7.4.6 Rescue Phase

This is the phase when impact is almost over and efforts are concentrated on rescue and relief measures.

7.4.7Relief Phase (Post Disaster)

In this phase, apart from organization and relief measures internally, depending on severity of the disaster, external help should also be summoned to provide relief measures (like evacuations to a safe place and providing medical help, food clothing etc.). This phase will continue till normalcy is restored.

7.4.8 Rehabilitation Phase

This is the final and longest phase. During which measures required to put the situation back to normal as far as possible are taken. Checking the systems, estimating the damages, repair of equipment and putting them again into service are taken up. Help from revenue/insurance authorities need to be obtained to assess the damage, quantum of compensation to be paid etc

7.5 Types of Emergencies/Disaster and Emergency Planning and Response Procedures

The type of emergency primarily considered here is the major emergency which may be defined as one which has the potential to cause serious danger to persons and/or damage to property and which tends to cause disruption inside and/or outside the site and may require the co-operation of outside agencies. Emergency is a general term implying hazardous situation both inside and outside the factory/installation premises. Thus, the emergencies termed "on-site" when it confines itself within the factory/installation even though it may require external help and "offsite" when emergency extends beyond its premises. It is to be understood here, that if an emergency occurs inside the plant and could not be controlled properly and timely, it may lead to an "off-site" emergency.

7.5.1. Definition of On-site and Off-site Emergency

An On-site emergency is one where the consequences of an undesired incident remain confined within the boundaries of the facility. Emergencies at the NTPC shall be On-Site Emergencies if the consequences remain confined within the boundaries.

An emergency, which is likely to develop or has developed such as to pose a threat to members of public outside the facility boundary, is termed as an off-site emergency. All mainline emergencies shall be Off-site emergencies. Emergencies at NTPC shall be Off-Site Emergencies, if the consequences exceed the boundaries.

7.5.2. Areas of Emergencies

- **Fire Hazard Areas**
  - Coal Handling Plant and conveyor galleries including Transfer points
  - Cables galleries
  - Fuel oil handling and oil tanks in Main plant
  - Transformer oil and lub oil storage facilities
  - Burner's area in boilers
  - Central Stores/Godowns
  - Control room
  - Turbine Hall
  - Turbine oil Tanks in Units
  - All power Transformers
  - Mill plant and Milling area

- **Explosion Hazard Areas**

  - Hydrogen plant
  - Turbo generators where Hydrogen is used for cooling of Generator
  - Transformer (oil cooled)
  - Boiler (Coal/oil Fired)
  - Coal dust in Mills and Boilers

- **Areas Susceptible to Release of Chemicals**

  - Acid & Alkali storage tanks in WTP
  - Fuel oil tanks in fuel oil handling section

- **Hazardous Locations Due to Bursting of Pipelines and Areas**

  - Steam pipes due to high pressure/temperature
  - Hydrogen gas lines and acid lines
  - Acid/Alkali tanks
  - Hydrogen Gas Cylinders
  - Compressed air header
  - Compressed air receivers
  - Hydrogen Gas Holders

- **Areas Susceptible to Release of Gases/Dust**

  - Turbo Generator area of Main Plant and Hydrogen plant due to hydrogen
  - Mills and associated piping due to flue gases and pulverized coal dust
  - Transfer points of CHP, Crushers, and mill area due to coal dust
  - Downwind areas due to Dust emissions from flue gases
  - Downstream areas due to accidental breach of ash pond and reservoir

- **Fire and Explosion Hazards Associated with Coal**

Coal is the primary fuel for power generation in Telangana Super Thermal Power Project, Phase-II (3x800 MW). Although coal is being handled safely in Telangana Super Thermal Power Project, Phase-II (3x800 MW), there are inherent fire and specially explosion hazards. A coal dust explosion may occur if the coal dust is present in the concentration between UEL and LEL limits i.e., 30-2000 grams/m^3 of air and also a source of ignition like sparks caused by friction or static electricity. There

are five necessary elements, which must be present simultaneously to cause an explosion: fuel, heat, oxygen, suspension and confinement. The first three elements are required for the causation of fire. However, coal must meet several requirements in order to be explosive. These are volatile ratio, particle size and quantity. From literature, it is found that coals with a volatile ratio (defined as the volatile matter divided by the summation of volatile matter and fixed carbon of the coal) exceeding 0.12 present a dust explosion hazard. The second parameter is particle size. Bituminous coal particles up to 841 microns are the largest particles that contribute to a coal dust explosion. These coal dust particles require less energy or temperature to ignite. Hence the pressure and rate of pressure rise during an explosion are accentuated. The third requirement for explosion is related to the quantity of coal dust available, known as the minimum explosive concentration (MEC). The MEC for bituminous coal is approximately 100 gm per cubic meter. The presence of other flammable dusts or gases can lower the MEC of the coal, which increases the hazard. The following hazards have been envisaged with respect to handling of coal in Telangana Super Thermal Power Project, Phase-II (3x800 MW): Fire during transfer of coal by conveyor system mainly due to failure of safety devices, viz., alarms, trip switches, interlocks, etc.

- Fire during transfer of coal by conveyor system mainly due to safety devices, viz, alarm, trip switches, interlocks, etc.
- Fugitive emission of coal dust.
- Explosion due to fine coal dust.
- Fire in pulverisers.
- Coal storage fire.

The following locations in Telangana Super Thermal Power Project, Phase-II (3x800 MW) can be considered as hazardous with respect to fire and explosion as far as coal is concerned:

- Coal Handling Plant
- Coal conveyor belts
- Coal bunkers
- Coal crusher
- Coal burners and Mill areas.

The detailed classifications can be seen in the prepared Disaster Management Plan, which is already being practiced by Telangana Super Thermal Power Project, Phase-I (2x800 MW).

7.5.3. Extent of Severity during Emergencies

Implementation for an emergency is based on the rough estimates of the damage expected. Due consideration is given to the severity of potential emergency situation that may arise as a result of pipeline/failures accident events as discussed in the Risk Assessment. This will enable appropriate emergency response procedures to be effectively implemented.

The details in the table given below must be supplied to the emergency services and rescue personnel and should be available to planning departments.

Table 7-8: Estimate of expected damage and resource required

Nature of Damage expected	Resources Required
• Rapid depressurization • Cooling/ frost formation • Noise • Blast effects & projectiles • Fire effects • Explosion overpressures	• Wind sock • LEL meters • Tools for shutting the valve • SCBA • Additional vehicles for evacuation etc. • Firefighting equipment and extinguishers • Emergency Tool Kit

7.5.4. Priority in Emergency Handling

The general order of priority for involving measures during the course of emergency would be as follows:

- Safeguard life
- Safeguard environment
- Safeguard property

7.6. Legal Authority and Responsibility

7.6.1 On-site Emergency Planning

Telangana Super Thermal Power Station has its production unit located near Ramagundam, Peddapalli District of Telangana State. The site is approximately 35 Km from district headquarter Peddapalli and about 1 km from Ramagundam. The nearest railway station, Ramagundam is about 5 km from the plant which lies on the main Kazipet - Balharshah broad gauge railway line of South-Central Railway. The area is accessible by SH-1 Hyderabad-Mancherial Road popularly known as Rajiv Rahadari. The nearest commercial airport is at Hyderabad approximately at an aerial distance of 210 km.

7.6.2 Off-site Emergency Planning

Under the 'Manufacture, Storage and Import of Hazardous Chemicals Rules 'preparation of 'Off-site Emergency Plan' is covered in Rule No.14. The duty of preparing and keeping up to date the 'Off-site Emergency Plan' as per this rule is placed on the District Emergency Authority. Also, occupiers are charged with the responsibility of providing the above authority with such information, relating to the industrial activity under their control, as they may require for preparing the off-site emergency plan.

Off-site emergency response needs actions by various Government agencies over which the operating company has no control. NTPC's role and responsibility is to provide material, manpower, and knowledge support under the overall charge of the off-site control administration.

7.7. Key Element of Disaster Management Plan

There are following key elements of DMP-

1. Basis of Plan
2. Accident prevention procedures/measures
3. Accident/emergency response planning procedures
4. On-site Disaster Management Plan
5. Off-site Disaster Management Plan

7.7.1Basis of Plan

Identification and assessment of hazards is crucial for on-site emergency planning and it is therefore necessary to identify what emergencies could arise in storage of various products. Hazard analysis or consequence analysis gives the following results.

- Hazards from spread of fire or release of flammable and toxic chemicals from pipeline
- Hazards due to formation of pressure waves due to vapour cloud explosion of flammable gas hazards

7.7.2 Emergency Planning and Response procedures

Emergency rarely occurs; therefore, activities during emergencies require coordination of higher order than for planned activities carried out according to fixed time schedule or on a routine day-to-day basis. To effectively coordinate emergency response activities, an organizational approach to planning is required. The important areas of emergency planning are Organization and Responsibilities, Procedures, Communication, Transport, Resource requirements and Control Centre. Offsite emergency requires additional planning over and above those considered under onsite plans, which should be properly integrated to ensure better coordination.

The emergency planning includes anticipatory action for emergency, maintenance and streamlining of emergency preparedness and ability for sudden mobilization of all forces to meet any calamity.

7.8. Structure of Disaster Management Plan

This Disaster management plan basically comprises of the following elements:

1. Identification of hazards and risk analysis
2. Organizational Structuring, Duties and Responsibilities
3. Response Procedures
4. Infrastructure and Resources

Table 7.9: Structure, Role and Responsibility of Disaster Management Plan

Combat Team	Auxiliary Team	Rescue Team	Security Team
Roles & Responsibilities	**Roles & Responsibilities**	**Roles & Responsibilities**	**Roles & Responsibilities**
The team shall: 1. Rush to the fire site 2. Start firefighting and control the fire 3. Use non-sparking tools for attending leakage. **4.** After firefighting, arrange to keep the firefighting material at identified places	The team shall: 1. Rush to fire site 2. Isolate the live electrical lines 3. Arrange to protect costly equipment in the area. 4. Inform mutual aid partners for continuous supply of Fire water 5. Mobilization of PPEs at site 6. Join the firefighting team. **7.** Arrange to clean the site after firefighting operation.	The team shall: 1. Activate the first aid center 2. Rescue the injured from the fire site 3. Arrange for the ambulance, if required 4. Cordon off the area 5. Arrange drinking water 6. Join firefighting team	The team shall: 1. Manning the Main Gate 2. Access control 3. Do not allow unauthorized person to enter the Plant 4. Direct the mutual aid partners and fire tenders to the firefighting site 5. Join firefighting team

Identification of Hazards and Scenario

The hazards from leakage include:

- Jet Fire
- Flash fire
- Vapor cloud explosion

The causes of the leakage can be divided into following categories:

- Mechanical failure
- Operational failure
- Natural hazards
- Third party activity

At the Plant, failure of any of the equipment such as metering skid, valves, flanges, filter etc. can result in loss of containment.

The outcome cases considered for each release case are as follows:

- Immediate ignition resulting in Jet fire
- Delayed ignition resulting in flash fire/ vapor cloud explosion

For emergency plan following effect – distances were calculated:

- 37.5 kW/m^2

- 12.5 kW/m^2
- 4 kW/ m^2

7.8.1 Organizational Structuring, Duties and Responsibilities

In case of an emergency at Plants, the On-site Emergency Plan of the Plant will come into action. An effective emergency plan requires that, in the event of an accident, nominated functionaries be given specific responsibilities, often separate from their day-to-day activities.

Emergency control organization has been designed by identifying the safe transition from normal operation to emergency operations and systemic shutdown, if any, and the delegation of authority from operations personnel to emergency response personnel. For this purpose, an emergency response organization with appropriate lines of authority with succession planning and actuating the response management has been formed. Responsibilities for decision making are clearly shown in the emergency organization chart.

7.8.2 Emergency Personnel or Group

Overall objectives of the emergency control organization are as follows:

- To promptly control problems as they develop at the scene
- To prevent or limit the impact on other areas and offsite
- To provide emergency personnel, selecting them for duties compatible with their normal work functions wherever feasible
- To assume additional responsibilities as per laid down procedure of whenever an emergency alarm sounds
- To set up the organization for round the clock coverage in case shift personnel may need to take charge of emergency control functions or emergency shutdown systems, until responsible persons arrive at site of emergency

The senior-most functionary available during an emergency at the Plant takes charge as Chief Incident Coordinator (CIC) and will locate himself at the designated Primary Command Post. The senior most functionaries for each emergency service will act as coordinator and shall report at the Primary Command Post unless otherwise instructed by the Chief Coordinator.

The senior most person (operations) in the shift is designated as the Works Incident Controller (WIC). The WIC takes charge of the incident site and takes the overall command. He is supported by other Key persons representing various emergency services. Key persons are personnel available at the site on round the clock basis. It is to be appreciated that the Key Persons remain the front-line fighters. The role of various coordinators is to assess the situation from time to time, take appropriate decisions in consultation with the CIC and to provide timely resources to the Key Persons to fight the emergency.

Duties and responsibilities of various emergency functionaries have been described in following sub sections.

7.8.3 Emergency control centre - resource requirement

Evacuation & sheltering for inside battery area:

The entry of contract personnel working inside the Plant is through main Gate. In case of emergency/major accident/disaster points have been identified and marked in the Plant area for assembling of people for head counting/transportation to a safe place.

7.8.4 Duties and Responsibilities of Functionaries

The duties and responsibilities of the functionaries are given below:

7.8.4.1 Chief Incident Coordinator (CIC)

The Head of the Station, who is also the Chief Incident Controller will assume overall responsibilities for the Factory and its personnel in case of any emergency. His responsibilities are: -

1. To assess the magnitude of the situation and decide On Site Emergency need to be declared.
2. To undertake a continuous review of possible developments and assess in consultation with key personnel as to whether shut down of the plant or any section of the plant and evacuation of personnel are required
3. To liaise with senior officials of Police, Fire brigade, Medical. Factories inspectorate and provide advice on possible effects on areas outside the factory premises
4. To issue authorized statements to news media and ensure that evidence is\preserved for enquiries to be conducted by the Statutory Authorities
5. On restoration of normalcy orders all clear signals.

7.8.4.2 Responsibility of Works Incident Controller (WIC)

The Works Incident Controller on knowing about hazardous incident, immediately will rush to the incident site and take overall charge and inform the same to CIC. On arrival, he will assess the extent of emergency and decide if major emergency exists and inform the Head of the Station accordingly. His responsibilities will be:-

1. To direct all operations to stop within the affected area taking into consideration priorities for safety of personnel, minimise damage to the plant, property, environment and minimise loss of materials
2. To provide advice to the Fire, Security officers and the local fire service.
3. To report on all significant developments to the CIC.
4. To have regard to the need to preserve the evidence, so as to facilitate any enquiry into the cause and circumstances which caused or escalated the emergency.

Responsibility of Incident Controller (IC)

The Shift Charge Engineer on knowing about the emergency, will rush to the Incident site and take overall charge and report to the Works incident Controller and Chief Incident Controller. His responsibilities shall be:

1. Take decision to stop, continue or isolate operations within the affected area taking into consideration safety of personnel, damage to Plant/property and environment and minimize loss of material.
2. Assess the gravity of emergency in consultation with Works Incident Controller and Chief Incident Controller and on instructions from CIC, activate Major Emergency Control Procedures.
3. Shall works under Works Incident Controller (WIC) and till his arrival, he will have

4. to:
5. Direct for search of causalities.
6. Render advice/information to fire fighting and other emergency services.
7. Ensure key persons are informed

7.8.4.3 Responsibility of Team Leader (Firefighting/Rescue/Evacuation): CISF (Fire and Security Wing)

On knowing the emergency, he will proceed to main entrance/main gate. He will

1. Arrange to control the traffic at the gate and the incident area.
2. Direct the security staff to the incident site to take part in the emergency operations under his guidance and supervision.
3. Arrange for rescue and evacuation of the people in the plant or in the nearby areas as advised by Work Incident Controller after arranging the transport through Transport in-charge.
4. Allow only those people who are associated with handling emergency.
5. Maintain law and order in the areas, if necessary, seek the help of Police.
6. Maintain communication with Chief Incident Controller, Works Incident Controller and Emergency Communication Officer**.**

7.8.4.4 Responsibility of Public Relation Officer

On knowing the major emergency, he will proceed to Emergency control center.
He will:

1. Communication of emergency occurred to Various disaster Management team leaders
2. Maintain contact with Work Incident Controller and Chief Incident Controller.
3. Keep in constant touch with happenings at the emergency site and with WIC.
4. Arrange to give information to press, public and statutory authorities concerned on the advice of Head of HR

7.8.4.5 Assembly Point In- charge

Will keep the up-to-date list of persons (employees'/contractor workers /contractors / suppliers/ visitors) as available in various areas in the plant. Will compare the list of persons available at each assembly point with the up-to-date list of persons.

7.8.4.6 Transportation and Temporary Accommodation In-charge

On knowing the emergency, he will immediately report to Works Incident Controller. During emergency situations, all company vehicles and hired vehicles should be surrendered automatically and shall be under the control of auto base in-charge to facilitate availability of all vehicles with administration team.

The responsibilities of Auto Base In-charge are: -

1. Make all vehicles ready to proceed for evacuation or other duties, when asked for
2. Make all arrangements regarding transportation.

3. To send at least one mechanic at the site of incident where he may help in attending minor defects in ambulance, fire tenders or other vehicles
4. To arrange Petrol /diesel supply
5. List of all NTPC vehicles and hired vehicles with contact telephone numbers to be made available in Auto Base.
6. Addresses of NTPC drivers and hired vehicles to be made available in Auto Base.
7. Liaison to be developed by the Auto Base in-charge with neighboring travelling agencies, transport agencies etc.
8. Contact telephone numbers of private ambulance agencies.
9. The above arrangements help the auto base in-charge to contact immediately for requesting the services during major emergencies without any time delay.

7.8.5 Various Teams and Their Responsibilities in Case of an Emergency

7.8.5.1 Task Force: Team Members

Responsibilities:

- To organize safe shutdown of plant, if necessary.
- To organize all support service like operation of fire pumps, sprinkler system etc.

- **Maintenance Team**

Responsibilities

- To work under the direction of Work Incident Controller.
- Attend to all emergency maintenance jobs on top priority.
- To take steps to contain or reduce the level of hazard created due to disaster.
- To organize additional facilities as desired.

- **Security and traffic control Team**

Responsibilities

- Man all the gates.
- Bar entry of unauthorized persons and non-essential staff.
- Permit with minimum delay the entry of all authorized personnel and outside agencies, vehicles, etc.
- To allow the ambulance/evacuation vehicles etc., to go through the gates with security escort.

- **Administration Team**

Immediately report to CIC

Responsibilities

- Management of IR functions at Site.
- Transportation of causalities to first aid post, safer place or medical centers.
- Accounting & search of Persons
- Pass on the information to the kith and kin of effected persons.
- Arrange for removing all non-essential staff to assembly points

- **Safety Team**

Responsibilities

- To arrange required safety equipment.
- To guide authorities on all safety related issues.
- To record accident details.
- To collect and preserve evidences in connection with accident inquires.

- **Medical Team**

Responsibilities

- To arrange first aid material/stretchers immediately and reach to site of incident.
- To arrange for immediate medical attention.
- To arrange for sending the casualties to various hospitals and nursing homes etc.
- To ask specific medical assistance from outside including Specialists in consultation with CIC/WIC

- **Fire Fighting Team**

Responsibilities:

- Immediately report to WIC at incident spot.
- To rescue and arrange for evacuation of the effected persons
- Coordinate the firefighting activities.
- Guide and help the CISF Fire Wing to extinguish the fire
- To seek outside help through Incharge Fire Station.
- Coordinate with administration and security teams in rescue and evacuation of the effected persons.

- **Transportation Team**

Responsibilities

- Make all vehicles ready to proceed for evacuation or other duties, when asked for Make all arrangements regarding transportation.
- To send at least one mechanic at the site of incident where he may help in attending minor defects in ambulance, fire tenders or other vehicles
- To arrange Petrol /diesel supply
- List of all NTPC vehicles and hired vehicles with contact telephone numbers to be made available in Auto Base.
- Addresses of NTPC drivers and hired vehicles to be made available in Auto Base.
- Liaison to be developed by the Auto Base in-charge with neighboring travelling agencies, transport agencies etc.
- Contact telephone numbers of private ambulance agencies

- **Communication Team**

Responsibilities

- To maintain the communication network in working condition
- To attend urgent repairs in the communication system, if required.
- To help Fire Station in-charge to Contact Mutual Aid members.

- **Support Team**

In addition to the teams already mentioned there will be two additional teams knows as support teams.

A. SUPPORT TEAM TO CIC:

This team will assist CIC (Chief Incident Controller) during an emergency to execute his functioning in consultation with him.

B. SUPPORT TEAM TO WIC:

The team may call any more persons depending upon the need. This team will assist the WIC in manning communication and passing instructions to the teams.

- **Response Actions in Handling Maximum Loss Scenarios**

Emergency response measures are those, which are taken immediately prior to and following an emergency. In dealing with an emergency situation, the broad objective is to minimize human suffering, loss to property and environment.

Response actions at Telangana Super Thermal Power Project, Phase-II (3x800 MW) will be related to handling of emergency situations arising out of accidental (a) release of Ammonia from Ammonia tanks, etc. and (b) fire due to release/ leakage of fuel oil (LDO) from tanks in FOPH area. For any detailed information, Current DMP of the plant can be referred.

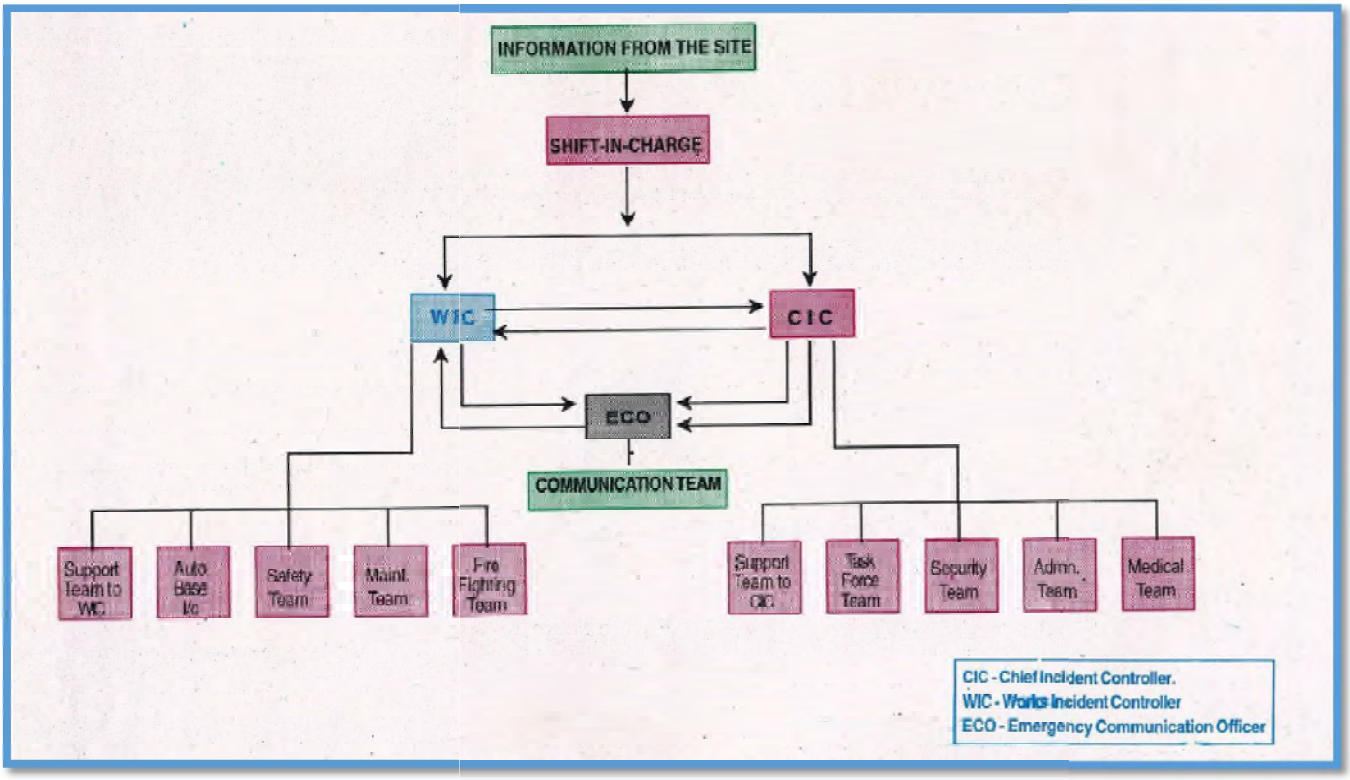


Figure 7.15: Command Structure for Handling On-Site Emergency in Telangana Super Thermal Power Project, Phase-II (3x800 MW)

7.8.6 Action by General Population

On being warned of a major industrial accident of leak general public should take the following actions:

- Extinguish all flames
- Keep torches handy
- Store water for emergency use
- Do not jam emergency phone lines by calling emergency services
- Wait for further instructions from emergency services before moving out

7.8.6.1 Education

Educating general public about the potential hazards associated with Plant and actions to be taken in case of accident, will one of the key areas of disaster management plan. For this purpose, the following actions are:

- Notice boards will be put up in strategic places giving the above information.
- Help of voluntary organizations and local schools will be taken to conduct educational sessions to make people aware of the actions that the general public should take in case of any major emergency.
- Periodic meetings with the village heads to educate them.

7.8.7 Assessing the Situation at Site & Declaration of Emergency

Whosoever will notice any situation as per the scenarios, he will immediately inform to Fire Plant Control Room/nearest Control Room by means of telephone or nearest alarm point or personally. Officer of Fire Plant, after seeing the magnitude of the situation, will instruct Fire Plant Control Room operator to blow Major Fire Siren. Accordingly, a Wailing Siren for Two minutes will be blown by Fire Plant Control Room operator and turnouts will be taken by Fire Fighting Crew along with officers of Fire & Safety Department to combat the situation.

If the turnouts taken by Fire Fighting crew are not capable of controlling the situation, after assessing the situation, the Senior Person of the Plant will declare the disaster. The information about declaring the disaster will be conveyed to Fire Plant Control Room by any Officer of Fire & Safety Division.

7.8.8 Controlling the Situation

Inside the Plant

Main Incident Coordinator will take charge of the situation for the controlling disaster.

- Main Incident Coordinator will direct for shutdown, if so required.
- Main Incident Coordinator will co-ordinate with CFSM (Chief Fire and Safety Manager) about the important measures to be taken during fire-fighting/ rescue/ evacuation.

Outside the Plant

Incident Coordinator will co-ordinate with the district authorities for the following activities.

- Cordoning off the area, if required.
- Evacuation of nearby areas, if required.

7.8.9 External Public

7.8.9.1 Public Awareness System

The safety measures to be taken in the event of an emergency shall be made known to the general public who are likely to be affected.

For disclosure of information to the public of the Plant they are briefed about our preparedness and measures taken to face any disaster situation. They are also explained about the Disaster Warning Signals and measures to be taken by the nearby villagers in case of any disaster in the Plant and any possible chemical emergency. The same is being given to them in the form of a brief write up for further propagation in their villages.

Or disclosure of the information, particularly during the disaster situation, the Public announcements are being done by Communication Department. To avoid any panic, it is been considered that the necessary announcement will be made in nearby villages releasing the information to the tune of requirement only.

For the purpose, use of Do's and Don'ts shall be prepared. Display boards carrying do's and don'ts should be located outside the gate as well as in the neighboring colonies and other habitat areas in the immediate vicinity.

The Welfare & Media Coordinator of the Plant is the only authorized person for giving the information to be public & to serve as the Liaison Officer.

7.8.9.2 The use of Electronic Media

For bringing the awareness among the external public at large, the use of electronic media like TV, Air & Press coverage should be used. The Welfare & Media co-coordinator of the Plant prepares the Press release to the issued for the local press & other important dailies.

7.8.9.3 Response Procedure

The main emergencies associated with the Plant are as follows:

- Leakage of pipeline/equipment
- Leakage from valves.

The above situations need immediate attention to avoid the following unwanted situations:

- Leakage of pipeline/equipment resulting in huge losses from pipeline.
- Induction of fire hazards in the vicinity.
- Prolonged disruption in pipeline/equipment operation.

7.8.9.4 Involvement of Outside Organizations

Telangana Super Thermal Power Project, Phase-II (3x800 MW) is surrounded by large scale factories / industries available in the near vicinity of the power station and mutual aid agreement is existing.

The list is given below:

Sl. No	Name of the project	Production Capacity	Distance from the Plant	Status (Existing/Proposed)
1	NTPC Ramagundam Thermal Power Plant	2600 MW	Adjacent	Existing (In operation)
2	SCCL Thermal Power Plant (Jaipur)	1200 MW	13 Km	Existing (In operation)
3	TSGenco Thermal Power Plant	62.5 MW	2.1 Km	Existing (In operation)
4	SCCL Thermal Power Plant (Godavarikhani)	18 MW	3.7 Km	Existing (In operation)
5	Kesoram Cements Limited	7.25 MMT	7.3 Km	Existing (In operation)
6	Ramagundam Fertilizers & Chemical Limited (RFCL)	Ammonia:2200 TPD Urea:3850 TPD	1.7 Km	Existing (In operation)
7	Telangana STPP Phase-I	2x800 MW	0.0 Km	Commissioned
Proposed Power Plants				

Sl. No	Name of the project	Production Capacity	Distance from the Plant	Status (Existing/Proposed)
8	SCCL, Thermal Power Plant Stage-II (Jaipur)	800 MW	13 Km	Proposed
Coal Mines Located in 15 Km Area				
9	Adriyal Shaft (underground)	3.14 MTPA	15 Km	Existing (In operation)
10	Jallaram (underground)	2.28 MTPA	10 Km	Existing (In operation)
11	Peddampet (underground)	1.45 MTPA	6 Km	Existing (In operation)
12	Ramagundam Opencast-I	3.30MTPA	13 Km	Existing (In operation)
13	Ramagundam Opencast-II	4.50 MTPA	15 Km	Existing (In operation)
14	Godavarikhani-1 incline Underground mine	0.486 MTPA	5 Km	Existing (In operation)
15	Godavarikhani-2 incline Underground mine	0.648 MTPA	5 Km	Existing (In operation)
16	Godavarikhani-5 incline Underground mine	0.60 MTPA	7 Km	Existing (In operation)
17	Godavarikhani-10 incline Underground mine	0.45 MTPA	10 Km	Existing (In operation)
18	Godavarikhani-11A incline Underground mine	1.75 MTPA	9 Km	Existing (In operation)
19	Godavarikhani-9 incline Underground mine	4.50 MTPA	10 Km	Existing (In operation)

Besides resource mobilization, the help of following government agencies would be sought for regulatory and other services

- Transport Department of Telangana State Govt.
- Publicity Department of Telangana State Govt.
- Nearby Village Panchayat Etc.

Involvement of outside organizations would be sought for the following type of accidents only if the impact of these accidents is beyond the control of Telangana Super Thermal Power Project, Phase-II (3x800 MW) (i.e., for off-site emergency):

- Major fire in the plant involving materials like LDO Storages and/ or Coal.
- Explosion

7.8.10 PRELIMINARY HAZARD ANALYSIS

7.8.10.1 Types of Accidents

The following types of accidents may happen in Telangana Super Thermal Power Project, Phase-II (3x800 MW). Involvement of outside organizations would be sought for the following types of accidents only if the impact of these accidents is beyond the control of Telangana Super Thermal Power Project, Phase-II (3x800 MW):

- Major fire in the plant involving materials like LDO Storages and/ or Coal.
- Explosion

7.8.10.2 System Elements or Events That Can Lead to a Major Accident

Considering the process and the materials used in Telangana Super Thermal Power Project, Phase-II (3x800 MW), the following system elements can be considered as major plant sections:

- Coal Handling Plant
- Main Plant (Boiler, Turbo Generator, Lube, Oil Tanks)
- Water Treatment Plant
- Hydrogen Generation / Storage Area
- Switchyard including sub-Plants and transformers
- Fuel oil handling plant
- Cable Galleries
- LT/ HT Switch Gears
- Stores where hazardous, flammable and explosive material are stored
- Cooling Water Pump House (CWPH)
- Liquid Waste Treatment Plant (LWTP)
- Ash Dykes

In relation to the above major plant sections, the following events may lead to a major accident:

Initial Notification of Release

a. In case of emergency in Plant

Any person noticing a fire, explosion or the release of hazardous materials should shout “LEAK” or "FIRE” and will break the glass of the nearest fire point. He will also inform the control room on the nearest telephone and the panel officer will inform SIC.

Action by Individual Employee at the time of emergency
When You Notice
FIRE

The Major fires can occur in following areas.

- Coal Handling Plant
- Hydrogen Generation / Storage Area
- Hydrogen Cylinders Storage Areas.
- Fuel Oil Handling System.
- Boiler

Explosion

Explosion is possible at the Hydrogen Cylinder Storage area, Hydrogen Gas Filling Plant, TG Hydrogen gas coolers, Boilers, etc.

Hydrogen can form an explosive mixture with air if the proportion is within the exclusivity limits. The explosion can occur due to escape of hydrogen from their distribution system. Another area prone to this type of emergency is where Hydrogen cylinders are stored. To prevent such possibility Hydrogen is purged with inert gas like Nitrogen/CO2 and elsewhere purity is maintained beyond 99%. Also, in oil storage tanks appropriate firefighting system is provided.
Coal is a combustible material and is susceptible to fire and explosion scenarios. Coal fire due to spontaneous combustion is one of the events experienced by many coal handling units. If a substantial quantity of coal with a high content of volatile matter is stockpiled for a long time, the coal mass at the bottom can become a starting point for a fire hazard because of weathering. Smoldering takes place at the surface layers of the pile if the storage yards are left undisturbed for long times.
Pulverized coal is associated with explosion. An explosion can occur in the inlet primary air duct to the coal pulveriser during a system shut down. This is due to spontaneous combustion of gases evolved from coal dust because of an abnormally high temperature in the duct.

Please DO (√)

1. Break the nearest fire alarm point glass.
2. Immediately inform the control room.
3. Act to control the incident as per the instructions.
4. Reach the assembly point.

Please DO NOT (x)

1. Get panicky or spread rumors
2. Approach control room without work
3. Engage telephone or loud phone continuously

7.8.11 Evacuation

- In case of an On-site emergency, the order to evacuate to a safe place will be given by the Chief Coordinator in consultation with other coordinators

- In case of an Off-site emergency, the order to evacuate to a safe place will be given by the District Emergency Authority in consultation with Chief Coordinator in consultation with other coordinators

- Accident scenarios covered in 'Risk Assessment study' can be a key source of information for evacuation planning where specific facilities are known to pose a threat. The size and shape of the vulnerable zone for selected scenarios are presented in Risk Assessment.

- Evacuation and shelter-in-place decisions are incident specific and must be made at the time of an actual release. Guidance obtained from consequence analysis may be considered a starting point for the decision process

Some general guidelines in case of fire are:

Only Personnel in close vicinity and affected by heat radiation need be evacuated to safe distances. Non-essential personnel will usually be evacuated from the incident area and also from adjacent areas. Evacuation should be to a predetermined assembly point in a safe part of the complex. Assembly points marked on the plot plan should be appropriately displayed.

* For serious injury cases, evacuation to hospital will be carried out by the response personnel

* Chief Coordinator should designate one individual to record all personnel arriving at the assembly point so that the information can be passed to the Primary Command Post.

* At the Primary Command Post, a nominated person should collect the lists of personnel arriving at the assembly points with those involved in the incident. These should then be checked against the roll of those believed to be on-site, updated with known changes for that day. Where it is possible that missing people might have been in the area of emergency, the site incident coordinator should be informed and arrangements made to organize a further search.

7.8.12 Fire Response

1. All available firefighting resources will be mobilized in minimum time by head of firefighting services at the time of emergency. The firefighting arrangements including manpower and resources have been organized to deal with worst scenarios.
2. Fire department need to be well prepared and experienced in rescuing people from fire and explosion situations.

General

Water is suitable for extinguishing gas fires, though it may be used to keep surroundings cool and prevent the spread of fire to them. Adequate number of portable dry chemical or carbon dioxide extinguishers and foam concentrate need to be stocked. The quantity of foam requirement should be such as per OISD (117/118) guidelines.

7.8.13 Health Care

- Requisite medical resources will be mobilized under the overall charge of the Health and Medical functionary
- The operational response will be coordinated from the control room

7.8.14 Personal Protection

Table 7.10: PPE Kit

S. No.	List of Personal Protective Equipment	Quantity/Availability
1.	Safety Helmet	650 Nos.
2.	Safety Shoes	450 Nos.
3.	Safety Goggles	200 Nos.
4.	Safety belt	10 Nos.
5.	SCABA	22 Nos.
6.	Resuscitators	3 Nos.
7.	Fire Proximity Suit	2 Nos.
8.	Stretcher	5 Nos.
9.	Hand Gloves	400 Nos.

1. Specific skills need to be developed for the safe use of protective clothing through training and experience.
2. The CIC will arrange for rapid availability of appropriate protective clothing in the event of an emergency.

7.8.15 Public Relation

1. CIC will designate one specific individual as the Media Officer
2. The designated Media Officer only will speak to media personnel. The Media officer should ensure orderly and accurate dissemination of information. The “do’s” and don’ts” on how to deal with the media are discussed below

The CIC should understand the need to relay up-to-date “status reports” to the Media Officer on a regular basis

THINGS TO DO

- Accommodate the media as much as possible; make the news available to them
- Schedule news conferences and preferably avoid written releases

- Be direct and specific
- Have news conferences immediately after any meeting from which the media or public have been barred
- Send a press representative to the Primary control room
- If safety permits, allow the media to take pictures of the accident site

THINGS NOT TO DO

- Do not permit arguments among public officials or press officials from different organizations in front of the press. Do, however, permit statements of dissenting opinions
- Avoid giving gut opinions or conjecturing
- Do not be evasive. If the answer to a question is not known, refer the question to someone who has the appropriate answer
- Do not be critical in a personal manner; i.e., avoid personal remarks about other people at the accident scene
- Do not be philosophical. These kinds of discussions are extremely susceptible to being quoted out of context
- Do not make off-the-record comments. They may end up in print with later retractions buried in the back pages
- Avoid friendly chats with media people. Casual comments may appear in print
- Avoid bad or foul language
- Do not hide from the media. They can sense this and form an unfavorable opinion of the Media Officer as a credible source of news
- Do not answer questions beyond personal knowledge or expertise
- Do not permit media persons to attend emergency response team meetings

7.8.16 Training

1. Training sessions need to be provided in which personnel are briefed on their specific duties in an emergency.
2. To provide training to all emergency responders. The concerned personnel are shown how to wear and properly use personal protective clothing and devices.
3. Periodic drills to be conducted to test the overall efficiency and effectiveness of the emergency response plan and emergency response capabilities.

General:

The types of training required for emergency response personnel with responsibilities in any or all phases of the response is based upon the types of incidents most likely to occur and the related response and planning activities.

7.8.17 Responsibilities, Frequency and Procedure for Evaluation

The CIC is responsible for evaluating the effectiveness of the on-site emergency plan. Emergency mock drill should be conducted at an interval of six months. Experts should be invited to observe the mock drill in order to know their response and opinion. The recommendations following the discussions will help to identify the loopholes in the plan and response capability of the organization. Such periodic recommendations of the mock drill should be kept in order to update the plan.

The CIC should be responsible to update their on-site emergency plan regularly. A regular review of the plan at least once in a year should be carried out to replace outdated information or to incorporate the results of mock drill.

7.8.18 Off- Site Emergency Plan

An emergency, which is likely to develop or has developed such as to pose a threat to members of the public outside the facility boundary, is termed as an Off-site emergency.

This distinction needs to be clearly appreciated. Whereas the responsibility for handling an On-site emergency is clearly that of the operating company, the responsibility for an Off-site emergency response lies with the civic authorities. Off-site emergency response needs actions by various Government agencies over which the operating company has no control.

The objective is to familiarize personnel with off-site emergency organization, and their legal responsibility to enable NTPC personnel to dovetail their efforts in an effective and orderly fashion while assisting the civic authorities.

7.8.19 Legal Authority and Responsibility for off- site Emergency Response Legislation in India

Under the Environment (Protection) Act, 1986 the 'Manufacture, Storage and Import of Hazardous Chemicals Rules' were promulgated in November, 1989 (amended in 2000) and 'Rules on Emergency Planning, Preparedness and Response for Chemical Accidents' in 1996. Under the 'Manufacture, Storage and Import of Hazardous Chemicals Rules' preparation of 'Off-site Emergency Plan' is covered in Rule No.14. The duty of preparing and keeping up to date the 'Off-site Emergency Plan' as per this rule is placed on the District Emergency Authority (DEA). Also, occupiers are charged with the responsibility of providing the above authority with such information, relating to the industrial activity under their control, as they may require for preparing the off-site emergency plan.

Under the 'Rules on Emergency Planning, Preparedness and Response for Chemical Accidents' as gazette in notification dated 1st August 1996 Central Crisis Group (CCG), State Crisis Group (SCG), District Crisis Group (DCG) and Local Crisis Group (LCG) need to be constituted for management of chemical accidents. The Ministry of Environment, Forests and climate change is the nodal Ministry for management of chemical disasters in the country. In order to respond adequately during a major

chemical emergency, a coordinated effort at local, District, State and Central levels is needed and all available resources need be mobilized to deal with the crisis in the shortest possible time with least adverse effects. The Joint Secretary in the MoEF & CC responsible for Hazardous Substance Management is the Member Secretary of the CCG. The Group functions under the chairmanship of Union Secretary (Environment & Forests). Similarly, a SCG and the DCG has to be constituted in every State and at district levels. The LCG will be the body in the industrial pocket to deal with chemical accidents and co-ordinate efforts in planning, preparedness and mitigation of a chemical accident. The Major Accident Hazard (MAH) installations in the industrial pockets will aid, assist and facilitate functioning of the LCG. As per the rules, the functions of the LCG are detailed below:

- Prepare local emergency plan for the industrial pocket
- Ensure dovetailing of the local emergency plan with the district off-site emergency plan
- Train personnel involved, in chemical accident management
- Educate the population, likely to be affected in a chemical accident, about the remedies and existing preparedness in the area
- Conduct at least one full-scale mock drill every six months and forward a report to the DCG.
- Respond to all public inquiries on the subject

Similarly, the DCG, SCG and the CCG will provide expert guidance for handling major chemical accidents. The DCG and the SCG will assist the district administration and the State Government administration in the management of chemical accidents. The CCG, the apex body in the Centre will render all financial and infrastructure help as may be necessary in a state in case of an accident.

7.8.20 Off- Site Emergency Plan Objective

The overall goal is to prevent loss of life or damage to health, promote social well-being, avoid property damage, and ensure environmental safety around MAH units in the Industrial area during emergency. Its specific objectives are:

1. To establish emergency response plan in the local area.
2. To provide information to the concerned members of the local area e.g. LCG members on the hazards involved in industrial operations in its neighborhood and the measures taken to reduce these risks.
3. Increase industry involvement in emergency response planning.
4. Involve LCG members in the development, testing and implementation of the overall emergency response plan.

Emergencies could arise due to different types of chemical accidents and it is not practicable to develop complete detailed response procedures for every conceivable type of emergency situation. However, advance planning can create a high order of preparedness to limit and minimize the adverse effects of an emergency caused by a chemical accident. Emergency plans are not static documents and need to be updated from lessons learnt during drills, experiences and other sources. A good communication system, training and understanding of emergency procedures, regular interaction between Government agencies and industries, education of the public and high degree of availability of emergency equipment are the key areas for effective off-site emergency preparedness.

7.8.21 Important Government Agencies Involved in Off- Site Emergency Actions

In the implementation of the Off-site Emergency Plan, the district collector is designated as the DEA. The following members of the crisis group will also invariably assist DEA:

Table 7.11: Members in Crisis Group

• Police	:	Warning and Advice to the Public-Security measures; Rescue & Evacuation
• Head of Fire Services	:	Help the industry concerned in firefighting operations and rescue
• Medical Officer	:	Treatment of affected persons
• Head of Civil Defense	:	Rescue and Evacuation operations
• Head of Electricity Board	:	Ensuring uninterrupted power supply or de-energize power supply as required

7.8.22 Responsibility of DEA

In case of an offsite emergency, the On-Site Chief Emergency Coordinator located at respective place in Plant will report the matter to the DEA or as specified in the Off-site emergency plan. The DEA will initiate the action plan to combat the emergency. The various responsibilities are:

- Take overall responsibility for combating the off-site emergency.
- Direct the police and fire personnel to combat the emergency.
- Arrange, if necessary, for warning and evacuating of the public, by the Department of Police.
- Direct the team of doctors headed by the Medical Officer
- Direct the Chief of Transport Corporation to arrange for transportation of victims and evacuation of people trapped within the hazard zone.
- Direct the Electricity Board official to give uninterrupted power supply.
- Direct the official in-charge to provide uninterrupted water supply as required.
- Direct the Revenue Officer and the Supply officer to provide safe shelters, food and other life sustaining requirements for the evacuees if required.
- Nominate a press officer.

7.8.23 Responsibility of Crisis Group

The responsibilities of the members of the crisis group are:

- To develop an integrated response strategy based on the available information.

- To plan deployment of field units to ensure the availability of appropriate force to deal with the situation.
- To co-ordinate the functioning of the various agencies.
- To deal with crisis.
- To monitor the progress till the crisis ends.

7.8.24 ECC

Emergency Control Room (ECC)

The principal facility at our plant with regards to the Onsite Emergency Plan is the On-Site ECC the place from where operations in response to emergency are directed and coordinated. At present, Common Control Room is serving as Emergency Control Room of Telangana Super Thermal Power Project, Phase-II (3x800 MW). However, a full-fledged Emergency Control Centre (ECC) is envisaged to be set up CISF building with relevant infrastructure as mentioned below.

The ECC is maintained by the CIC, the officials nominated as key personnel and senior officers of outside services called in for assistance. The on-site ECC shall be equipped with facilities to assist the plant management in making decision on the appropriate method of control. Hence, the ECC at the plant contains the following:

a. An adequate number of P&T telephones (including hotline facilities) and fax machines.
b. An adequate number of intercom telephones/mobiles/Radio paging etc.
c. Hazard and consequence maps of the plant showing clearly:
d. The location of hazardous chemicals stored and processed
e. Assembly points,
f. Occupational health centers and NTPC hospital and surroundings.
g. Key transport facilities for emergency services.
h. CISF (Fire wing) and other Fire-fighting facilities in the LDO tank farm area, coal
i. Handling areas, etc.
j. Location of safety equipment and response resources viz., breathing apparatus and other personnel protective equipment's (PPEs), etc.

- Areas of consequence impact zones for maximum loss scenarios.
- Details of Fire Water System and alternate power supply.
- Details of Fire and Safety equipment are available with outside agencies.
- Details of Populations in nearby villages.
- Details of community wardens from nearby villages.
- Detailed contact numbers (phone, fax, mobile etc.) of all resource manpower, sources for equipment, material and machinery required for handling emergency response operations.
- MSDS pertaining to LDO, Hydrogen, etc.

- Procedures of major and special fire-fighting, rescue operations, first aid related to LDO etc.
- Documentation on the primary and secondary responsibilities of the key persons.
- Others (Disaster/Emergency Management Plan, EIA report, Emergency recording register, District and local telephone directory, Wind direction and speed indicator, Public address system, Emergency siren, First aid kit, etc.

7.8.25 OSH (Occupational Safety and Health)

7.8.25.1 Description Of Hazardous Chemicals

The following table shows the major chemicals envisaged to be stored and used in Telangana Super Thermal Power Project, Phase-II (3x800 MW):

Table 7.12: List of Toxic and other chemicals in Telangana Super Thermal Power Project, Phase-II (3x800 MW)

S.No.	Scenarios	Operating Pressure (kg/cm^2)	Operating Temperature(°C)	Capacity of one tank or cylinder(m^3) Or Flow rate (m^3/hr)	No of tanks or cylinders
1	LDO Storage	Atmospheric	Ambient	3000 m^3	2
2	Hydrogen cylinder	150 kg/cm^2	35 deg C	7 m^3	510
3	HCl Tank 33% concentration	Atmospheric tank		2x20 m^3 for ClO2 dosing 3x50 m^3 for DM plant 2x 180 m^3 for CPU regeneration	7m
4	H_2SO_4 Tank	Atmospheric tank		2x30 m^3 for CW chem treatment	2
5	Ammonia Solution	Atmospheric tank		Measuring Tank: 125 m^3 Mixing Tank: 2300M^3	3 + 3
6	Boiler	280 Kg/cm^2	603 deg C	2080 TPH	NA
7	$NaClO_2$ (31% concentration)	Atmospheric tank		2x20 m^3 for ClO_2 dosing	2

Note: *These are tentative details and may vary as chemical quantity, tank sizes & quantities*

Table 7.13: List of flammable and explosive chemicals in Telangana STPP Phase-II (3x800 MW)

Sl. No.	Material Stored	Type Of Container	Nos.	Max. Storage capacity
1	COAL	OPEN YARD	4 Piles	6.86 Lac MT
2	LDO	TANK	2	5,000 m^3

7.8.25.2 Transformation If Any, Which Could Occur

No transformation of chemicals stored/used in Telangana Super Thermal Power Project; Phase-II (3x800 MW) could occur.

Hydrogen is in gas form and it would remain as a gas after release.

7.8.25.3 Health Hazard

This procedure is designed to handle accidental large-scale release/leakage of Sulphuric Acid (H_2SO4) from Tanks in LWTP (Liquid Waste Treatment Plant) of Chemistry area which has the potential to affect the people nearby.

Risk Involved

Leaks of Acid can affect the people in the premises of Acid Tanks. The Acid is highly corrosive, water reactive. Skin burns due to contact, Blurred vision and pain of eye due to contact. Irritation of nose and throat, and laboured breathing due to inhalation.

Action to be taken by operator

i. Immediately report the incident of leakage to shift chemist.
ii. Once a leakage is suspected, use self-breathing apparatus set, PVC, Gumboots, Face shield, rubber hand gloves, try to reach leakage spot and assess the place and quantum of leakage.
iii. Act as part of maintenance team in neutralization of the leaking/escaped H2SO4 acid

Action to be taken by shift chemist

i. On receipt of the information about the Acid leakage immediately inform the shift charge Engineer, OS Maintenance, Head of Safety and In-charge chemistry section.
ii. Arrange for extra breathing apparatus from Control room, other areas and shift them to leaking area for use by the maintenance team.
iii. Inform all other chemists in the shift.
iv. Co-ordinate with Maintenance team and operator to arrest the leakage and for neutralization of the leaking H2SO4 acid wherever applicable.

7.8.25.4 Purity of Hazardous Chemicals

The purity of Hydrogen in Telangana Super Thermal Power Project, Phase-II (3x800 MW) is maintained near 100 %. The hydrogen purity is of utmost importance in the system so that it does not form an explosive mixture. The utmost care is taken to ensure that the concentration of the hydrogen gas is not below a level of 99%.

7.8.26 Potential Emergency Scenarios in Telangana Super Thermal Power Project, Phase-II (3x800 MW)

The following potential emergency scenarios have been conceptualized:

a) Hydrogen storage shed/Power house: Emergency may occur due to explosion of hydrogen at power house and storage shed.
b) LDO storage area: Oil pool fire is the major emergency scenario in fuel oil storage area. Since the combustion is poor in case of pool fire of LDO, it will generate dense smoke, which creates low visibility and asphyxiation of fire crew in the downwind direction.
c) Coal Conveyors: Emergency scenario in coal conveyors is fire.
d) Boiler: Emergency scenario may arise when fire breaks out inside the boiler that may lead to explosion of boiler if the water level falls below the recommended safe level and/or due to pulverized coal.
e) Breaching of ash pond/Reservoir: An off-site emergency scenario may be created.
f) Preventive measure in case of earthquake, floods, bomb attack & sabotage etc.

The outside danger will be take up with the help of police and administration. Proper record of visitors will also keep. Outside emergency includes earthquake, storm, and lightening air crash, collapse of infrastructure/building(s) deliberate acts to cause sabotage etc.

Earthquake:

Earthquake is present unique problems as they upset the complete infrastructure necessary for rescue and restoration of normalcy. For example, it could prevent emergency personnel from reaching victims. It increases the risk of fire and electrical shock, could result in complete failure of the telephone and other communication system, disruption of water for firefighting/other reasons, and increases the possibility of burst pipelines / facilities. It could, in addition, prevent ambulances evacuating victims, fire personnel from reaching the fire incident areas result in major structural debris causing secondary damage and most importantly, could affect the entire emergency organization that is geared up for fire emergencies. Damage from falling structural debris could signal an end to conventional plants.

The main actions for earthquake incidents include preventive (pre incident), during incident and post incident actions. Each earthquake, depending upon its intensity (as measured on the modified Marcella Scale) would have different extent of damage. Some mild earthquakes could result in minor tremors felt within and perhaps outside the administrative building major ones could result in

complete destruction of storage tanks, rupture of pipelines and complete collapse of admin block building some of the precautions that are important include.

Basic earthquake related training to staff (behavior during earthquake, how to recognize, dos and don'ts etc.)

As blackout is possible, a kit containing flashlights, portable radio, basic tools etc should be available for emergency.

Actions during an earthquake would depend upon the severity of the quake and the extent of damage - however, the basic steps for safeguarding the safety (top most criterion) include.

Activation of the fire orders, as fires are likely in case of major earthquakes. Pipelines would be expected to rupture, as too would storage tanks - this would result in a large-scale spillage and possible fire of the oil. The firefighting system is likely to be incapacitated. In addition, power supply may be (most likely) cut off. Most likely, therefore, the Off Site Plan would need to be activated, as fatalities beyond the depot boundary wall are likely to be affected.

The main action would involve:

- Cutting off the power supply (if not cut off on its own already) to avoid electrical shocks, fires etc.
- Halting any unloading/Loading operations if in progress by emergency stoppage of pumps.
- Sending away road tank-trucks to safe zones for further instructions.
- Any major oil spillage could also overflow the dyke walls and spread around. Halting or minimizing this flow of oil may be attempted where practical and if possible, without endangering human life.
- For personnel, important instructions include:
- Drop, cover and hold.
- Get under a heavy table or desk and hold on. Or sit or stand against an inside wall if inside the admin block and unable to come out. If possible, to come out without difficulty, assemble outside the admin block to avoid fatality due to structural collapse.
- Keep away from windows as these may shatter/crack resulting in possible injury.
- If indoors in admin block, stay there.
- If outdoors, stay outdoors away from fall object (lighting poles, pipe racks, structural roofs etc.), falling debris, trees. And power lines.
- TT drivers should drive to a clear spot and stay in the tanker. They must avoid stopping on or under pipe racks.
- Post-earthquake actions are extremely important and these include.
- Expect aftershocks. They are just as serious as the main earthquake.

- Many Earthquakes in the past were multiple tremor ones, not a single quake.
- Use a portable radio for information.
- Assist in rescue of co -workers and other persons who could be present at the terminal as per the Fire orders.

Floods: Floods are natural calamities that have the potential to cause widespread damage to human being and property. Flood planning is perhaps the best protection against flood damage. Floods however occur after pre-warming, enabling advance action, Flood could completely submerge process equipment, buildings, pipelines and damage storage tanks. Most importantly, floods could result in drowning deaths and injury. Main actions dunning flood revolve around the following.

- Cut-off electrical supply to prevent electrocution.
- Switch off/discontinues all operations at the installation.
- Establish contact with the flood control room (Government) for up-to-date status.
- Flood damage control methods include.
- Keep insurance papers, important documents, and other valuables in a safe deposit box at a safe location.

Bomb Hoax/Threat

In case of receiving a bomb threat at the depots, the following actions are advised:

- Be calm and composed and do not show signs of panic
- Try and gain the track of the caller by simple method may give your first name comfortable only, say you are new to the depot etc. Be polite and courteous on the phone.
- Engage the caller for as long as possible as it may help later to trace the call or could help the caller give away critical hints. Do not ever let the caller hang up quickly.
- Try and note down on a piece of paper attributes of the caller such as accent any background noise (Plant, airport, busy highway, hotel, TV in living room etc.) This evidence could be crucial.
- Do not show any signs of sarcasm on the phone (could set of the undesired traction) or that you do not consider the call to be of a serious nature.
- Let the caller think you are fully convinced that his/her threats are genuine.
- Try and gain the confidence of the caller by engaging in serious conversation.
- Try and find out from the caller the location of the bomb, what type of bomb and other information, which could be useful.
- In case of threats by some terrorist organizations, try and engage in conversation (if confident) on ideological cause. How this move would realize their objective etc.

Table 7-14: Schedule of Checking & Calibration of Equipment

S. No.	Equipment/Details	Schedule
1.	Inspection & cleaning of Fire Extinguishers, PPEs. etc	Monthly
2.	Inspection of Hydrant / Monitors	Monthly
3.	Inspection of Fire Fighting & Safety Equipment	Monthly
4.	Inspection & testing of Water sprinkler system	Monthly
5.	Pressure Testing of Fire Water Line	Monthly
6.	Hydro testing of Fire Hoses	Monthly
7.	Hydro testing of Fire Extinguishers	After Every 3 Years
8.	Housekeeping	Daily
9.	Near miss Reporting	As when occurred
10.	Monitoring of Accidents	Daily
11.	Safety Committee Meeting	Quarterly
12.	Testing of electrical and hand operated fire siren	Once in Six Months
13.	Inspection of detection system	Quarterly
14.	Inspection and maintenance of CO_2 flooding system	Quarterly
15.	Safety Checks	
16.	Training on HSE to employees and contract Labours	As per LMI
17.	Safety Round of the Plant	Daily
18.	Updating of First Aid Box	Monthly
19.	Calibration of Pressure Gauges in hydrant line	Yearly
20.	Health checkup of employees & labours	Yearly

Table 7-15: Disaster Drills along with frequency and Status

S. N.	Activities	Frequency
1	Fire Mock Drill	Fortnightly

S. N.	Activities	Frequency
2	On-Site Disaster Drill	Once in Six Month
3	Off-Site Disaster Drill	As per District Administration directions

7.8.27 ALARM

Warning:

Warning is not always possible for all the major emergency situations. If the plant management envisages that a hazard encountered on-site may lead to an emergency situation, then only warning may be issued. The Incident Controller of concerned unit of Telangana Super Thermal Power Project, Phase -II (3x800 MW) should take the decision of emergency warning, if possible, in consultation with CIC and WIC.

Declaration of emergency at Telangana Super Thermal Power Project, Phase-II (3x800 MW) is to be made through ECC only after getting instruction from CIC. Announcement is to be made through PA system in Telugu and English language. Separate alarms to warn of different types of major emergency (such as Fire or Toxic gas release, etc.) would be used as discussed in the subsequent sections.

Alarm:

The major emergency will be made known to everyone inside the plant by sounding and/ or re-sounding the alarm.

The emergency alarm shall consist of repeated long and short pitch for continuous period. The purpose is to make aware all persons about the onset of a major emergency in the plant. An emergency siren should be audible throughout the factory and also to the general public in the surrounding residential area. Telangana Super Thermal Power Project, Phase-II (3x800 MW) can think of various pitches of alarms to distinguish the onset of emergency from regular siren as follows:

S. No.	Type of Emergency	Duration
1.	In Case of Fire	Short Blast for 3 Times
2.	Heavy Chlorine Leak	Long Blast for 5 Times
3.	All Clear Signal	Continuous Siren for 3 Minutes only once

In disaster management plan of Telangana Super Thermal Power Project, Phase-II (3x800 MW), emergency siren/alarm has been considered as one of the main preparedness measures. It is the responsibility of the plant management to communicate the details of alarm and warning system to all the employees and the contract staff. The alarm system should be tested during mock drill. It would find out the gaps of the disaster management systems and thereby ensure the safety and security of the plant.

7.8.28 Mutual Aid Scheme

- Mutual Aid Scheme will be prepared & agreement will be made with the neighboring industries for getting or extending help to each other in emergency.
- Mutual Aid Co-ordination will be identified & designated.
- To check the complete co-ordination & understanding, mock drills will be conducted regularly.

7.8.29 MOCK DRILL EXERCISE

It is imperative that the procedure laid down in the On-site Emergency Plan are put to the test by conducting Full Mock Drill outlast once in a Six months' time period.

The Mock Drill shall be carried out step by step as stated below to ascertain its effectiveness and to obtain the desired result there of

- **FIRST STEP**

Test the effectiveness of the communication system.

- **SECOND STEP**

Test the speed of the mobilization of the plant

- **THIRD STEP**

Test effectiveness of search, rescue and treatment of causalities

7.8.30 Safety and Security Systems

The Telangana Super Thermal Power Project, Phase-II (3x800 MW) has CISF (Fire) and CISF (Security) wing for the safety and security systems of the plant. Telangana Super Thermal Power Project, Phase -II (3x800 MW) is well equipped with all sorts of personal protective equipment at specific locations.

The existing security management system emphasizes to "harden" physical defenses so that sites would be less vulnerable. It serves three functions:

- Detection (Discovery or sensing of adversary action),
- Delay (impediment to adversary progress),
- Response by CISF personnel to ensure that a threat is neutralized

There is provision for security hardening tactics. These include:

- Increasing security patrols,
- Strengthening fences,
- Installing better locks on doors,
- Posting of CISF staff at sensitive processes within the Plant,
- Access Control: To avoid entry of intruder background checks are performed on employees, visitors and the contractual staff.

Emergency lights would be provided at all vulnerable areas for lighting arrangements as well as to operate basic minimum equipment for operating the minimum plant safety. All units would be provided with DG sets as well as DG battery system which will come on auto in case of power failure.

7.8.31 Seismic Resistance

As far as the seismic activity is concerned the Telangana Super Thermal Power Project, Phase-II (3x800 MW) lies in the Zone-II. Hence to successfully withstand earthquake-induced forces, structures such as flue gas stack, elevated roadways, plant buildings, office buildings are engineered in such a manner that they have the required integrity to resist gravity or downward forces (to hold the structure up under normal circumstances) and to resist lateral or sideways forces generated during an earthquake. To protect the life and safety of occupants, guideline stipulated under National building codes have been taken care of. Because the vertical columns are more critical to the stability of a structure than that of the horizontal beams, the design the columns are stronger than that of the beams. As a result, in the event of strong earthquake shaking motion, the probability of damage of the columns is reduced, increasing the chances of remaining of building in standingconditions. The data related to safety of the load bearing parts and foundations has not been included here because of its bulkiness.

7.8.31.1 Continuous Surveillance of Operations and Maintenance and Repair Work According to the Generally Recognized Rules of Good Engineering Practices

There are separate departments i.e., Operation, Maintenance, Civil, Engineering, etc. for the plant to ensure continuous surveillance of the plant operation, maintenances and repair work according to the rules as laid down by the corporate on the basis of good engineering practices followed worldwide.

7.8.31.2 Procedure to inform Govt. and Victims family

Provision for immediately informing the families of affected employees. Each agency in charges at site maintain the records having details like address of each labour /staff, phone nos. etc. in case of any accident / injury, Agency I/c will inform to the family members by phone or to arrange the persons to send at address of victims to inform about the injured members and concerned EIC/HOD of the deptt ensured the implementation.In case of Employees, all details maintained by HR deptt. and they informed according to the family members.

7.8.31.3 Procedure for informing to Govt. officials

Table 7-16: Sources of local assistance including telephone numbers and contacts

S No.	Description	LDBX	BSNL	Mobile
01.	Fire Station (RSTPS)	4222/5222/4881/4873	272100	9440682398
02.	Fire Station (Telangana Phase - I)	6222	--	9491562101
03.	Plant Ambulance (RSTPS Plant)	4774/5774	--	--
04.	Ambulance (Telangana Phase - I)	4447	--	--
05.	First Aid Centre (RSTPS Plant)	5562	--	--
06.	First Aid Centre (Telangana Phase - I)	4447	--	--
07.	Hospital (Casualty)	2666/2888	--	--
08.	Shift Charge Engineer (RSTPS)	5700/5710/2700	272106 274621	9494800878
09.	Shift Charge Engineer (Telangana Phase - I)	6701 /6709/6719	--	8500679889
10.	SAFETY DEPARTMENT	4016/4018/4019/6017	--	
11.	SECURITY GATE NO.- 1	4901/4903	272107	--
12.	SECURITY GATE NO.- 2	4904	273969	--
13.	SECURITY GATE NO.- 6	4906	--	--

Table 7.17: Nearest Organized Fire Brigades

S No.	Station/Location	Distance from Telangana STPP (KMs)	Type & No of Mobile appliances available with them	Anticipated Response time for fire call	Contact No.
1.	Ramagundam Thermal	4	Water Tender - 1No	7 Minutes	255235

	Power Station (TSGENCO)				
2.	Telangana State Fire Service, Godavarikhani	7	Water Tender - 1No	10 - 12 Minutes	244599

Table 7.18: Nearest Hospital (Other Than RSTPS Hospital)

S No.	Hospital Name	Distance (KMs)	Capacity	Status	Contact No.
1.	Starmount Hospital, Godavarikhani	8	50 Bedded	Well equipped with doctors & specialists including ICU facility	9704452777 8309689439
2.	Singareni Collieries Co. Ltd., Godavarikhani	7	250 Bedded		244361 244362
3.	Govt. Hospital Ramagundam	5	5 Bedded	2 Doctors	255240
4.	ESI Hospital, TSGENCO Colony, Ramagundam	4	10 Bedded	3 Doctors	--

Table 7.19: Police Station and Other Services

S No.	LOCATION	Distance (KMs)	BSNL/CELL
1.	Jyothinagar Police Station (SI)	3	272033(9440795157)
2.	Ramagundam Police Station	6	255233
3.	Godavarikhani Police Station	7	244333
4.	TSRTC Bus Station, Godavarikhani	5	244211

5.	Telegraph Office, Jyothinagar	3	272152/272188
6.	Telephone Exchange, Jyothinagar	3	272000
7.	LPTTV Relay Station	3	272084

7.9. HYDROGEOLOGICAL STUDIES

The project area lies in Top sheet No 56N/5 and adjacent to the existing Ramagundam Super Thermal Power Station (STPS). This area is a government waste land under the ownership of Ramagundam STPS and generally covered with scrub vegetation. The aquifer system in and around the Ramagundam proposed plant found to be in confined or in semi-confined conditions. The quality of groundwater found to be good. The groundwater in the area may likely to be contaminated in near future due to the operation of the existing solar plant and its proposed expansion (phase II-the proposed project). The thermal power project requires large quantity of water for their operation which is met by surface water sources affecting the hydrology of the area. Dewatering during construction, groundwater abstraction structures, construction and operation of ash dykes likely to impact the hydrogeology of the area. This brief report outlines the general geology, hydrogeology of the area and potential impacts of the industrialization/establishment of solar plant on groundwater regime in the area.

7.9.1 Physiography:

Physiographically, the area is represented by few hills in the western and southwestern parts near Ramagundam. The general surface elevation in the western parts is 223 m amsl, at central parts it is 129 m and in eastern parts with 140 m amsl. The raised plateau like structure in the eastern parts is occupied by thick forest cover. The low central part in the area is occupied with open cast coal mining and underground coal mines. The river Godavari flows from west to east in the area. Pediplain is the major landform covering about 50% of the project area. The other landforms observed are pediment, Structural hills, Flood plains, residual hill and channel fill.

7.9.2 Drainage Pattern:

The streams and smaller river in the area form part of Pranahita sub-basin of the Godavari River basin. Northern part of the area is bordered by meandering Godavari River, whereas the Maner River a tributary to river Godavari f low through the central part from south to north. The Ramagiri hills and Kammampally reserve forest hills act as divide for streams originating from them to flow in to Godavari and Maner rivers. Bokkala vagu is other recognizable stream flowing in the central part

through Manthani town ultimately joining Godavari River towards north further downstream. The Maner is a perennial river except at times when draught-like conditions prevail than the river dries up in summer months. The drainage pattern in the study area is sub-dendritic and controlled by weathering of litho units and at places sub-parallel drainage is developed by structural elements and joints in the rock structures. Drainage pattern of the nearby existing solar plant has changed and has been replaced by well-planned internal drainage system which is connected to natural drains at its outlet. The proposed solar plant area lies in the catchment of Malkapuram drain.

7.9.3 Water Bodies present in the Study Area

The study area consists of a total of 262 water bodies. These water bodies are spread across different sub-basins. A majority of them, 256, are located in the "Pranhita and others" sub-basin, while the "Godavari Middle" sub-basin contains 4 water bodies, and the "Godavari Upper" sub-basin contains 2. Regarding the purpose or reason for the existence of these water bodies, the primary purpose is irrigation, which accounts for 188 of them. A notable portion, 44 water bodies, are intended for groundwater recharge. There are also 8 water bodies used for pisciculture, and 3 for industrial purposes. The remaining 16 water bodies are classified under NS (Not Specified), with a few others serving miscellaneous reasons.

When it comes to the type of water bodies, the majority (207) are man-made, while the remaining 55 are of natural origin. Among the man-made water bodies, 184 are earthen structures, 20 are concrete, and 2 are masonry. Additionally, 1 water body falls under the "Others" category, and 55 have no specific classification under this category.

Lastly, the water bodies are utilized for various purposes. Pisciculture takes place in 52 of these water bodies, while groundwater recharge is the purpose for 22 of them. Domestic/drinking purposes are served by 4 water bodies, and 2 for irrigation and 3 for industrial uses each account for 2. However, a significant number (164) of water bodies have no clearly defined use under the provided classification, and 14 serve other various purposes, with 1 used for religious purposes.

Category	Sub-category	Count
Total Water Bodies		262
Sub-basin Distribution	Godavari Middle	4
	Godavari Upper	2
	Pranhita and others	256
Reference Reason	Ground water recharge	44

	Industrial	3
	Irrigation	188
	Not Specified	16
	Other	3
	Pisciculture	8
Water Body Type	Man-made	207
	Natural	55
Man-made Water Body Type	Concrete	20
	Earthen	184
	Masonry	2
	Not Specified	55
	Others	1
Water Body Usage Reason	Domestic/Drinking	4
	Ground water recharge	22
	Industrial	3
	Irrigation	2
	Not Specified	164
	Other	14
	Pisciculture	52
	Religious	1

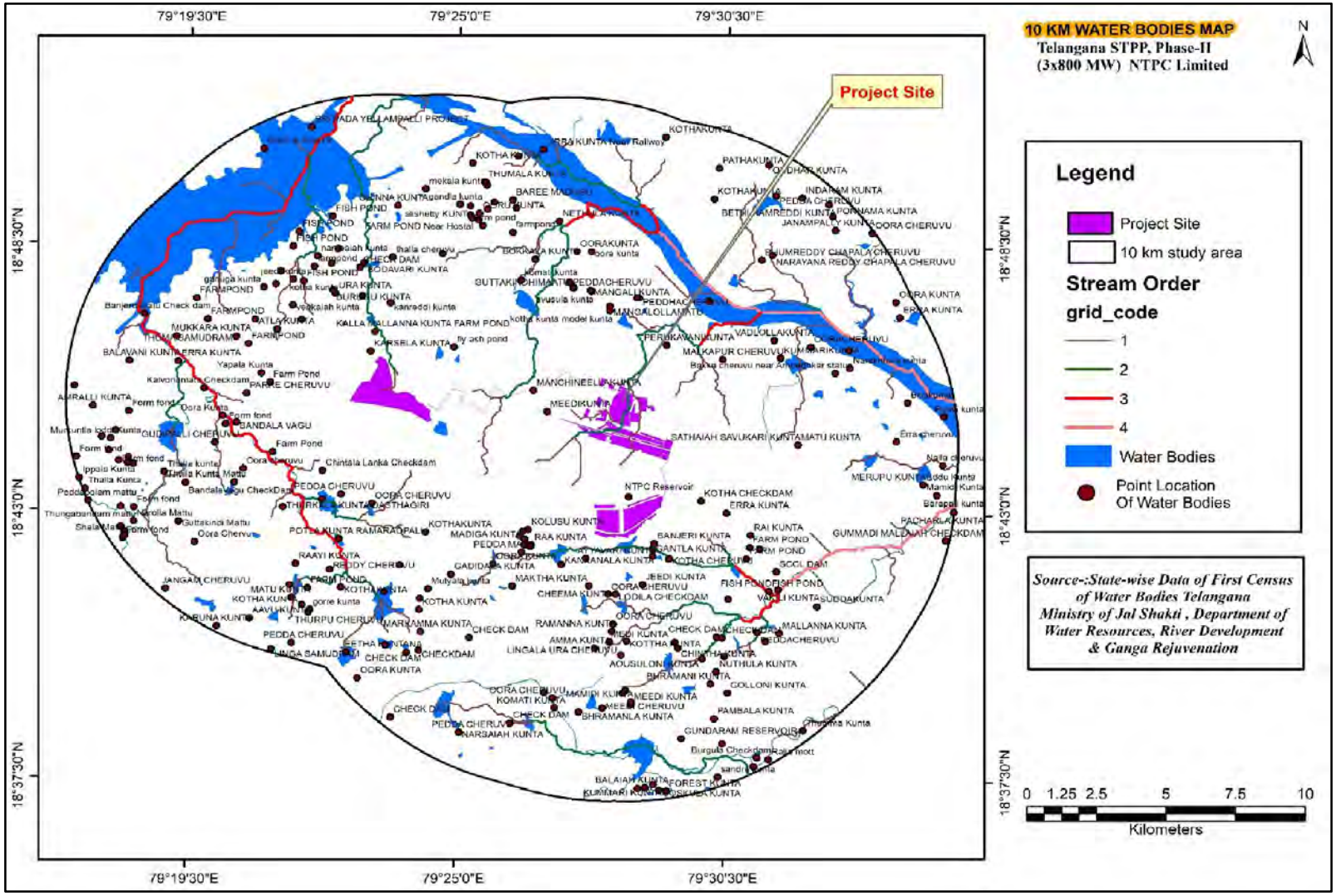


Figure 7.16: Water Bodies present in the Study Area

7.9.4 Climate and Rainfall:

The climate of the district is characterized by hot summer and cool winters with good amount of rainfall. May is the hottest month with daily mean temperatures ranging from 29.4°C to 42.7°C and December is the coldest month with daily mean temperatures ranging from 14.6°C to 29.9°C.

The rainfall data for Peddapalli district from 2018 to 2022 reveals significant annual and seasonal variations. The average rainfall over the five-year period stands at 1313.4 mm, with 2022 recording the highest rainfall at 1538.3 mm. Monsoon months (June to September) typically experience the highest rainfall, significantly influencing agriculture and water availability. In contrast, pre-monsoon (March to May) and post-monsoon (October to December) months show variability, often leading to water stress during low-rainfall years like 2018 and 2021. The district's rainfall patterns highlight both opportunities for improved agricultural productivity and the need for water management strategies to mitigate the impacts of climate change and erratic weather conditions.

7.9.5 Geology:

Regional Geology:

Major part of the Karimnagar district is underlain by Gondwana formation.

Recent to Archaean age formations can be seen in the area.

Archaean crystalline rocks occupy western part of the district covering 15% of the area, represented by pink and grey granites, at places they are intruded by dolerite dyke rocks.

Pakhal Group of sediments, equivalent of upper Cuddapah rocks in age is represented by dolomitic limestones and conglomerates.

Sullavai formations belonging to Kurnool group of rocks are well represented in Central and NW part of the study area, represented by massive sandstones and shales forming hills in the central parts and in Ramagundam area. These rocks are brown to brick red in color, quartzite to felspathic in nature.

Gondwana formations overlie the Pakhal group of rocks in the area. These rocks are divisible in to two groups. The Talchir, Barakar, Barren measures and Kamthi constitute Lower Gondwana whereas Maleri, Kota and Chikiala formations comprise the Upper Gondwana Group. The lower group is well represented by Barakar sandstones, which are greyish white, fine to coarse at times to grity feldspathic. These are intercalating with grey clays and coal seams. The workable coal seams are located in Ramagundam, Godavari Khani and Kamanpur areas. The Maximum thickness of these rocks is about 350 m as determined by boreholes data. The barren measures are represented by very coarse to coarse grained feldspathic sandstones with grey clays and carbonaceous clays without any coal deposits, these rocks are present below the Kamthi formations.

ERA/AGE	Group/System	Series	Lithology
Lower Cretaceous to Upper Triassic	Upper Gondwana	Kota	Sandstones, clays and limestones
		Maleri	Red clays and calcareous sandstones
Lower Triassic to Upper Carboniferous	Lower Gondwana	Kamthi	Ferruginous sandstones, grits, clays and shales
		Barren Measures	Feldspathic sandstones, shales, carbonaceous clay
		Barakars	Feldspathic sandstones, siltstones and coal seams
		Talchirs	Boulder bed and fine-grained sandstone
Unconformity			
Lower Palaeozoic to Upper Pre-Cambrian	Vindhyan	Sullavai	Arkosic quartzites and sandstones
Upper Pre-Cambrian	Pakhals	-	Shale, dolomite, basal conglomerates
Unconformity			
Lower Pre-Cambrian	Dharwarian		Schists, banded hematite and quartzites
	Archaean		Pink and grey granites & gneisses

The Kamthi are mainly ferruginous sandstones and intermingled with clay zones, they are medium fine grained with cross bedding at places and form massive cliffs and escarpment of hills (east of Manthani). These rocks are covered by thick vegetations and often form raised mounds as in Mahadevpur, Kataram, Maha Mutharam and Manthani areas. The thickness of these formations is stated to be about 300 meters.

Maleri formations form narrow bands between Kamthi and Kota formations and comprises of coarse to grity, pale grey to reddish sandstones occurring in Maha Mutharam area.

Kota formations overlie Maleri formations. Their contact with Kamthi is structural and occurs as low relief areas comprising shales and clays intercalated with fine to medium grained sandstones. These are exposed in Nashtarpalli, Chintakani, Gangaram areas of Mahadevpur and Maha Mutharam mandals.

Chikialas form youngest formations of Gondwana's comprising light brown red buff-colored ferruginous sandstones and conglomerates intercalated with clays and shale beds. These rocks occur as narrow bands in eastern part of the area.

Gondwana formations represented by Barakar and Kamthi sandstones of Lower Gondwana age and Maleri and Kota formations of Upper Gondwana age are well represented in Kamanpur, Manthani, Ramagundam, Kataram and Mahadevpur mandals.

Alluvial deposits of Recent in age consist of sands and clays occur along banks of the Maner and the Godavari rivers in the area. The sands are fine to medium grained mixed with gravel and silt. The thickness of alluvial deposits ranges from 3 to 16 m. at Mahadevpur. The general geological succession of the area is presented in below table.

Local geology:

The general geological sequence near Ramagundam and Telangana Super Thermal Power Project power plant can be summarized in the following.

The Sulluvai formation of Kurnool group of rocks represents the main rock unit in the project area. They are composed of massive sandstones and shales. These rocks are brown to brick red in color, quartzite to felspathic in nature. They are slightly weathered and fractured at the top.

The Sullavai sandstones are underlain by Pakhal Super group of rocks of upper Pre-Cambrian age.

7.9.6 Hydrogeology:

The project area is located south of Godavari River and near the existing Ramagundam and Telangana Super Thermal Power Project.

The occurrence and movement of water in the subsurface is broadly governed by geological frameworks i.e., nature of rock formations including their porosity (primary and secondary) and permeability. The principal aquifers in the project area are Sandstones. The occurrence and movement of ground water in sedimentary rocks is controlled by the granular zones and their interconnectivity and the secondary pores/voids developed by fracturing and weathering.

Groundwater Occurrence and movement:

Ground water in the project area occurs under unconfined and semi/confined conditions. On the basis of occurrence and movement of water in the subsurface, the aquifers in the area are grouped

into two types A Consolidated formations (Granites and Quartzites) and B Unconsolidated formation (recent alluvium and Sedimentary rocks).

The consolidated aquifers include Quartzites of Precambrian age where the aquifers constitute the weathered zone at the top, followed by a discrete anisotropic fractured/fissured zone at the bottom, generally extending down to 200 m depth.

The Unconsolidated formations include the and recent alluvium and sedimentary formations (the main rock unit of the project area) of Gondwana deposits. These aquifers constitute the unconfined zone at the top, followed by confined aquifers separated by clay layers which act as aquitards (confining beds).

Exploratory Drilling:

As on 31/03/2020, CGWB drilled 28 bore wells (exploratory, observation and piezometers) in the study area, out of which 26 wells are drilled in sedimentary formations and 02 wells were drilled in granitic terrain. Tube well depth analysis of 28 exploratory wells indicates, 02 well are in shallow depth (30 m), 05 wells are in the depth range of 30-100 m, 04 wells are in the depth range of 100-200 m and 17 wells are in the depth range of 200-300 m depth.

Ground water Yield:

Ground water yield in granitic aquifers varies from < 1 to 3 lps (avg: 1.5 lps). In rocks, the ground water yields vary from 1 to 25 lps. In Barren measures, Quartzites and Sandstone areas yield varies from 1 to 5 lps. In Maleri and Kota formations, Yield varies between 5 and 10 lps whereas Kota and Kamthi formations show maximum yields varying between 10 and 25 lps.

Water Levels:

Ground water levels from 82 piezometers (CGWB:14, SGWD: 26 and SCCL :42) were analyzed for pre-monsoon and post-monsoon season. The DTW varies from 1.2 to 26 meter below ground surface (mbgl) (average: 8.6 mbgl) and 0.5- 25 mbgl (average: 6.8) during pre and post-monsoon seasons respectively. During pre and post-monsoon season (May and November), the water-table elevation ranges from 93-182.3 and 70.3-182.8 meter above mean sea level (mbgl) respectively and general ground flow is towards river Maneru and towards river Godavari mostly from south to north.

Pre-monsoon season:

Majority of the water levels during this season are in the range of 2-10 m covering 90% of the area, followed by 10-20 mbgl (9%). Deep water levels in the range of 20-40 mbgl occupy about < 1% of the area falling in parts of Ramgiri mandal. Shallow water levels (< 2 mbgl) occupy about < 1% of the area in Mahadevpur mandal and 2 to 5 mbgl occupy about 33% of the area in southeastern, central and isolated parts in western parts of the area.

Post-monsoon season:

Majority of the water levels during this season are in the range of 2-10m covering 92% of the area, followed by 10-20 mbgl (6%). Deep water levels in the range of 20-40 mbgl occupy about < 1 % of the area falling in parts of Ramagiri mandal (Fig.2.5). Shallow water levels (< 2 mbgl) occupy about 2% of the area in Mutharam, Mahadevpur, Ramagundam mandals (project site) and 2 to 5 mbgl occupy about 67% of the area in southern parts of the area.

Long-term water level trends:

Trend analysis for the last 10 years (2011-2020) is studied from hydrograph stations of CGWB and SGWD. It is observed that during pre-monsoon season out of 38 wells, 28 wells (74%) show falling trend (0.01 to 1.77 m/Yr) and 10 wells (26%) shows rising trend (0.08-1.3 m/yr). During post-monsoon season out of 38 wells, 16 wells (42%) show falling trend (0.01 to 1.64 m/Yr) and 22 wells (58%) shows rising trends (0.01 to 1.75 m/Yr).

The wells located in the project area or nearby show the similar long-term trends.

Groundwater Resources

The dynamic ground water resources are computed as per the guidelines laid down in Ground Water Estimation Committee-15 methodology for Karimnagar district. As per 2020 GEC report, the net dynamic replenishable groundwater resources availability is 311.39 MCM, gross ground water drain for all uses is 122.14 MCM and net annual ground water potential available for future irrigation needs is 177.7MCM. Stage of ground water development varies from 14% and 61 % with average of 39 %. All the mandals fall under safe category, with highest stage of extraction of 60% and 61% seen in Mutharam and Manthani mandals respectively. 91% (111.4 MCM) of gross ground water drain is utilized for irrigation purpose only. Computed Dynamic ground water resources of the study area are given in below table. The project area falls under Ramagundam mandal which is a safe category.

As per GEC 2020	MCM
Dynamic (Net GWR Availability)	**311.39**
• **Monsoon recharge from rainfall**	197.85
• **Monsoon recharge from other sources**	39.19
• **Non-Monsoon recharge from rainfall**	0
• **Non-monsoon recharge from other sources**	95.81
Gross GW Draft	**122.14**
• **Irrigation**	111.36
• **Domestic and Industrial Use**	10.77
Provision for Drinking and Industrial use for the year 2025	21.22

Net GW availability for future irrigation	177.71
Stage of GW development (%)	39% Min: 14% (Mutharam, Mahadevpur & Ramagundam) Max: 61% (Manthani)

7.9.7 Current Groundwater pollution scenario and impact on groundwater regime:

Groundwater pollution:

Geogenic Pollution or naturally occurring pollution

Few mandals are fluorosis endemic where fluoride (geogenic) as high as 2.52 mg/L during pre-monsoon and 2.61 mg/L during post-monsoon season is found in groundwater. The high fluoride concentration is present in pre and post monsoon water samples in four mandals of Karimnagar district. They are Kamanpur, Malharrao, Manthani and Mutharam Manthani. However, the samples from Ramagundam mandal do not contain any fluoride where our project site located.

Reason for Geogenic pollution may be attributed to source rock and interaction of water with fluoride bearing rocks like fluorite/fluorapatite where these rocks get dissolved under alkaline conditions. Another reason of this pollution may be attributed to the longer contact of deeper aquifer with such rock units without any disturbance.

Falling Groundwater level Trends

Most of the wells during pre-monsoon as well post monsoon in the project area and other mandals of Karimnagar district, show falling trends.

Reason of this trend may be attributed to over exploitation, paddy cultivation during rabi season as main crop that consumes significant amount of water sources, ground water mining and last but not lease the limited artificial measures.

Groundwater pollution due to the operation of existing Telangana Super Thermal Power Plant (STPP) and its proposed expansion Phase II (proposed project) and their anticipated impact on groundwater regime

There are number of water bearing structures like ponds, balancing reservoir, ash pond etc. are present in the nearby Telangana Super Thermal Power Plant (STPP) which either stores water or work as conduits to surface or groundwater for plant operation. These water bodies have the potential to contaminate surface and groundwater in the area. The hydrogeological study conducted for the first phase of Telangana STPP and samples were also collected from these water bodies in 2016. However, analysis of these samples did not indicate the concentration of any metals or other parameters above detectable limits yet.

Infiltration test around the ash pond also conducted and it is found that most of the ash pond area is covered with sandy soil. The rate of infiltration observed to be high at most of the location around the

ash pond. It paves a way for the infiltration and percolation of the pollutants generated due to the ash pond activity in the area and ultimately polluting groundwater in the vicinity. However, HDPE lining has been provided in existing ash dyke of Telangana STPP Phase-I to prevent the contamination of groundwater and provision of lining is envisaged for proposed ash ponds for Telangana STPP Phase-II also.

Groundwater Management Plan:

The uneven distribution of groundwater availability and its utilization indicates that a single management strategy cannot be adopted and requires integrated hydrogeological aspects along with socio-economic conditions to develop appropriate management strategy. Based on previous studies, number of measures for sustainable groundwater management requires that outlined in the following.

A. Desilting of all the existing ponds/tanks in the area and establishment of more ponds

B. Artificial Recharge of Groundwater: There are number of artificial recharge structures present in the study area. The feasibility of these artificial recharge structures is studied based on the surplus runoff and recharge potential and construction of more recharge structures is recommended based on their feasibility and suitability pertaining to local hydrogeological conditions. Some of the recharge structures to be proposed are; recharge Trenches, recharge wells, surface storage ponds.

C. Roof top rainwater harvesting structures should be made mandatory to all Government buildings (new and existing including the existing Telangana STPP).

D. A comprehensive surface and groundwater quality monitoring program to be established in the study area based on CPCB guidelines. Monitoring of surface and water quality and quantity shall also be regularly conducted and record maintained. The monitored data shall be submitted to the ministry regularly. Monitoring for heavy metals in ground water shall also be undertaken and results should be submitted along with half yearly monitoring/compliance report. The monitoring program shall be revisited and modified at least once in every three years.

E. Trees should be planted along the existing ash pond boundary and balancing reservoir and other associated ponds. Greenbelt should be established wherever possible between ash pond and balancing reservoir. Tree or plant roots are capable of absorbing concentration of contaminants and root network develops a screen on the advancing front of deteriorated groundwater.

F. Construction of toe drain along the ash pond in order to collect and safely dispose the seepage and leachate generated in the ash pond. The discharged effluents conform to standards specified by CPCB and the same is regularly monitored (ash pond).

G. A lined ash pond is proposed to be constructed for the proposed phase II eliminating any potential of groundwater contamination through infiltration.

7.9.8 Recommendations:

A comprehensive surface and groundwater quality monitoring program has been advised in line with CPCB guidelines.

The surrounding water bodies particularly in the down gradient side like ponds, streams, canal, river, hand pumps or any other groundwater abstraction structure like bore well/tube well to be judiciously selected for surface water and groundwater sampling. Quality of these water bodies/wells to be monitored and records to be maintained every quarterly and in case, any change in quality or contamination in the samples are found, an action plan to be devised in order to mitigate such impacts.

These water quality monitoring reports can also be submitted along with half yearly compliance report. Additionally, in any case, monitoring program shall be revisited and modified at least once in every three years.

Reference: 1. Groundwater Brochure 2013, Karimnagar district, Telangana, CGWB, Government of India

2. Hydrogeological study for Telangana Super Thermal Power Project (2×800 mw), Ramagundam, Telangana by IIT Roorkee 2016

3. Aquifer mapping 2022, Karimnagar district, Telangana, CGWB, Government of India

7.9.9 Action Plan and Budget for Hydrological Management in the Study area

Table 7.20: Phase-wise Implementation Timeline

Phase	Duration	Period	Key Activities
Phase 1	0-6 months	Immediate Actions	Monitoring wells installation and Laboratory testing
Phase 2	6-18 months	Short-term Implementation	Artificial recharge, Green belt
Phase 3	18-60 months	Long-term Sustainability	Rainwater harvesting, Advanced monitoring

Detailed Budget Breakdown by Phase

Table 7.21: Phase 1: Immediate Actions (0-6 months)

Component	Activity	Quantity	Unit Cost in Rupees	Total Cost (Rs.)
Groundwater Quality Monitoring				
Monitoring wells installation	Monitoring wells installation 10 wells (3 up gradient, 5 down	10	80,000	8,00,000

	gradients, 2 lateral)			
Laboratory testing (outsourced)	Quarterly testing for 1 year	4 cycles	35,000	1,40,000
Phase I Total				**9,40,000**

Table 7.22: Phase 2: Short-term Implementation (6-18 months)

Component	Activity	Quantity	Unit Cost in Rupees	Total Cost (Rs.)
2.1 Artificial Recharge Structures				
Recharge wells	Priority locations	10	17,500	1,75,000
Recharge trenches	Development	10	10,000	1,00,000
Existing pond rehabilitation	De-silting	20	35,000	7,00,000
Sub-total 2.1				**9,75,000**
2.2 Green Belt Development				
Land preparation	Clearing, pit digging, Manuring	-	-	1,50,000
Tree plantation	Local species	3000	300	9,00,000
Irrigation & maintenance	3 years maintenance	3,000 trees	Rs.50/plant/year	4,50,000
Subtotal 2.2				**15,00,000**
Phase 2 Total				**Rs.24,75,000**

Table 7.23: Phase 3: Long-term Sustainability (18-60 months)

Component	Activity	Quantity	Unit Cost in Rupees	Total Cost (Rs.)
Basic monitoring equipment	Automated systems	10 stations	30,000	3,00,000
Data management system	Simple setup	1	50,000	50,000
Administrative costs	3 years	-	-	50,000

Operational costs	3 years	-	40,000/year	1,20,000
Phase 3 Total				**Rs.5,20,000**
Total Budget for Phase 1+2+3				**Rs.39,35,000/**

Total Budget required for three years spreading over three phases if Rs.39, 35,000/-

The following key indicators will be taken into consideration for Evaluation of the Action Plan for Hydrological Management in the Study Area.

7.9.10 Key Performance Indicators (KPIs)

Table 7.24: Environmental KPIs

Indicator	Target	Measurement Frequency
Groundwater quality parameters	Within CPCB limits	Quarterly
Contamination incidents	Zero incidents	Continuous monitoring
Groundwater recharge improvement	15% improvement at least	Annual assessment
Water table levels	Stable or improving	Quarterly Monitoring
Plantation	80% Survival Rate	Annual Assessment

7.10. WATER SHED DEVELOPMENT

7.10.1 INTRODUCTION

Water availability in a water body depends significantly on the characteristics of the watershed that surrounds it. Therefore, effective management of the watershed around the water source is crucial to ensure a continuous water supply for power plant operations.

The proposed Expansion of Telangana Super Thermal Power Project, from 1600MW (Phase-I: 2x800 MW) to 4000MW (Phase II: 2400 (3x800 MW) is located at villages Ramagundam, Kundanpalli, Ranapur, etc., in Peddapalli District, Telangana. This project requires 115200 KLD of water for existing Phase I and 72240 KLD for the proposed Phase II expansion, totaling 187440 KLD. This water will be drawn from the Sripada Yellampalli project located 14.0 km away.

Watershed management entails overseeing human activities and natural resources within the hydrological boundary surrounding the water source. This approach considers the holistic availability of water throughout the watershed and its demand across various sectors. Strategies under this approach include water demand management, rainwater harvesting, and soil and water conservation.

Moreover, Watershed management aims to improve water quality and secure water availability for future demands, benefiting both power plants and other users in the region. By adopting this approach, power plants can potentially achieve near-water neutrality in electricity production. This strategy also fosters goodwill with local communities and contributes to corporate social responsibility.

Thus, power plants should expand their focus beyond immediate boundaries to responsibly manage the local watershed. This approach ensures sustainable operations, supports the overall ecological balance, and meets the needs of other competing users in the area.

7.10.2 METHODOLOGY

Geospatial maps, along with primary and secondary data encompassing climate, socio-economic factors, ecology, and biodiversity, form the foundation for a comprehensive watershed development plan. These maps include the Land Use Land Cover (LULC) map, drainage map, Digital Elevation Model (DEM), Aspect map, and Watershed Boundary map, each contributing crucial spatial information for understanding watershed dynamics. The LULC map delineates land cover types influencing water availability and land use patterns. The drainage map identifies hydrological features crucial for water flow and quality management. DEM and Aspect maps provide terrain characteristics influencing runoff, erosion, and ecological processes. Watershed boundaries guide spatial planning and resource allocation. Integrated with climate data, socio-economic indicators, and biodiversity assessments, these maps inform targeted interventions aimed at sustainable watershed management, flood control, soil conservation, and biodiversity conservation.

1. Land Use Land Cover (LULC) Mapping

The methodology for LULC mapping begins with defining study area boundaries and acquiring suitable satellite imagery, such as Landsat or Sentinel data. Following preprocessing to correct for radiometric and geometric distortions, supervised or unsupervised classification techniques categorize land cover types. Validation through field surveys or high-resolution imagery ensures accuracy. The finalized LULC map, generated in GIS software, incorporates color-coded classes based on classification results, essential for informing watershed management strategies and sustainable land use planning.

2. Drainage Mapping

To accurately depict hydrological features within the watershed, initial delineation of watershed boundaries utilizes high-resolution satellite imagery or DEMs to identify topographic features. Hydrological features like rivers, streams, and lakes are then mapped using GIS tools for flow accumulation and stream network delineation. Validation involves field surveys and comparison with hydrological models, integrating these elements into a comprehensive drainage map crucial for effective watershed management and environmental planning.

3. Digital Elevation Model (DEM) Mapping

Acquiring elevation data through LiDAR or radar provides detailed terrain measurements across the study area. Preprocessing corrects geometric distortions, enhancing data quality. GIS processing converts elevation data into a DEM raster dataset, further deriving slope, aspect, and elevation contour maps to characterize terrain features. Validation against ground truth data ensures accuracy, supporting applications in watershed analysis, flood modeling, and landform classification essential for informed decision-making.

Slope mapping plays a critical role in watershed management by characterizing terrain steepness and influencing factors such as runoff, erosion potential, and land suitability. Derived from the Digital Elevation Model (DEM), slope maps categorize land into gradient classes ranging from gentle slopes to steep gradients.

4. Watershed Boundary Mapping

Integrating data from the Soil and Land Use Survey of India, watershed boundaries are delineated and classified using GIS software. Initial data acquisition ensures accuracy, overlaying boundaries onto a base map and assigning distinct colors to differentiate watersheds. Validation through spatial analysis and field observations ensures map reliability, supporting watershed management, environmental assessment, and resource allocation decisions crucial for sustainable development.

5. Soil Mapping

Incorporating data from the Food and Agriculture Organization/UNESCO Soil Map of the World enriches the watershed development plan by providing crucial insights into soil characteristics and their spatial distribution. This globally recognized dataset classifies soils based on factors such as texture, fertility, and depth, essential for understanding land productivity and suitability for various land uses within the watershed. Utilizing GIS technology, soil mapping overlays these soil classifications onto the watershed boundaries established earlier, creating a detailed spatial representation of soil types across the study area.

7.10.3 DESCRIPTION OF WATERSHED IN THE STUDY AREA

I. LOCATION AND EXTENT

There are four watersheds within the study area: 4E2C1, 4E2C2, 4E2D1, and 4E2D2, as indicated in Table 7.25 and Figure 7.15. These watersheds are sub-catchments of the Godavari basin, covering a total area of 274,481 hectares. The exact location of the project site falls within watershed 4E2C1.

Table 7.25: Table showing area of watershed of the study area.

Watershed Number	Total area of watershed in hectare	Area of watershed under 10 Km radius of the study area in hectare
4E2C1	70449	46057.73
4E2C2	44681	11344.89
4E2D1	89324	6850.41

4E2D2	70027	2043.34
Total	**274481**	**66296.37**

II. PHYSIOGRAPHY

The study area is characterized by varied terrain. In the north-central, western, and southwestern regions, there are hill ranges, eroded valleys, and forests. The Godavari River flows northwest-northeast and is the main river in the area. Prominent hills include Jonalarasi Gutta and Nalla Gutta in the west, and Nagula Gutta in the southwest, mostly covered by dense or scrub forest. The northern, eastern, and southern parts consist of a plateau and moderately undulating terrain, with elevations mostly ranging from 140 to 376 meters above mean sea level. The land generally slopes towards the east.

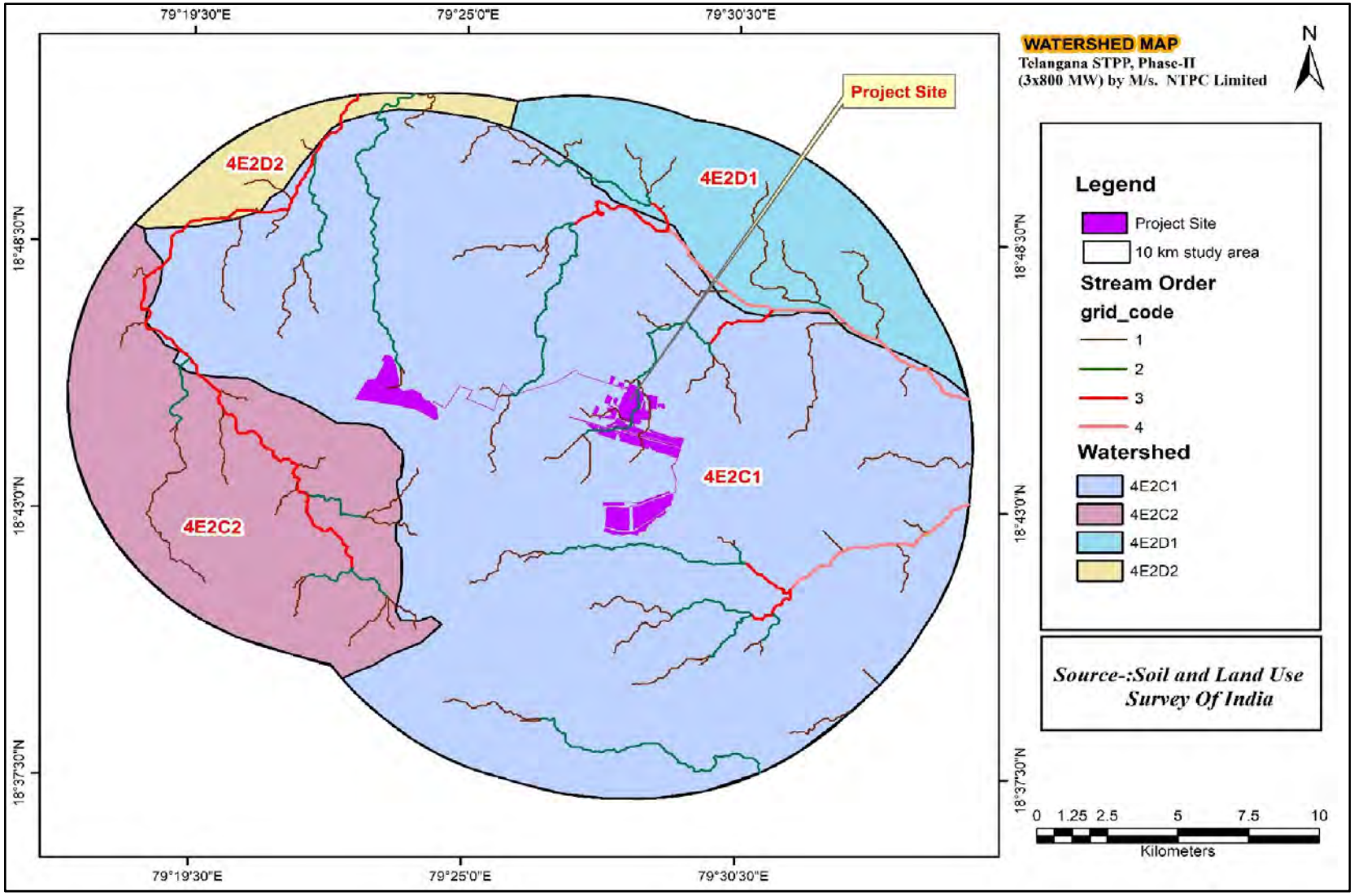


Figure 7.17: Map showing watershed found within the 10 km study area

The topography of the proposed project area is undulating, ranging in elevation from 164 to 176 meters. In contrast, the area designated for the ash pond has elevations ranging from 200 to 245 meters. The overall slope in the proposed project area is towards the northeast, leading towards the Godavari River which is depicted in figure 7.12 and the elevation of the study area is depicted in Figure 7.13

III. DRAINAGE

The Godavari River, a major interstate river, flows northwest-northeast and is situated 3.90 km north-northeast of the proposed project area. It enters Telangana at Basar, originating near Triambakeshwar in the Sahyadri range near Nasik, Maharashtra, at an altitude of 1070 m above mean sea level. The river basin covers a vast area of 3, 12,800 sq. km.

Numerous feeder streams join the Godavari River within the study area, contributing to a dendritic to sub-dendritic drainage pattern with a dense network, averaging 1.65 km/sq km in density. Quarrying and mining activities for stone and coal in the region disrupt the natural drainage, leading to localized waterlogging issues.

Throughout the study area, there are several small to medium-sized ponds.

The drainage network of the study area is depicted in Figure 7.16.

IV. CLIMATE

The area experiences dry inland climatic conditions with hot summers and cool winters. According to 5-year IMD data, the average annual rainfall is 1313.4mm. The monsoon typically arrives in June and persists until September, occasionally extending into mid-October. July receives the highest rainfall (389.46 mm), with approximately 88.77% of the total rainfall occurring between June and September. July also records the maximum number of rainy days.

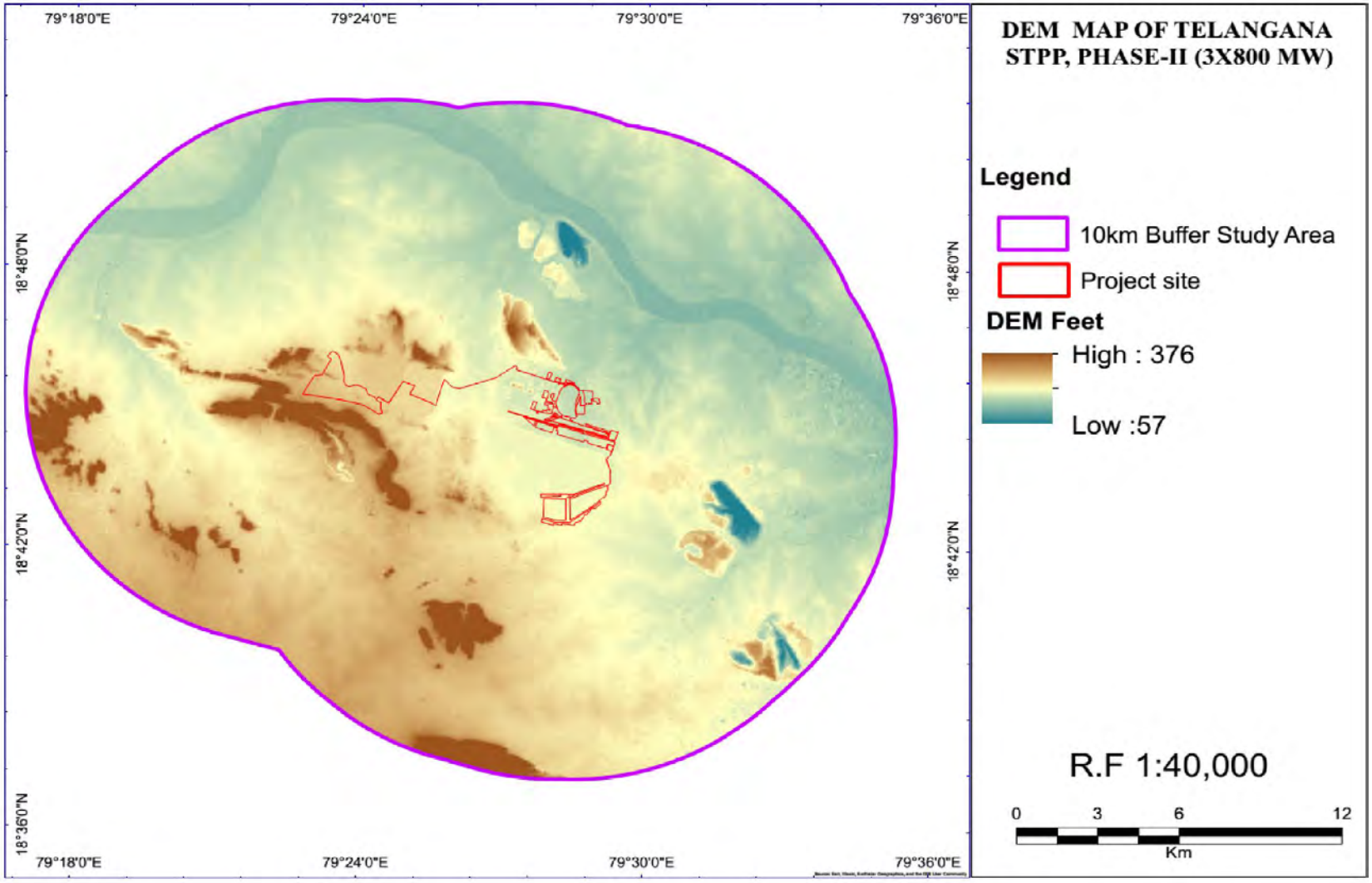


Figure 7.18 Drainage and Elevation map of the 10 km study area

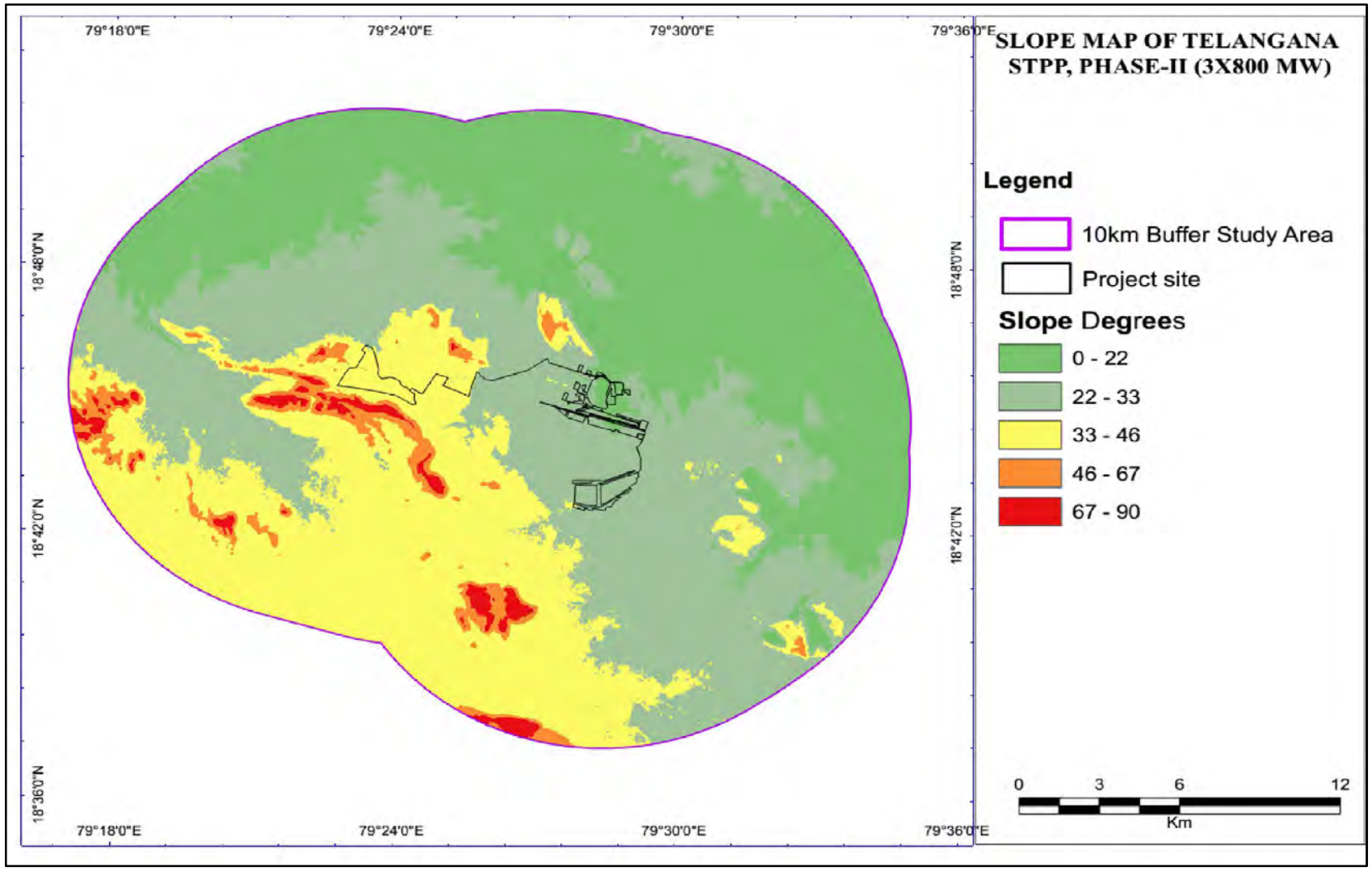


Figure 7.19: Map showing slope of the 10 km study area

Table 7.26: Table showing rainfall data of previous 5 years (Source: IMD)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2018	0	0	4.7	19	43.8	238.6	328.1	450.2	134	0	0	13.8	1232.2
2019	48	10.8	0.4	5.4	0.3	81.2	269.5	374.9	350.8	196.1	2	1.2	1340.6
2020	9.3	13.3	19.1	5.7	17.2	259.6	238.7	450.7	235.9	104.4	0.9	0	1354.8
2021	2.2	0	0	6.3	16.3	254.2	315.4	140.4	329.8	22.3	14.2	0	1101.1
2022	50.9	0	0	0.2	26.2	164.1	795.6	182.2	232	85.2	0	1.9	1538.3
Avg.	22.08	4.82	4.84	7.32	20.76	199.54	389.46	319.68	256.5	81.6	3.42	3.38	1313.4

Based on the rainfall data of Peddapalli district for the years 2018 to 2022, here are some observations:

Annual Rainfall Trends:

The annual rainfall in the district exhibits considerable inter-annual variability, characteristic of the region's monsoonal climate. Among the recorded years, 2018 experienced the highest annual precipitation, totaling 1243.2 mm. Substantial rainfall was also observed in 2020 and 2021, with annual totals of 1150.9 mm and 1130.8 mm, respectively. In contrast, the years 2019 and 2022 recorded relatively lower rainfall amounts of 1342.9 mm and 1636.9 mm, respectively. These fluctuations underscore the spatial and temporal variability of rainfall in the region, which has implications for water resource planning and management.

Seasonal Variations:

- Monsoon Months (June to September): These months typically receive the highest rainfall, contributing significantly to the annual total.
- Pre-Monsoon Months (March to May): These months also show considerable variation in rainfall, influencing agriculture and water availability.
- Post-Monsoon Months (October to December): Rainfall during these months is generally lower or sporadic, which can impact post-monsoon agricultural activities.

Yearly Variations:

2018: Experienced a balanced distribution of rainfall throughout the year, with significant contributions from both monsoon and pre-monsoon months.
2019: Experienced highest rainfall in the month of July to September, impacting agricultural productivity.
2020: Featured a robust monsoon season with adequate rainfall, benefiting agricultural output.

2021: Received well-distributed rainfall during the monsoon season, which effectively supported agricultural activities and crop growth.
2022: Notable for exceptionally high rainfall in July, which significantly contributed to the annual total.

Impact on Agriculture and Water Resources:

- Higher rainfall years (2019, 2020, and 2022) likely boosted crop yields and replenished groundwater reserves.
- Lower rainfall years (2018 and 2021) might have led to water stress, affecting agricultural planning and productivity.
- Variability in rainfall across months underscores the importance of water management strategies for sustainable agricultural practices.

Climate Change Considerations:

- The observed variability in rainfall patterns underscores the district's susceptibility to climate change impacts.
- Increasingly erratic rainfall distribution can pose challenges for agriculture, necessitating adaptive strategies and infrastructure development for water conservation.

These observations provide a snapshot of Peddapalli district's rainfall dynamics over recent years, highlighting both opportunities and challenges for agricultural and water resource management.

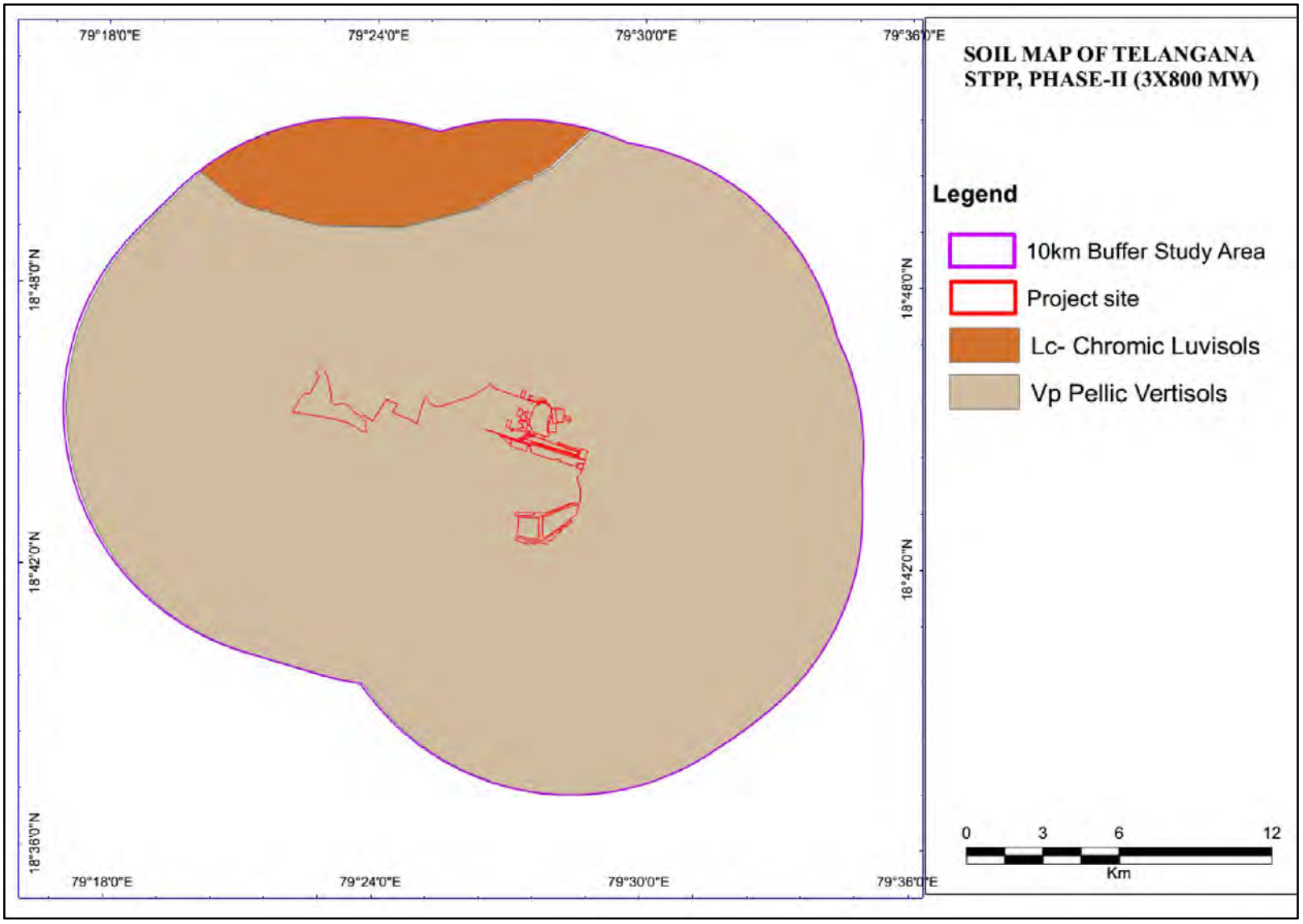


Figure 7.20: Map showing soil type classification found in 10 km study area (Source: FAO-UNESCO Soil Map of the World)

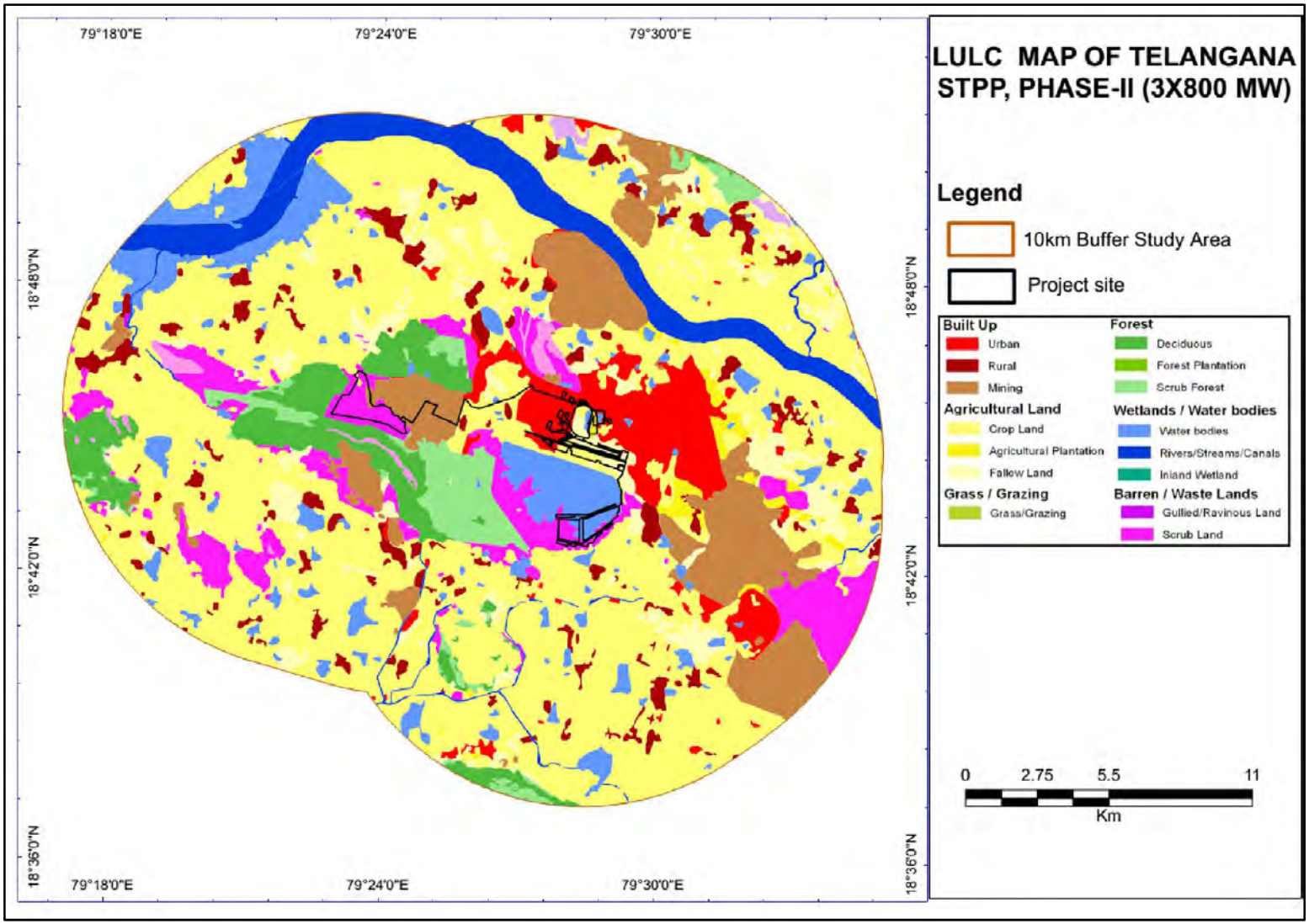


Figure7.21: Map showing Land Use Land Cover of the 10 km study area

V. SOIL

There are two types of soil found in the study area which is Chromic Luvisols and Pellic Vertisols under order Vertisols of USDA Taxonomy which is shown in figure 15

- Chromic Luvisols have a tendency to form aggregates, which can help reduce erosion by stabilizing the soil surface. However, these aggregates can break down under intense water flow, leading to increased erosion.
- The cracking and swelling behavior of Pellic Vertisols can lead to surface instability. The cracks formed when the soil dries out can serve as pathways for water to infiltrate, potentially leading to erosion if not managed properly.

VI. LAND USE AND LANDCOVER CONDITIONS

The analysis of land use distribution in the specified area reveals a diverse landscape characterized by significant agricultural dominance, encompassing 73.355% of the total area. This underscores the region's agricultural importance for sustaining local economies and food production. Other notable land use categories include water bodies, built-up areas, natural vegetation, barren land (Baran), and areas dedicated to mining activities.

This table 7.27 and figure 7.16 outlines the distribution of land use categories within the studied area, emphasizing their respective roles and implications for watershed management. Effective integration of these insights into a comprehensive watershed management plan is essential for sustainable development, environmental conservation, and resilience in the face of future challenges.

Table 7.27 Land use and land cover of the study area

Land Use Category	Area (Ha)	Percentage of Total Area	Role in Watershed Management
Agricultural Land (ag)	47,361.12	73.355%	Soil conservation, water-use efficiency, agroforestry for erosion control and water quality improvement.
Barren Land	2,931.218	4.540%	Opportunities for re-vegetation and soil stabilization to reduce runoff and enhance biodiversity.
Natural Vegetation	2,534.148	3.925%	Maintains water flow regulation, erosion prevention, and provides habitat for biodiversity. Conservation and restoration efforts are crucial.
Water Bodies	5,681.656	8.800%	Water quality management, pollution control, habitat preservation, maintaining aquatic ecosystem health.
Settlement	2,666.504	4.130%	Integrated stormwater management, green infrastructure to mitigate runoff impacts on water quality and quantity.
Built-up Mining	3,389.624	5.250%	Best management practices (BMPs) to minimize environmental impact, reclamation to restore affected areas and water bodies.

Understanding these land use patterns is essential for informed decision-making in urban planning, environmental conservation, and resource management. It highlights the need for balancing

agricultural expansion with environmental conservation efforts, particularly in safeguarding natural vegetation and managing water resources sustainably.

Moreover, this section underscores the importance of continuous monitoring and adaptive management practices to address evolving land use dynamics and their implications for regional development and ecological health. By integrating these findings into policy frameworks, stakeholders can promote resilient and sustainable land use practices that support both human livelihoods and environmental integrity in the studied area.

VII. SURVEY OUTCOMES OF WATERSHED STUDY (WATERSHED PROBLEMS)

- In the study area, the drinking water source is either water supplied through government projects or purchased mineral water. NTPC has also established RO purifier plants, but maintenance of these systems is required.
- The groundwater level is very shallow in the study area due to the availability of large water bodies, such as the Godavari River, lakes, and large ponds.
- Over the past five years, irrigation was very challenging. However, due to the SRSP project, large water bodies are now receiving adequate water, enabling proper recharge of aquifers. Despite this, water supply from canals has been very low over the past two years. Villagers reported that the canals remain dry except during the rainy season when some water flows, though it is minimal. Fortunately, due to the presence of large water bodies every 5 km, small wells are recharged and serve as an accessible source of water.
- The major sources of irrigation during the rainy season are canals and farm ponds, while in the lean season, farm wells are the most important source of water for irrigation.
- The primary livelihoods in the area include labor work in industries, farming of cash crops such as cotton, vegetables, cereal crops like rice, and fisheries.
- Due to the abundance of water bodies in the study area, fisheries offer a significant livelihood opportunity. However, pollution needs to be controlled to fully realize this potential.
- Agroforestry practices should be promoted to enhance green cover and reduce soil erosion.

Addressing Peddapalli's watershed challenges requires collaborative efforts from stakeholders including government bodies, industries, local communities, and environmental organizations. Implementing sustainable watershed management practices is crucial, supported by robust regulatory frameworks, advanced industrial waste management technologies, and community involvement in conservation efforts.

By prioritizing environmental sustainability alongside economic development, Peddapalli can mitigate the adverse impacts of floods, sedimentation, and erosion. Long-term solutions such as afforestation, erosion control measures, and sustainable agriculture will safeguard natural resources and enhance resilience against natural disasters. Through collective action and responsible stewardship, Peddapalli can achieve balanced watershed management, ensuring a prosperous and sustainable future for generations to come.

7.9.3ACTION PLAN FOR WATERSHED DEVELOPMENT – SUB-WATERSHEDWISE

Sub-Watershed – 4E2C1

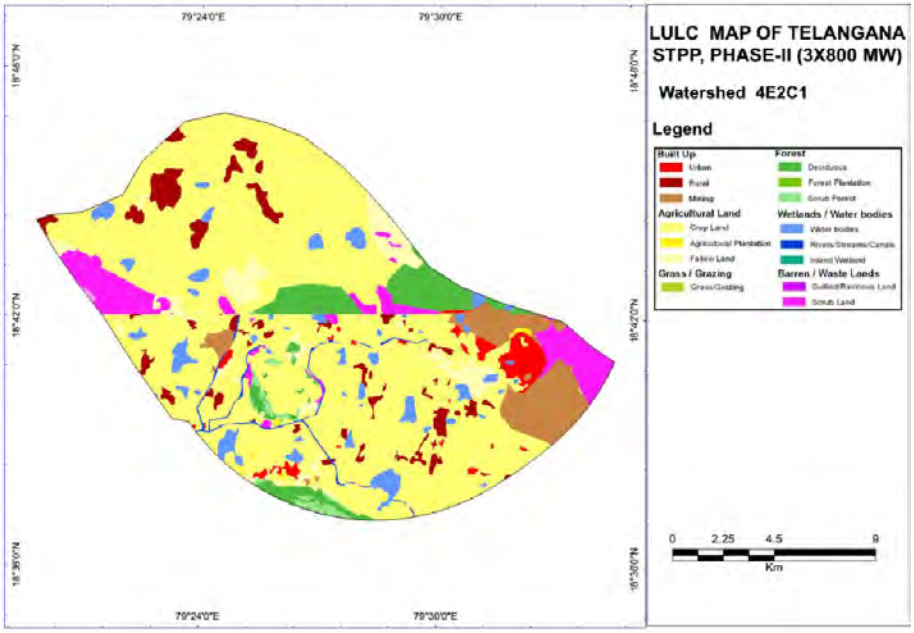


Figure 7.22: LULC Map of Sub-Watershed – 4E2C1

Table 7.28: Land use and land cover of Sub-Watershed – 4E2C1

4E2C1		
CLASS	Area (Ha)	Percentage
Agriculture	19535.44394	75.62
Barren	1519.02156	5.88
Natural veg	1872.94325	7.25
Water body	542.5077	2.1
Built up	366.83854	1.42
Built up mining	1996.94501	7.73
	25833.7	100

Sub-Watershed 4E2C1 in Telangana falls under the Godavari river basin, specifically in the Lower Godavari sub-basin, and includes parts of Peddapalli, Karimnagar, and nearby districts. This region generally faces soil erosion, declining groundwater, seasonal water scarcity, and degraded common lands.

In sub-watershed - 4E2C1, major area is occupied by agriculture with 75.62 %. Barren land is only 5.8 % and few natural water bodies with 2.1 % only.

Here are site-specific conservation measures with suggested locations in Sub-Watershed 4E2C1 b ased on terrain, land use, and issues observed in the region.

Conservation Measure	Purpose	Suggested Location	Remarks
Check Dam -2	Recharge aquifers and store runoff	Across seasonal streams in Palimela and Kalvacherla	Select widest part of Nala with gentle slope
Farm Ponds - 3	Store rainwater for supplemental irrigation	Agricultural fields in Annaram, Peddampet, Chittapur	Choose 1 pond per major village cluster
Loose Boulder Structures-3	Reduce runoff speed and prevent gully formation	Upland nalas in Mutharam, Sundilla	Small structures across minor streams
Contour Bunding 30 ha	Prevent soil erosion, retain moisture	Rainfed sloped lands in Manthani mandal	20–30 ha target area across 2–3 villages
Block Plantation (2 ha)	Restore degraded commons, increase biomass	Open land near Kamanpur or Rangampalli	Ideal for Haritha Haram/NREGS

Sub-Watershed – 4E2C2

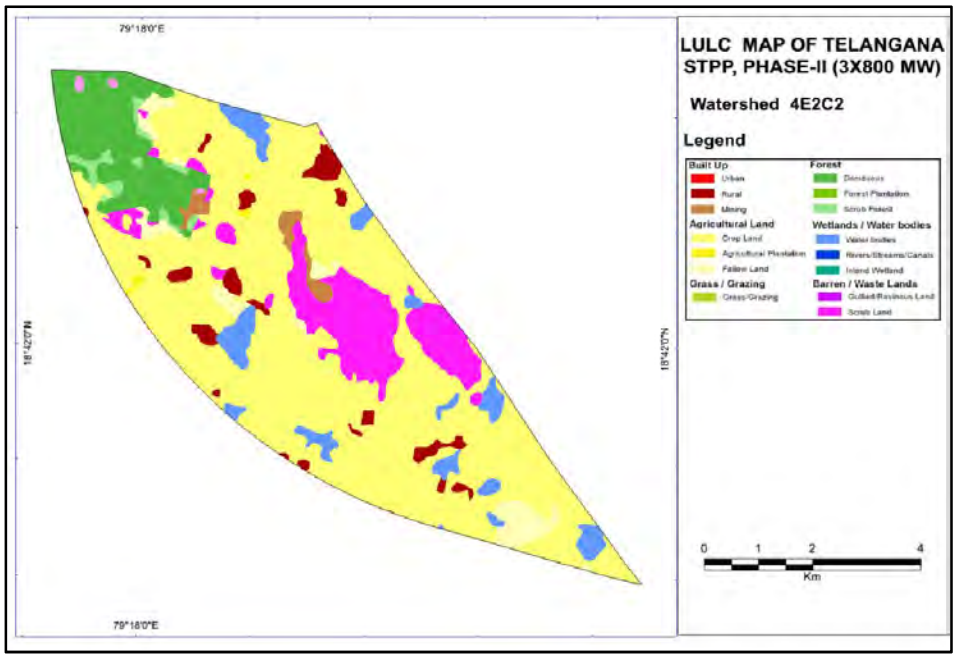


Figure 7.23: LULC Map of Sub-Watershed – 4E2C2

Table 7.29: Land use and land cover of Sub-Watershed – 4E2C2

camb		
CLASS	Area (Ha)	Percentage
Agriculture	3813.744	85.57
Barren	219.278	4.92
Natural veg	224.1806	5.03
Water body	94.48564	2.12
Builtup	0.891374	0.02
Builtup mining	104.2908	2.34
	4456.87	100

Sub-Watershed 4E2C2 lies in Peddapalli / Karimnagar districts, part of the Lower Godavari Basin, and is characterized by:

- Red sandy loam to black soils
- Mixed land use (agriculture, fallow, forest patches)
- Moderate to high runoff
- Water stress during Rabi season
- Degraded common lands in upland villages

In this sub-watershed agriculture ranks highest in area followed by natural vegetation and barren land with 85.57%, 5.03% and 4.92 % respectively. Water bodies counts only for 2.12 % of total area of sub-watershed.

Conservation Measure	Purpose	Suggested Location	Remarks
Check Dam -2	Arrest runoff & recharge wells	Minor stream near Kalvasrirampur	Select a nala with upstream catchment; good groundwater potential
Gully plugging 5 structures			
Farm Pond -2	On-farm irrigation storage	Fields in Odela or Jammikunta outskirts	Dig near farms without irrigation sources
Contour Bunding 15 ha	Reduce erosion, retain soil moisture	Upland fields in Velgatur or Odela	Choose 10–15 ha block on sloping farmland
Agroforestry Strip Plantation 1 ha	Stabilize bunds, diversify income	Along field boundaries in Annaram	Fast-growing multipurpose trees

Conservation Measure	Purpose	Suggested Location	Remarks
Farm Well Rejuvenation 3	More Water Availability	Suitable locations shall be decided after field survey	Deepening, Desilting and wall repair will be taken

Sub-Watershed – 4E2D1

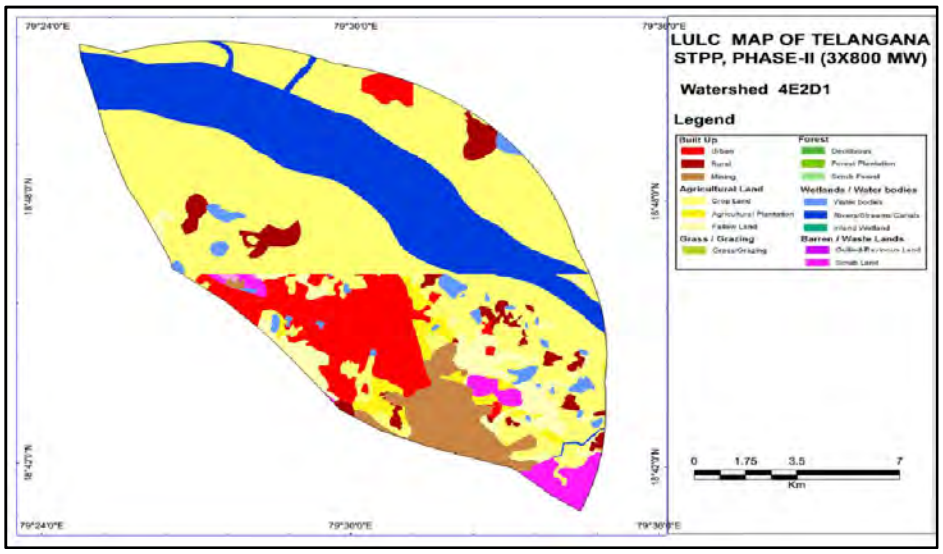


Figure 7.24: LULC Map of Sub-Watershed – 4E2D1

Table 7.30: Land use and land cover of Sub-Watershed – 4E2D1

4E2D1		
CLASS	Area (Ha)	Percentage
Agriculture	14242.59	69.21
Barren	481.5439	2.34
Natural veg	43.21548	0.21
Water body	1880.902	9.14
Builtup	2516.787	12.23
Builtup mining	1413.764	6.87
	20578.8	100

Sub-Watershed 4E2D1 is part of the Godavari Basin, likely covering areas in the northeastern part of Peddapalli and adjoining mandals (possibly extending toward Jayashankar Bhupalpally district).
This region typically features:

- Undulating terrain with red sandy loam and lateritic soils
- Rainfed agriculture
- Water scarcity in non-monsoon months
- Forest patches and degraded commons

In the above watershed area of agriculture is reduced as compared to other two above watersheds as the area has been occupied by habitations and water bodies.

This plan includes **most essential interventions** that address water stress, soil erosion, and community needs using a small number of low-cost, high-impact structures.

Conservation Measure	Purpose	Suggested Location
Check Dam 3 sites Gully Plugging 3 structures	Harvest surface runoff and recharge aquifers	Seasonal stream near **Mahadevpur or Tekumatla**
Farm Pond 2 sites	Provide on-farm irrigation support	Agricultural field in **Kondapur or Mallaram**
Loose Boulder Structures 3	Arrest runoff and prevent gully formation	Minor nalas in **Thakkallapalli or Suraram**
Contour Bunding–15 ha	Prevent soil erosion and retain moisture	Upland fields in **Tekumatla or Chityal**
Agroforestry Strip Plantation 3ha	Stabilize bunds, increase income and biomass	Along farmland boundaries in **Venkatraopet**
Canal Cleaning 3 km	Uninterrupted water supply to agricultural fields	Basanth Nagar
Pond rejuvenation 2 No.	Desilting and deepening of Pond for more water storage	

Sub-Watershed – 4E2D2

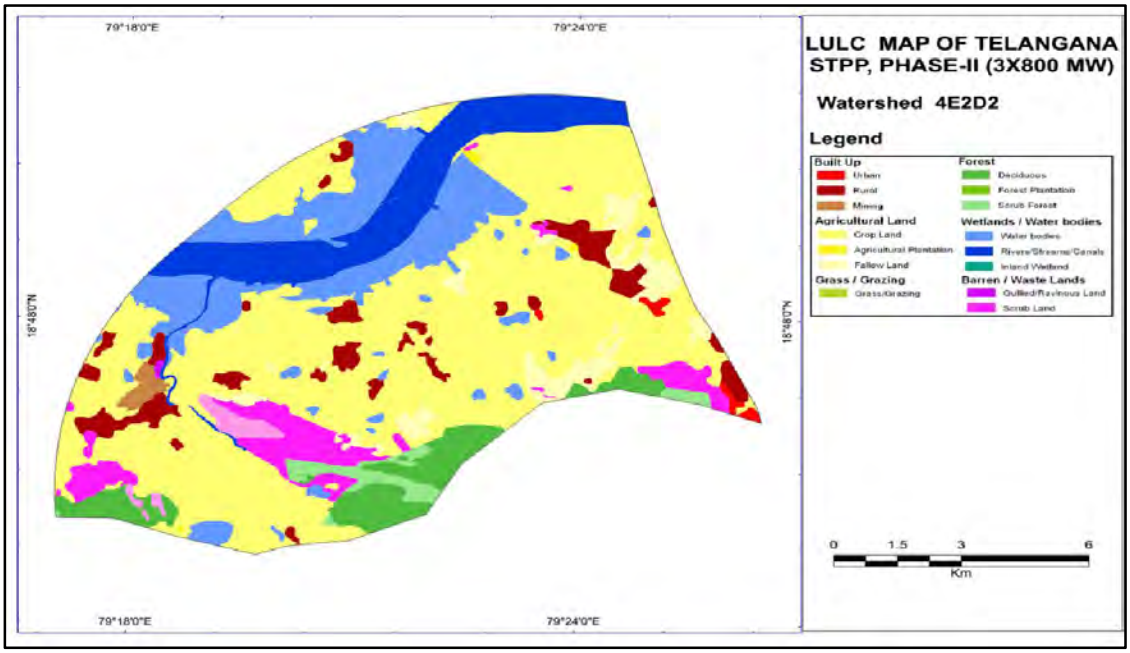


Figure 7.25: Land Use and Land Cover Map of Sub-Watershed – 4E2D2

Table 7-31: Land use and land cover of Sub-Watershed – 4E2D2

4E2D2		
CLASS	Area (Ha)	Percentage
Agriculture	8630.526	63.02
Barren	687.484	5.02
Natural veg	439.6063	3.21
Water body	2990.966	21.84
Builtup	390.3047	2.85
Builtup mining	556.0129	4.06
	13694.9	100

Sub-Watershed 4E2D2 lies within the Godavari basin, likely covering eastern parts of Jayashankar Bhupalpally district, possibly bordering Mahadevpur, Kataram, and Tekumatla mandals. The area is typically characterized by:

- Red sandy loam, lateritic, and shallow black soils
- Undulating topography with seasonal streams
- Degraded forest fringes and common lands
- High runoff and water scarcity in lean months

In the **sub-watershed – 4E2D2** area occupied by agriculture is further reduced to 63.02% with the increase in water bodies to 21.84% of total area. Key Conservation Themes are as follows:

- **Upstream** (hillocks and uplands): Focus on trenching, bunding, and afforestation.
- **Midstream zones**: Suitable for LBS, percolation tanks, and check dams.
- **Low-lying agricultural areas**: Farm ponds, recharge pits, and micro-irrigation support.

The following conservation measures have been proposed:

Measure	Purpose	Suggested Location
Check Dam at 2 sites Gully Plugging 5 structures	Capture runoff and recharge groundwater	Seasonal stream near **Tekumatla** or **Kataram**
Farm Pond 3	On-farm water for irrigation	Agricultural field in **Chityal** or **Rangapur**
Loose Boulder Structures 2 nos.	Arrest runoff and prevent gully erosion	Upland nalas in **Venkatraopet** or **Mallaram**
Contour Bunding 15 ha	Improve in-situ soil moisture and prevent erosion	Sloped farmlands in **Kondapur** or **Tekumatla**
Agroforestry Strip 3 ha	Stabilize soil, provide fodder/fuel	Along bunds in **Suraram** or **Chityal**

VIII. GROUND WATER

As per CGWB report of Telangana, Ggroundwater levels in Peddapalli district have shown a generally upward trend in recent years, with notable variations in depth. As of January 2021, the groundwater levels ranged from less than 2 meters below ground level in 6% of wells to greater than 40 meters in only 1% of wells. In 80% of the district the range of ground water depth is between 0.2 m BGL to 20 m BGL.

Also, according to the BHUVAN data, groundwater in the study area is relatively shallow, ranging from 0-5 meters to 20 meters below ground level. Given these conditions, implementing artificial recharge structures such as recharge shafts or injection wells is not recommended for the plant area.



Figure 7.26: Ground water level of a well in the study area (20 ft. depth in lean season)

A. Works for Soil Conservation

a) **Field bund**

A field bund is a small earthen embankment or barrier constructed across a slope to reduce soil erosion by slowing down the flow of water and encouraging sediment deposition within agricultural fields.

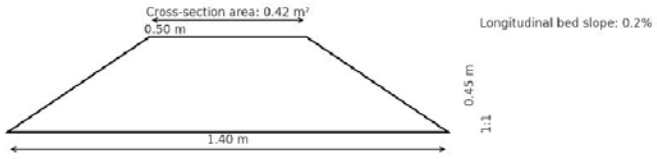


Figure 7.27: Sample diagram showing layout of field bund (Not to scale)

b) **Diversion channel**

A diversion channel is a constructed pathway designed to redirect water flow away from sensitive areas, such as agricultural fields or urban areas, to prevent flooding or erosion.

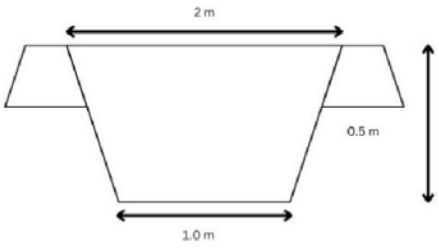


Figure 7.28: Sample diagram showing layout of Diversion channel (Not to scale)

c) Gully plugging by gabion structure

Gully plugging using gabion structures involves filling and reinforcing a gully or erosion channel with gabions—wire mesh containers filled with rocks or other materials—to stabilize the soil, reduce erosion, and restore the natural drainage patterns in the landscape.

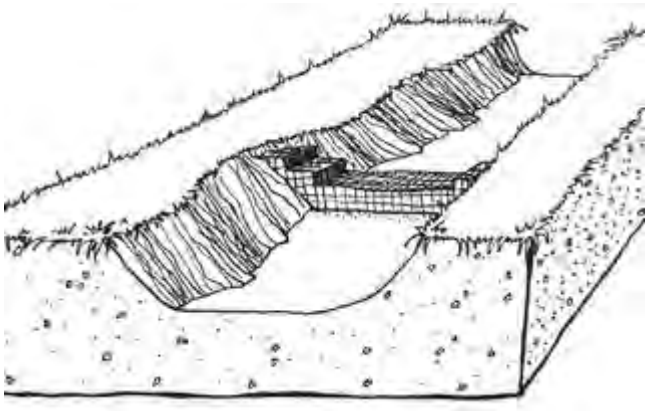


Figure 7.29: Sample diagram showing layout of gabion structure (Not to scale)

B. Works for Water Conservation

A) Cleaning of canal

To ensure efficient water flow and equitable distribution in the canals under the Sriram Sagar Project (SRSP), it is crucial to address blockages caused by debris, overgrown grass, and vegetation. Regular cleaning drives should be conducted to remove silt and debris, while vegetation and aquatic weeds can be managed through manual removal or the use of eco-friendly herbicides where necessary. Establishing a periodic maintenance schedule will help prevent recurring obstructions, and involving local communities in monitoring and maintaining canal cleanliness will foster a sense of ownership.

Adequate funding, equipment, and manpower must be allocated to sustain these efforts, ensuring uninterrupted water supply to farmers during the lean season. Additionally, cleaning the canals will allow rainwater to flow easily, maximizing water availability and improving overall irrigation efficiency.



Figure 7.30: Dry canal filled with vegetation and debris.

B) Construction of Farm Pond

A farm pond is a dug-out pond constructed in or near the farm. Rainwater is collected in the pond and stored for future uses such as irrigating crops, recharging groundwater, aquaculture, and providing drinking water for farm animals.

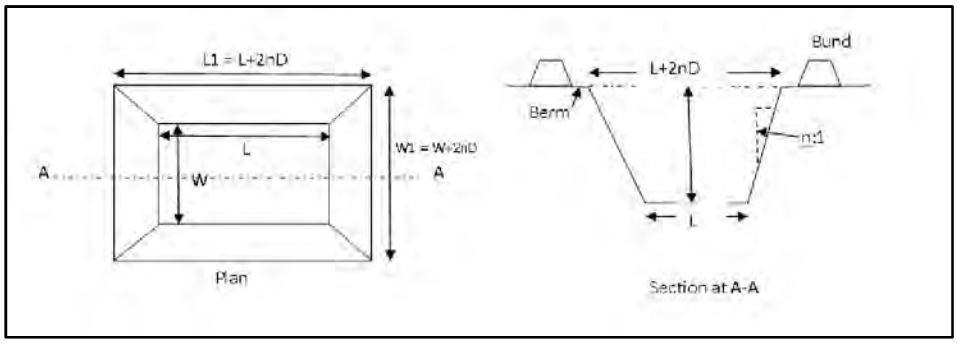


Figure 7.31: Cross section of dugout farm pond (Source: ICAR-IASRI)

C) Horticulture and Plantations

For conservation of soil and water various models for plantations like silvicultural, silvi-pastoral and horticultural would be implemented which would in turn support the livelihood of the local community for fruits, folder and fuel wood.

D) Institution & Capacity Building

Training will be provided to various stakeholders based on the need assessment.

E) Institutional set up

At village level, User Groups, Watershed Committees, Self Help groups and Village based Organizations will be promoted and strengthened to implement the Watershed development programme. NTPC will support as a part of institutional setup.

F) Monitoring and Evaluation

Monitoring runoff and soil loss is essential for assessing erosion rates, evaluating the effectiveness of conservation practices, managing water quality, making informed land use decisions, and advancing scientific understanding of soil and water dynamics. By systematically observing water flow and sediment movement, stakeholders can implement targeted strategies to mitigate erosion, protect soil resources, and sustainably manage watersheds.

Similarly, groundwater monitoring serves critical roles in managing aquifer health, ensuring reliable water supplies, protecting environmental quality, and complying with regulatory standards. By systematically assessing groundwater levels and quality, communities can effectively manage water resources, mitigate contamination risks, and support sustainable development practices. Both monitoring practices are integral to responsible environmental stewardship and informed decision-making for the sustainable management of soil and water resources.

In addition to monitoring for soil and water resources, overall monitoring of interventions undertaken during implementation of action plan for watershed development would be done to assess the efficacy of the programme implementation. Mid-term evaluation will also be done so as to improve the strategy for implementation.

7.10.4 BENEFITS OF WATERSHED MANAGEMENT

a) **Cropping Pattern**

Watershed management plays a crucial role in influencing cropping patterns. By efficiently managing water resources through techniques such as rainwater harvesting, contour plowing, and terracing, farmers can optimize the use of available water. This allows them to diversify their crops and adjust planting schedules based on water availability. Improved cropping patterns lead to better utilization of land resources, reduced soil erosion, and increased overall productivity.

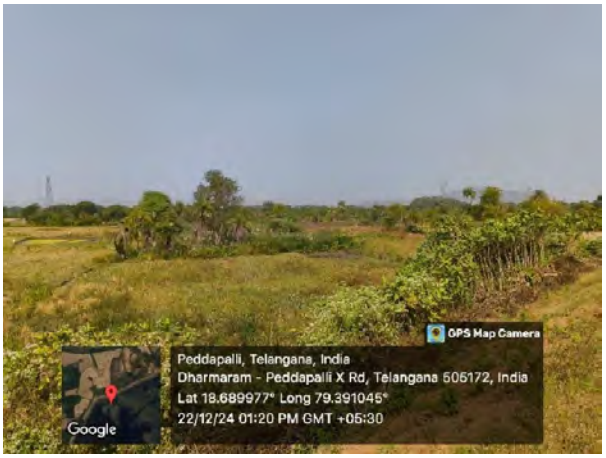


Figure 7.32: A mixed cropping pattern benefitted by nearby large water body.

b) Crop Performance:

Effective watershed management directly enhances crop performance. Consistent and reliable water supply from well-managed watersheds ensures that crops receive adequate irrigation, especially during dry spells. This reduces crop stress, enhances growth rates, and improves yield quality and quantity. Additionally, proper watershed management practices contribute to soil fertility and nutrient availability, further boosting crop health and resilience to pests and diseases.



Figure 7.33: Cotton as one of the major cash crop in the study area.

c) Soil Amendment:

Watershed management techniques such as afforestation, contour plowing, and mulching help in soil conservation and amendment. These practices prevent soil erosion, retain moisture, and enhance soil structure. The organic matter from mulching and cover cropping enriches the soil, improving its fertility and supporting sustainable agriculture. Healthy soil resulting from watershed management not only supports better crop growth but also contributes to long-term land productivity and environmental health.

d) Livelihood Generation:

Sustainable watershed management creates opportunities for livelihood generation among rural communities. Improved crop yields and diversified farming practices increase farmers' incomes and food security. Moreover, watershed projects often include training programs on sustainable agriculture practices, water conservation, and natural resource management. This knowledge empowers farmers to make informed decisions, adopt innovative techniques, and diversify their income sources through activities such as agroforestry, beekeeping, or eco-tourism related to watershed conservation efforts.

7.10.5 Activities and Budget

a. Detailed Activity-wise Budget Breakdown

Phase 1: Preparatory Stage

Activity	Timeline	Budget (Rs. Lakhs)	Responsible Agency	Expected Impact
1.1 Institutional Setup and Capacity Building	3 months	**5.00**	NTPC, District Administration, Society for Elimination of Rural Poverty (SERP)	Governance structure establishment
Set up Project Management Unit (PMU)				
1.2 Critical Infrastructure Assessment	2 months	**6.00**	Technical teams, local engineers	Infrastructure assessment completed
- Survey and map canal blockages in Sriramsagar Project (SRSP) system				
- Assess farm wells for rejuvenation, identification of check dams, gully plugging sites, farm bunding and contour bunding sites and well rejuvenation sites.				
- Identify critical erosion sites				

Activity	Timeline	Budget (Rs. Lakhs)	Responsible Agency	Expected Impact
- Conduct structural assessment of drainage channels				

Phase 2: Water Conservation and Management (6-36 months)

Activity	No. of Structures/Area	Unit Rate (in Rupees)	Budget (Rs. Lakhs)
Check Dam (Gabion Types (4-10m in length and 1-2m wide)	9 No.	70000/-	6.30
Farm Ponds 20mX20x3m	10 No.	120000/-	12.00
Loose Boulder Structures (3x1x1m)	8 No.	15000	1.20
Contour Bunding	75 ha	14000/ha	10.50
Block Plantation/Agro Forestry	9 ha	60000/ha	5.40
Gully Plugging	13	8000/-	1.04
Farm Well Rejuvenation	3	15000/-	0.45
Farm Bunding	4 ha	12000/ha	0.48
Canal Cleaning	3 Km	35000/km	1.05
Pond Rejuvenation	5 Nos.	80000/-	4.00
Total			**42.42**

Phase 3: Livelihood Enhancement and Community Development (36-48 months)

Activity	Timeline	Budget (Rs. Lakhs)	Expected Impact
3.1 Agricultural Productivity Enhancement	36 months	**5.00**	Increase in crop productivity
Promote climate-resilient crop varieties			
Establish demonstration plots for best practices			
Support for organic farming initiatives			

Phase 4: Monitoring and Evaluation (Ongoing)

Activity	Timeline	Budget (Rs. Lakhs)	Frequency
4.1 Environmental Monitoring	Throughout project	**4.70**	Quarterly reporting
Groundwater monitoring from 10 wells		1.60	Quarterly
Surface water quality testing (10 locations)		1.60	Quarterly
Monitor soil erosion rates (10 locations)		1.00	Periodic
Track biodiversity changes		0.50	Annual
4.2 Socio-Economic Impact Assessment	Annual assessments	**5.00**	Annual
Conduct household surveys		-	Annual
Track changes in agricultural productivity		-	Annual
Assess improvement in water availability		-	Annual
Evaluate community participation levels		-	Annual
Total Budget for Phase I+II+III+IV		**68.12. Lakh**	-

Unit Cost References:

Watershed Development Fund (WDF) – NABARD

State-specific guidelines (like DPAP, IWMP, PMKSY-WDC)

NABARD's Unit Cost Handbook for NRM Interventions

b. **Budget**

A Total Budget of Rs.68.12 lakhs has been proposed for Action Plan for Watershed Development Plan.

This comprehensive action plan addresses the critical watershed management needs of the Telangana Super Thermal Power Project area. Through systematic implementation of water conservation, soil protection, and community development measures, the plan aims to achieve sustainable water security while supporting local livelihoods.

The success of this plan depends on strong partnership between NTPC, government agencies, and local communities. Regular monitoring and adaptive management will ensure that the interventions remain effective and responsive to changing conditions.

By implementing this action plan, the project will contribute to achieving water neutrality goals while creating lasting benefits for the watershed ecosystem and local communities in Peddapalli district.

7.10.6 CONCLUSION

The **Watershed Development Plan** for the Telangana Super Thermal Power Project underscores the importance of strategic watershed management to ensure sustainable water resources for the region's growing industrial and agricultural needs. By focusing on integrated approaches, the plan addresses critical issues such as flood management, sediment control, and erosion, which are vital for maintaining ecological balance and supporting local communities. Through the implementation of soil and water conservation measures, the plan aims to enhance water quality and availability, promote sustainable agricultural practices, and mitigate the environmental impacts of industrial activities.

The successful execution of this watershed development plan requires the collaborative efforts of government agencies, industries, and local communities to achieve sustainable land use and water management. By fostering an adaptive management framework that prioritizes continuous monitoring and the adoption of innovative practices, the plan can effectively enhance the resilience of the watershed ecosystem. Ultimately, this will support economic growth, improve livelihoods, and protect the natural environment in the Peddapalli district, contributing to the long-term sustainability of both the thermal power project and the surrounding region.

7.10.7 PHOTOGRAPHS OF FIELD VISIT



Figure 7.34: Photographs of PRA Exercise (Discussion with villagers).



Figure 7.35: Photographs of Transect Walk during Participatory Appraisal



Figure 7.36: Photograph of canal near large water body and drinking water storage tank



Figure 7.37: Participatory Appraisal (Display of study area map among villagers and discussing irrigation sources and challenges).

References

- Watershed Management: A Field Manual for Equitable, Productive, and Sustainable Development by Murugappa Vasudevan.
- Integrated Watershed Management in India: Evolution, Challenges, and Prospects" by V. Ratna Reddy, published in the International Journal of Environmental Studies.
- *Integrated Watershed Management Programme (IWMP) Guidelines* by the Government of India, Ministry of Rural Development.
- *Methods in Watershed Analysis* by David W. Hendricks.
- GIS-Based Watershed Management: Techniques and Applications" by Assefa M. Melesse, published in the Journal of Hydrology.
- *Watershed Management Practices and Resources Management* by the Food and Agriculture Organization (FAO).
- *Geography of Telangana: A Comprehensive Guide* by R. Venkateswara Rao
- Climate and Soil Types of Telangana and Their Impact on Agriculture" by S. R. D. Prasad, published in the Indian Journal of Soil Conservation.
- *Statistical Handbook of Telangana* by the Government of Telangana.

- Challenges in Watershed Management: Floods, Sedimentation, and Erosion" by K. S. Ramaswamy, published in the Indian Journal of Soil and Water Conservation.
- *Watershed Planning and Management: A Manual for Sustainable Practices* by C. A. P. Amarasinghe.
- Strategic Action Planning for Watershed Management" by N. G. Patil, published in the Journal of Environmental Management.
- *National Watershed Development Project for Rainfed Areas (NWDPRA) Guidelines* by the Government of India, Ministry of Agriculture.
- The Role of Watershed Management in Improving Agricultural Productivity and Livelihoods" by P. Kumar, published in the International Journal of Agricultural Sciences.
- *Impact Assessment of Watershed Development Projects in India* by the National Institute of Agricultural Economics and Policy Research (NIAP).
- TERI. (n.d.). *Water neutrality of power plants*. Retrieved July 20, 2024, from https://www.teriin.org/policybrief/files/Water-Neutrality/files/downloads/Water-Neutrality-of-Power-Plants.pdf
- https://www.newindianexpress.com/states/telangana/2024/Jul/20/farmers-suffer-huge-losses-as-slush-from-singareni-opencast-mines-floods-fields
- https://www.etvbharat.com/en/!state/telangana-villages-flooded-cattle-washed-off-due-to-breach-in-peddavagu-project-enn24071904018
- https://telanganatoday.com/water-bodies-overflowing-in-peddapalli-district
- https://www.thenewsminute.com/telangana/heavy-rains-wreak-havoc-north-telangana-10-people-washed-away-180290
- https://www.thehindu.com/news/national/andhra-pradesh/flood-rising-in-godavari-first-warning-issued/article65681043.ece
- https://www.thehindu.com/news/national/telangana/deluge-of-woes-for-farmers/article65662760.ece
- https://indiankanoon.org/doc/40400414/
- https://telanganatoday.com/peddapalli-soil-erosion-on-pump-house-pipeline-fixed
- https://jalshakti.wordpress.com/2019/07/09/peddapalli-takes-up-water-conservation-measures-in-a-big-way/
- https://finance.telangana.gov.in/PreviewPage.do?filePath=downloads&fileName=Socio%20Economic%20Outlook%202019.pdf

- https://telanganatoday.com/ramagundam-ntpcs-ash-pond-in-kundanapalli-raises-concern
- https://hydro.imd.gov.in/hydrometweb/(S(mymspu45l41rr02mff4dcgeb))/DistrictRaifall.aspx
- Food and Agriculture Organization of the United Nations (FAO) and United Nations Educational, Scientific and Cultural Organization (UNESCO). (1971). FAO-UNESCO Soil Map of the World. Retrieved from http://www.fao.org/soils-portal/soil-survey/soil-maps-and-databases/faounesco-soil-map-of-the-world/en/
- National Aeronautics and Space Administration (NASA). Landsat Program. Retrieved from https://landsat.gsfc.nasa.gov/
- European Space Agency (ESA). Copernicus Sentinel Data. Retrieved from https://sentinel.esa.int/web/sentinel/home.

7.11 CONSERVATION PLAN FOR SCHEDULE-I SPECIES

7.11.1 Introduction

No protected area (National Park/Wildlife Sanctuary) falls within the study area. However, Godavari River is flowing near to the project site. Five reserved forests ranges are coming under 10km radius of the study area.

- Ramagundam R.F. (0.7 km, NNW direction from project site)
- Putnur R.F. (3.4 km, WSW direction from project site & adjoining to proposed Ash Dyke Phase-II)
- Raidandi R.F. (4.0 km, WNW direction from project site)
- Indaram R.F. (4.0 km, WSW direction from project site)
- Ramgir R.F. (8.99 km, S direction from Ash dyke Phase-I)
- Khanam Palli R.F. (7.1 km in W direction from proposed Ash Dyke Phase-II)

Wildlife species conservation plan includes habitat restoration and development. Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. Therefore, conservation plan has been drawn taking the existing scenario into consideration and mainly includes general plans for the betterment of wildlife in the project areas. The conservation and management plans suggested here are mainly the issues identified during the survey, specific to biodiversity values of both terrestrial and aquatic systems.

Table 7.32: List of Schedule I species found in the authorized list of flora and fauna (as per the Wild Life Protection (Amendment) Act, 2022) in the study area during EIA study

Sl. No.	*Scientific name*	Common name	IUCN/W(P)A(Amendment, 2022)
Mammalia			
1	*Melursus ursinus*	*Sloth Bear*	*VU/I*
2	*Hystrix indica*	*Indian porcupine*	*LC/I*
3	*Panthera pardus*	*Common Leopard*	*VU/I*
4	*Panthera tigris*	*Tiger*	*EN/I*
5	*Herpestes edwardsii*	*Common mongoose*	*LC/I*
6	*Canis lupus*	*Indian Wolf*	*LC/ I*
7	*Cuon alpinus*	*Indian wild Dog*	*EN/I*
8	*Canis aureus*	*Jackal*	*LC/I*
9	*Lutra lutra*	*Common Otter*	*NT/I*
10	*Ratufa indica*	*Indian Giant squirrel*	*LC/I*
11	*Rusa unicolor*	*Sambar*	*VU/I*
12	*Tetracerus quadricornis*	*Four -Horned Antelope*	*VU/ I*
Reptilia			
13	*Naja naja*	*King Cobra*	*LC/ I*
14	*Python molurus*	*Indian Python*	*VU/I*
15	*Crocodilus palustris*	*Crocodiles*	*VU/I*
16	*Vipera russellii*	*Russell's Viper*	*LC/ I*
Avians			
17	*Pavo cristatus*	*Peafowl*	*LC/ I*
18	*Milvus migrans*	*Black Kite*	*LC/ I*
Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable, DD= Data Deficient, NT= Near Threatened, EN= Endangered. Source: Government of Telangana Forest department			

7.11.2 Wildlife Management Plan

This Wildlife Conservation Plan has been developed with particular reference to Schedule-I faunal species to understand their habit, habitat, feeding, breeding and the potential threat for planning and undertaking necessary action plan for their protection and conservation.

The plan would provide appropriate guidance to the proponent to undertake required measures for conservation and protection of the rare and endangered species of the area. Implementation of the

Wildlife Conservation Plan should be carried out in consultation with State Forest Department. The management plan comprises of a brief description of all these schedules I species along with their conservation measures.

7.11.3 Conservation and Protection Measures

A total of 18 Schedule-I species are reported from the study area. As per the description, threat status, habitat and ecology of these species, there are more or less common threats to these species such as habitat fragmentation, habitat loss, illegal hunting and less awareness towards the conservation and importance of the endangered species. Therefore, direct and indirect approach of conservation is required to provide effective conservation, which is recommended as below:

1. For conservation of schedule I species, awareness campaign should be organized for the local community. The goal should be achieved by organizing various competition at local and community level such as wildlife poster making, slogan, and essay writing competition on the importance of these species and their habitat.
2. Forest fire, cutting of trees, firewood collection, and dumping of garbage, plastic waste, and waste materials from construction sites will be strictly avoided.
3. Forest department would be actively involved in wildlife conservation and protection activities.
4. Training for all the workers should be conducted before starting the project activity. This will include training on the importance of surrounding biodiversity and critically important species.
5. To reduce human wildlife conflict, signboard should be installed showing presence of schedule I species to make aware locals and tourists.
6. Restoration of habitats through tree and shrub/bush plantation so that grooves could be developed which are used both for nesting and roosting purposes by avifauna. This has to be carried out in association with forest department.
7. Restoration of water bodies for habitat improvement for example removal of obnoxious weeds like hyacinth, which poses great threat to aquatic ecosystem
8. The changes in land use pattern, intensive agriculture, habitat fragmentation, and other factors causes the greatest threats to reptiles. Therefore, more green patches especially bushes should be grown around and the near forest and scrub area for conservation of reptiles.
9. For reptile conservation, schools and local communities should be sensitize to dispel myths and misconceptions about reptiles and should forest department in captive breeding programs for endangered reptile species.
10. Local knowledge, traditions, attitude and perceptions on conservation of scheduled species would be accessed for long term conservation.
11. Farmers of the adjoining areas to be made aware of organic farming & will be motivated to shun use of fertilizers and pesticides.
12. Proper precautions will be taken for carrying out the project activities in nighttime as animals are sensitive to noise and lights.

7.11.4 BUDGET FOR WILDLIFE CONSERVATION

The funds will be allocated to the State Forest and Wildlife Department to implement conservation plans covering habitat improvement, protection measures, human-wildlife conflict management, research and monitoring, and public awareness initiatives as mentioned below.

- Drilling of bore wells and installation of solar pumps will be undertaken.
- Large percolation tanks (PTs) will be constructed and connected to the solar bore wells, with two PTs planned for each bore well.
- Natural grasslands will be created by uprooting weeds and sowing local grass species, with these operations repeated over years.
- A nursery will be raised for roadside and gap planting, utilizing indigenous tree species at a cost of Rs. 35/- per seedling.
- Dens and hideouts will be created for small animals such as Golden Jackal, Jungle Cat, Grey Mongoose, Porcupine, and Small Indian Civet in six Reserve Forests.
- Dense planting of shrubs and grasses, covering 0.10 hectares each, will be carried out to provide green fodder for wild herbivores.
- An integrated watchtower will be constructed, equipped with a solar pump, a percolation tank (PT), and a room for protection watchers. Protection-cum-fire watchers will be engaged and firefighting equipment, including blowers, will be purchased.
- Camera traps will be procured.
- Compensation will be provided to victims of human-wildlife conflict; this amount shall be deposited into the corpus fund account of the Chief Wildlife Warden at the SBI Treasury Branch, Abids, Hyderabad.
- Trap cages and other necessary equipment will be procured for the rescue team.
- Engagement of Field Biologist for monitoring the impact of the project on the wild animals and their habitat in the 10km radius (Buffer Zone) from the project site.
- Purchase of a two wheeler for Field Biologist to monitor the wildlife conservation plan implementation.
- Large caution and informative sign boards, measuring 10x20 feet and featuring Schedule I species, will be installed at regular intervals to alert vehicles about animal movement.
- Nature camps for children from local schools and capacity building and training will be provided for staff.

The estimated budget for wildlife conservation plan is given in Table 10.11. The plan has been prepared in consultation with Forest Department and budget provisions have been made accordingly.

Table 7.33: Budget for Wildlife Conservation Plan

Sr. No	Item of work	Physical Target	Rate	Fin Target	Year Wise Budget Plan				
					1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.
1	**Habitat Improvement:** Habitat improvement is a critical process for enhancing natural environments to better support wildlife. This involves strategic actions like providing reliable water sources, bore wells and storage, and restoring native vegetation and planting local grasses and trees. Additionally, creating essential shelters such as dens benefits smaller animals, fostering a healthier and more balanced ecosystem.								
i.	Drilling of bore well and installation of Solar Pumps.	4 Nos	5.00 each	20.00	10.00	5.00	5.00	0.00	0.00
ii.	Construction of large PTs connected to solar bore wells. (2 PTs for each bore well).	4 Nos	2.00 each	8.00	4.00	2.00	2.00	0.00	0.00
iii.	Creation of natural grass lands by uprooting obnoxious weed and sowing of local grass and repeating the operations for 3 years in 6 Reserve Forests.	30 Ha	1.00 per Ha	30.00	6.00	6.00	6.00	6.00	6.00
iv.	Raising of nursery for roadside/gap planting with indigenous tree species @ Rs.35/- seedling.	20,000 Bag plants	35.00 each	7.00	5.00	1.00	1.00	0.00	0.00
v.	Creation of dens and hideouts for small animals like Golden Jackal, Jungle Cat, Grey Mongoose, Porcupine, Small Indian Civet in 6	12 locations	0.50 per locations	6.00	2.00	1.00	1.00	1.00	1.00

	Reserve Forests.								
vi.	Dense planting of shrubs and grasses of 0.10 Ha each for providing green power for wild herbivores in 6 RF Blocks.	12 locations	0.50 per location	6.00	1.20	1.20	1.20	1.20	1.20
2	**Protection Measures: Protection measures** are essential for securing natural habitats, such as encompassing the construction of **integrated watchtowers.** Equipping teams with crucial **firefighting equipment** likeblowers is also vital to effectively manage and prevent potential threats.								
vii.	Construction of integrated watch tower with solar pump with PT and a room for protection watchers.	1 location	30.00 each	30.00 each	15.00	15.00	0.00	0.00	0.00
viii.	Engaging of protection cum fire watchers for 5 years	5 Nos for 5 years	7.20 per year	36.00	7.20	7.20	7.20	7.20	7.20
ix.	Purchase of firefighting equipment/blowers	12 Nos	0.60 each	7.20	3.60	3.60	0.00	0.00	0.00
3	**Managing Human Wildlife Conflict: It** is crucial to include key strategies such as **procuring camera traps** for monitoring, and **compensating victims** of conflict by depositing funds into a dedicated corpus account. Additionally, equipping **rescue teams** with **trap cages and specialized equipment** is essential for safe interventions and mitigating direct encounters.								
x.	Procuring camera traps	10 Nos	0.30	3.00	1.50	1.50	0.00	0.00	0.00
xi.	Compensating victims of human wildlife conflict. This amount shall be deposited in the corpus fund account of chief wildlife warden in SBI Treasury Branch, Abids, Hyderabad.	5 years	10.00 per annum	50.00	10.00	10.00	10.00	10.00	10.00

xii.	Procuring trap cage and equipment for rescue team	1 Unit	10.00 per unit	10.00	5.00	5.00	0.00	0.00	0.00
4	**Research and Monitoring: Effective** research and monitoring are crucial for evaluating conservation initiatives.								
xiii.	Engaging Field Biologist for monitoring the impact of the project on the wild animals and their habitat in the 10km radius (Buffer Zone) from the project site.	1 No. for 5 years @ Rs. 0.35 per month	4.20 per year	21.00	4.20	4.20	4.20	4.20	4.20
xiv.	Purchase of a two wheeler for Field Biologist to monitor the wildlife conservation plan implementation in the 6 Reserve Forest Blocks location in the Buffer Zone of the project.	1 No.	1.20 each	1.20	1.20	0.00	0.00	0.00	0.00
5	**Publicity and Awareness:** Awareness initiatives are crucial for promoting wildlife conservation. This includes installing informative sign boards to alert drivers about animal movement and conducting nature camps for locals. Additionally, capacity building and training for staff ensures effective communication and support for conservation efforts.								
xv	Installation of large caution and informative sign boards of schedule 1 species at regular intervals to caution the vehicles about animal movement of 10x20 feet.	5 Nos	2.00	10.00	2.00	2.00	2.00	2.00	2.00
xvi	Conducting nature camps for children from local schools.	50 camps	0.20 each	10.00	2.00	2.00	2.00	2.00	2.00

xvii	Capacity building and training for staff.	10 training	1.00	10.00	2.00	2.00	2.00	2.00	2.00
VI	**Administrative cost**	@ 10% of project cost							
	Office support	LS	As per actuals	26.80	5.36	5.36	5.36	5.36	5.36
	TOTAL			292.20	87.26	74.06	48.96	40.96	40.96

A budget of Rs. 292.2 lakhs have been earmarked for wildlife conservation for period of five years which has been prepared in consultation with State Forest Department, and the same has been approved by Principle Chief Conservator of Forest, Govt. of Telangana. Detailed Wildlife Conservation Plan is incorporated as Annexure-VIII.

CHAPTER 8: PROJECT BENEFITS

8.1 PROJECT BENEFITS

The proposed expansion project by NTPC Ltd. would enable to meet part of the growing power demand in the state of Telangana as well as in India due to rapid industrialization and also due to large scale use of electricity for irrigation, domestic and commercial purposes. Further, the proposed expansion of the power plant will result in improvement of infrastructure as well- upliftment of social structure in the area. The setting up of the proposed project will lead to direct and indirect benefits to the overall socio-economic status of the region. The people residing in the nearby areas will be benefited directly and indirectly. It is anticipated that the proposed expansion of power plant will provide benefits for the locals in two phases i.e. during construction phase as well as during operational stage.

8.2 CONSTRUCTION PHASE

I. Employment

The major benefit due to the proposed expansion project will be in the sphere of generating temporary employment for a substantial number of personnel during the construction phase. The construction phase of the power plant is expected to span over 78 months. The no. of NTPC employees during the construction phase is 96. The no. of workforce employed during construction phase by the EPC contractors would be much higher (approx. 3500-4000 during peak deployment), most of whom would be skilled & unskilled workers. During construction phase, there will be opportunities for local skilled and unskilled workers to be employed through contractors in the various construction related activities like material handling, operation of construction machinery, construction works, painting, installation of plant machinery etc. Thus, the proposed project will largely benefit locals during the construction phase. Construction of Power projects involve mechanized machinery and experienced workers. Therefore, the direct opportunities for employment during construction phase are limited.

In addition to the people directly involved in construction of the power project, the project will also generate opportunities for self-employment. Employment opportunities in subsidiary industries and service sectors as well as self-employment opportunities shall also be generated.

At the same time, local small contractors, vehicle owners, and machinery owners will get opportunities for a substantial amount of business for providing their services to the project proponent and EPC contractors. The construction activity and influx of visitors will also open up opportunities for setting up establishments like lodging, food kiosks, small shops, vehicle and machinery maintenance etc. in the vicinity of the plant or outskirts of the Telangana project area.

II. Population

It is expected that most of the unskilled and semi-skilled workers will be from the local area and mainly skilled personnel would be from outside the study area, there would not be much influx of people in the area. Hence, the demographic structure of the area may not undergo major changes.

III. Community Services

Community Development activities like education, health, water, sanitation, etc will be carried out at project-affected nearby villages as per company policy in the nearby areas. In addition, NTPC Ltd. shall develop necessary infrastructures like water supply, sewerage, sanitation, medical facility, etc. for catering to the needs of the project personnel and their families. The local people will be directly or indirectly benefited by these developments.

IV. Transportation

NTPC Ltd. has developed road infrastructure around the project area and all surrounding villages as per need assessment. Local people are availing better and faster connectivity. Roads, infrastructure will be strengthened wherever necessary, for transporting heavy machinery to Telangana STPP site.

8.3 OPERATIONAL PHASE

I. Education

Government schools will be supported by providing scholarships/infrastructure etc. Educational activities in and around the project area are being undertaken in consultation with stakeholders. These activities include scholarships and / or reimbursement of tuition fees, coaching, vocational training courses to enhance employability, educational tours, providing assistance in terms of stationery etc. assistance to schools through NGOs / Panchayats or otherwise for enhancement of teacher-student ratio, organizing training programmes for developing special skills / modern trends in education like computer training, coaching for higher education etc. in addition to infrastructural facilities related to above and for development of Educational Institutes.

II. Employment

The manpower requirement for the operational phase of the proposed expansion project shall be about 216 permanent & approx. 1000 temporary persons. Many of these persons however shall be skilled people as per the requirement based on type of work. Vacancies in skilled-unskilled jobs, if any, will be filled with local people through contractors with preference to PAPs, subject to availability and suitability.

In addition to the direct employment mentioned above, there will be indirect employment of local people by utilizing their expertise in different areas like horticulture, painting, maintenance, canteen running, Cooperatives, Shops, small contracts like vehicles deployment and other services in the plant & township etc.

Under capacity building programme, trainings will be provided in popular vocational programs and other local trades to improve the skill of local people, depending upon their educational qualification.

III. Improved Power Supply

Commissioning of Telangana STPP, Phase-II (3x800 MW) will improve the power supply position in Telangana, which is vital for economic growth of the state as well as improving the quality of life. The improved power supply will reduce the dependence of general public and commercial establishments on DG sets thereby reducing noise pollution as well as air pollution at local levels.

IV. Community Development (CD) and CSR Activities

NTPC, as a responsible corporate citizen has been addressing the issue of community development through CSR in the neighbourhood area of its stations, which had been impacted due to establishment of the project. Under corporate social responsibility, various activities will be started like welfare for poor/widows/physically challenged persons. Capacity-building programs, sports events, assistance to government schools, and scholarships will be given. Under the community development activities, trainings will be provided for learning the various self-employment areas, health & sanitation activities like community toilets, drinking water facilities etc. Medical camps/health awareness camps will be organized from time to time in nearby villages. A separate budget will be made for these activities under CD during construction phase and under CSR during operation phase of the plant.

V. Revenue to the Governments

The project will contribute to the revenues of State & Central Government by means of several direct and indirect taxes. The produced electricity will be provided to meet the need of growing electricity demand of the state thus bringing direct & indirect financial benefits to the state.

However, the power generated from this plant will benefit the Telangana State leading to agricultural and industrial development.

VI. CER Initiatives

Corporate Environment Responsibility activities will be identified as per the OM F. No. 22-65/2017-IA.III dated 30th September, 2020 and subsequent amendments by Ministry of Environment, Forest and Climate Change, and an action plan has been prepared to address the concerns raised during the public consultation. Same has included in the Final EIA report after the Public Consultation is conducted.

Activities taken up under Community Development budget by NTPC Telangana STPP & Corporate Social Responsibility Budget by Ramagundam STPS for development of the nearby society are focused on following areas:

1. Education
2. Health & Welfare

3. Drinking water & Sanitation
4. Infrastructure
5. Renewable Energy
6. Art & Culture
7. Vocational Training
8. Sports

Table 8.1: Community Development Expenditure by Telangana STPP Under Phase-I

Year	Expenditure, Rs. Lakhs
2016	95.90
2017	33.64
2018	933.54
2019	322.20
2020	754.087
2021	147.43
2022	28.87
2024	34.24
Total	**2349.91**

CSR activities will be planned after completion of Community Development budget utilization on completion of commissioning of Phase-II.

Details of Community Development Works of Telangana Super Thermal Power Project Phase-I.

Table 8-2 Year-wise CD Activities and Expenditure

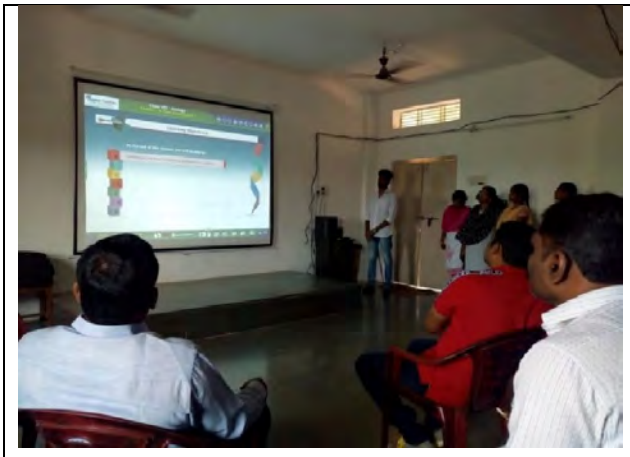
Community Development Works under Telangana Phase-I (2*800 MW)				
S.N.	**Year**	**Activity Head**	**CD Works Undertaken**	**Expenditure in Rs.**
1	2016	Miscellaneous	Plantation of 50,000 Tree Saplings	95,89,577.00
2	2017	Infrastructure	Payment for renovation of Police Commissionerate at Ramagundam	10,00,000.00
3	2017	Infrastructure	Depositing for Medical equipments to PHCs	13,60,000.00
4	2017	Vocational	Physical Events and Written test for Armed forces	10,04,303.00

		Training	and Police force training for local youth training	
5	2018	Education	Supply of geometry boxes - standard & exam pads	1,91,418.00
6	2018	Education	Supply of School bags to PAV's	11,42,818.00
7	2018	Infrastructure	Construction of CC Roads at different locations of Kannala Village, Ramagundam	26,75,602.00
8	2018	Infrastructure	Construction of CC Roads at different locations of Kundanpally Village, Ramagundam	41,66,570.40
9	2018	Infrastructure	Construction of CC Roads at different locations of Kothapally & TakkalaPally villages, Ramagundam	40,81,970.61
10	2018	Infrastructure	Construction of CC & WBM Roads at different locations of Jayyaram Village, Ramagundam	96,21,634.87
11	2018	Infrastructure	Construction of CC Roads at different locations of Anthargaon & Murmur Villages, Ramagundam	39,84,355.00
12	2018	Sanitation	Construction of Road Side Drains at different locations of Ramagundam	1,23,69,229.00
13	2018	Electrification	LED based Street lighting system works at Kaleshwaram Temple Area	36,12,212.00
14	2018	Education	Construction of Urdu Medium School at PTS under CSR-CD works at Telangana STPP.	19,14,370.00
15	2018	Infrastructure	Construction of Community Hall, Toilet Blocks-2 Nos. and RO Shed Plant Room	45,81,309.00
16	2018	Vocational Training	Physical events ad written test for Armed /Police forces and Police force training for local youth	10,58,181.00
17	2018	Infrastructure	Construction of Roads and Drains Palakurthy & Anthargaon Mandals	75,36,756.00
18	2018	Vocational Training	Conducting Communication / Soft Skill Training to Students	2,73,000.00
19	2018	Electrification	Setting of 35KW Solar roof Top Plant for Sri Rama Sai Manava Seva Charitable Trust at Jammikunta	16,91,000.00
20	2018	Additional support - infrastructure	Financial assistance for construction of welfare centre -cum-community hall.	2,00,00,000.00
21	2018	Miscellaneous	Providing amenities for official public building of Constituency MLA office-cum-Residence at Ramagundam	8,10,000.00
22	2018	Miscellaneous	Plastering the compound wall of Police Commissionerate Head Quarters	4,23,844.00
23	2018	Vocational Training	Coaching for Competitive exams to students of SI/Constable, VRO/Group-II,III,IV, VRO & Panchayat raj Secretary of Ramagundam	9,00,000.00

			Constituency	
24	2018	Miscellaneous	Conducting Social Audit for CD activities of Telangana STPP Phase-I at Ramagundam.	2,58,500.00
25	2018	Miscellaneous	Construction of BT Road connecting HKR road(SH1) to Anthergoan to Godavari river near Ash dyke area for Ramagundam STPS	1,18,86,554.00
26	2018	Vocational Training	Coaching for Competitive exams to students of SI/Constable, VRO/Group-II,III,IV, VRO & Panchayat raj Secretary of Ramagundam Constituency.	1,75,000.00
27	2019	Infrastructure	Construction of Skill Development Centre near Sai seva Samithi premises, NTPC, Ramagundam	84,56,951.00
28	2019	Infrastructure	Construction of Roads and Drains Palakurthy & Anthargaon Mandals	1,38,11,629.00
29	2019	Miscellaneous	Providing RO Water plant and Water Cooler to Godavarikhani Bus Station & Ramagundam Railway Station	5,84,100.00
30	2019	Infrastructure	Laying of WBM road along the outside boundary wall	66,95,103.00
31	2019	Vocational Training	Conducting need assessment study and social impact evaluation	23,71,800.00
32	2019	Vocational Training	Release of payment towards Coaching for Final/Main exam TS police SI/Constable of Ramagundam constituency	3,00,000.00
33	2020	Miscellaneous	Supply of essential commodities in the backdrop of COVID-19 for distribution among migrant working community in and around NTPC-Ramagundam	15,57,000.00
34	2020	Miscellaneous	Supply of Essential Food items in the backdrop of COVID-19	40,02,745.00
35	2020	Health	Construction of 2nd floor at Govt. Area Hospital, Godavarikhani along with equipments	6,90,00,000.00
36	2020	Sanitation	Providing financial assistance for procurement of Hand Gloves, Facemask, Sanitizing & PIP full Gowns materials for preventive health measures on backdrop of COVID-19 to Commissioner of Police, Ramagundam	5,00,000.00
37	2020	Miscellaneous	Construction of open drain wall from existing NTPC compound wall to existing slab culvert at Narashalapally village Division-5	3,49,000.00

38	2021	Education	3rd party Audit of toilets constructed under Swachh Vidhyalaya Abhiyaan of NTPC Swachh Vidhyalaya Abhiyaan	7,25,000.00
39	2021	Additional support - infrastructure	Financial assistance for Additional fund requirement for construction of Welfare centre cum Guest House at Ramagundam.	1,40,00,000.00
40	2021	Miscellaneous	Payment for the works of arrangement of Two Boards for Antergaon Land	18,000.00
41	2022	Infrastructure	Construction of CC road along with Pipe culvert parallel to proposed doubling of railway lane between LC-1 and LC-2 located at Badripally village, Ramagundam	24,35,364.00
42	2022	Infrastructure	Construction of open shed for Boosting, Bottling and Cylinder storage shed for Oxygen plant including approach road, Gate, Misc. civil and electrical works. at Danwanthari Hospital, PTS, NTPC Ramagundam	4,52,173.00
43	2024	Infrastructure	Repair of BT road at Malyalapally village	34,24,110.00
				23,49,91,178.88

Photographs of some of the above activities are presented in Figures 8.1














PARTS OF A COMPUTER


Distribution of
Sewing Machines to the Ladies of Surrounding Villages
by
Shri Korukanti Chander



Figures 8.1: Community Development Activities by Telangana STPP

CHAPTER 9: COST BENEFIT ANALYSIS

9.1 ENVIRONMENTAL COST-BENEFIT ANALYSIS

Environmental cost-benefit analysis refers to the economic appraisal of policies and projects that have the deliberate aim of improving environmental services or actions that might affect (sometimes adversely) the environment as an indirect consequence.

Cost-Benefit Analysis (CBA) originated in the area of research called welfare economics. It helps to answer questions about the benefit of one outcome over another, from a societal standpoint. Welfare economics uses criterion from the Utilitarian philosophy of the eighteenth century. These researchers tried to "compare outcomes on the basis of what gives the greatest benefit to the greatest number of people. Benefit here means utility: thus, welfare economics looks at ways of comparing outcomes in terms of their contribution to the utility of the population as a whole" (Hanley, 69). The environmental costs and benefits of a developmental project are most clearly understood when represented in qualitative and quantitative terms (monetary units) and then balanced against each other.

Stages of Cost-Benefit Analysis

- Defining the Project
- Identifying Impacts of the Project
- Valuing Impacts
- Valuing Benefits
- Cost Benefit analysis ratio
- Inference

9.2 DEFINING THE PROJECT

A. P. Reorganization Act 2014 mandates NTPC to set up 4000 MW Coal fired thermal power plant for Telangana State. It is envisaged that maximum power will be allocated to Telangana State subject to approval by Ministry of Power and Power Purchase Agreements with states.

The existing Telangana Super Thermal Power Station has an installed capacity of 1600 MW (2x800 MW). Both the units of Phase-I are under commercial operation.

The proposed expansion project is of 2400MW capacity with 3x800MW configuration under Phase-II by NTPC Ltd. will enable to meet part of the growing power demand due to rapid industrialization and also due to large scale use of electricity for irrigation, domestic and commercial purposes in the state of Telangana as well as in India. Further, the proposed expansion of power plant will result in improvement of infrastructure as well as social upliftment in the area. The setting up of the proposed project will lead to direct and indirect benefits to the overall socio-economic status of the region. It is anticipated that the proposed expansion of the power plant will provide benefits to the locals in two phases, i.e. during the construction phase as well as during operational stage.

9.3 IDENTIFYING IMPACTS OF THE PROJECT

The impacts of construction and operational phases of the proposed expansion project comprise various activities, each of which may have an impact on some or other environmental parameters. Various impacts during the construction and operation phase on the environment have been studied to estimate the impacts on the environmental attributes and are discussed in the subsequent sections. Impacts of the project activities are given in Table no 9.1.

Table 9-1: Impacts of the NTPC Telangana STPP Phase-II project during construction & operation phase

S. N.	Sector	Probable Impact
1.	Air Environment	➢ Stack emissions (PM, SO_2 and NO_2)
2.	Water Environment	➢ Effluent disposal from proposed project
3.	Noise Environment	➢ Generation of noise due to plant operations
4.	Solid Waste Environment	➢ Generation of Solid wastes
5.	Ecology & Biodiversity Environment	➢ Changes in land use patterns ➢ Direct, Indirect impact on ecology & biodiversity
6.	Socio-economic Environment	➢ Influx of people due to proposed expansion project ➢ Impact on people due to noise and air pollution ➢ Load on public facility like road due to proposed expansion project
7.	Land Environment	➢ Change in land use patterns and land degradation

9.4 Evaluation OF IMPACTS

The study focuses on analyzing and evaluating the environmental and socioeconomic impacts including air and water pollution, deforestation, job creation, displacement, health risks, and changes in local community in terms of qualitative and quantitative.

Evaluation of the impact during construction and operation is shown in Table 9.2.

Table 9-2: Evaluation of the impact during construction & operation phase of Telangana Phase – II (3x800 MW)

S.N.	Parameters	Remarks	Monetary Equivalent, Rs. in Crores
1	Ecosystem services losses due to proposed forest diversion.	Economic value of loss of ecosystem service due to forest diversion of forest shall be the net-present value (NVP) of the forest land being diverted as prescribed by the Central Government (MoEF&CC) **Note:** In the case of National Parks, the NVP shall be ten (10) times the normal NVP and in case of wildlife Sanctuary the NPV shall be five (5) times of normal NPV or otherwise	Nil Forest land is not involved.

		prescribed by the ministry or any other competent authority.	
2	Loss of animal husbandry productivity including loss of fodder	To be quantified and expressed in monetary terms or 10% of NVP applicable whichever is maximum	Nil
3	Cost of human resettlement/ rehabilitation	To be quantified and expressed in monetary terms as per approved R&R Plan	Resettlement & Rehabilitation already done earlier. Hence, no R&R is required.
4	Loss of public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric lines, railway etc.) on forest land. Which would require forest land if these facilities were diverted due to the project	To be quantified and expressed in monetary terms on an actual cost basis at the time of diversion	NIL Human resettlement is not required. Forest land is not involved.
5	Possession value of forest land diverted	10% of environment costs (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a cost component as possession value of forest land whichever is maximum.	Nil Forest land is not involved.
6	Cost of suffering to oustees	The social cost of rehabilitation of outees (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R&R Plan) be worked out as 1.5 times of what oustees should have earned in two years had they not been shifted.	Nil Human resettlement is not required.
7	Habitat Fragmentation Cost	While the relationship fragmentation and forest goods and services are complex, for the sake of simplicity the cost due to fragmentation has been pegged at 50% NVP	Nil Human resettlement is not required. Forest land is not involved.

		applicable as a thumb rule	
8	Compensatory afforestation and soil & moisture conservation cost.	The actual cost of compensatory afforestation and soil moisture conservation and its maintenance in future at present discounted value.	Nil
9	Cost of Air Emissions	Impact Cost per kg of emission: PM_{10} – Rs. 340/Kg Emission SO_2 – Rs. 165/Kg Emission NO_2 – Rs. 96/Kg Emission (Reference: MoEF&CC OM No. 19-125/2019-IA.III dated 05.03.2020) Although the above parameters are mentioned for emissions beyond the limits, the same rate has been considered for calculation purpose for proposed emissions. Total Emission/ Year based on Air Quality Modeling considering 24 hrs. operation at 85% PLF for Phase-II (without FGD) for 25 years of design life of the plant: **Pollutant** / **Emission Rate (gm/sec)** PM / 72.30 SO_2 / 3111.9 NO_2 / 721.8	40,700.17 (in 25 Years)
10	Water Environment	Air-Cooled Condenser based cooling system with Aux. CT envisaged in the proposed project which requires very less water compared to Water-Cooled system. ETP & STP envisaged with reuse/recycling and Zero Liquid Discharge system. Hence, there is no impact on the water environment envisaged.	Nil
11	Noise Environment	Proper Equipment design, acoustic enclosures and necessary PPEs will be provided, no major impact envisaged.	Nil
12	Solid Waste Environment	Telangana STPP has a facility for management and disposal of solid waste, no adverse impact due to solid waste is envisaged.	Nil

13	Cost of EMP	Recurring cost of Environment Management Plan (EMP)	1,230.00
14	Capital Investment	Total Project Cost including Cost provision for Environmental Measures	27,683.29
	Total Cost or Investment Amount (Rs. Crores)		**69,613.46**

9.5 EVALUATION OF BENEFITS

Establishment of Telangana STPP, Phase-II (3x800 MW) will improve the power supply position in states of India, which is vital for economic growth as well as improving the quality of life. The improved power supply will reduce the dependence of general public, industrial and commercial establishments on DG sets thereby reducing noise pollution as well as air pollution at local levels.

Under Community Development and Corporate Social Responsibility, various activities will be taken up like improvement of infrastructure facilities, welfare for poor/physically challenged persons, Capacity-building programs, sports events, assistance to government schools, and scholarships etc. The major benefit due to the proposed expansion project will be in the sphere of generating direct and indirect employment for substantial number of personnel during construction and operation phase.

Community Development activities like education, health, water, sanitation, etc. will be carried out at project-affected nearby villages as per company policy. In addition, NTPC Ltd. shall develop necessary infrastructures like water supply, sewerage, medical facility etc. in consultation with concerned stakeholders and authorities.

Evaluation of benefits from the proposed NTPC Telangana STPP Phase-II project is given in Table 9.3.

Table 9-3: Evaluation of the Benefits from the project

S. N.	Parameters	Remarks	Monetary Equivalent, Rs. in Crores
1	Increase in Productivity attributed to the specific project	Quantified & expressed in monetary terms (Profit after Tax over the design life of 25 years)	31,423.83
2	Benefits to the economy due to the specific project	The incremental economic benefit in monetary terms due to the activities attributed to the project (Total cash flow during construction and operation of the project)	47,560.30
3	No. of Population benefited due to specific project	Based on average electrical consumption of 1395 units/capita/year. Increased electricity availability will help to improve socio-economic development of the area.	Approx. 128.3 Lakh population shall benefit.

4	Economic benefits due to employment	Estimated Economic benefits considering direct and indirect employment due to the project. (Considering 05 years for construction period for the project and 25 years of plant life)	2,966.72
5	Economic Benefits due to Compensatory Afforestation/ Afforestation and environmental measures	Benefits from such compensatory afforestation accruing over the next 50 years, monetized and discounted to the present value, should be included as benefits of Compensatory Afforestation. *For benefits of CA the guideline of the ministry for NVP estimation may be consulted.	Environmental Improvements anticipated due to Afforestation, Greenbelt Development and plantation inside and outside the plant premises, Rainwater Harvesting and water conservation and Water Shed development works in the study area and Wildlife Conservation Plan implementation.
	Total Estimated Benefits (Rs. Crores)		**81,950.85**

9.6 COST BENEFIT ANALYSIS RATIO

The cost benefit analysis ratio based on above calculations is as under:

- Cost /Impact Evaluation: Rs. 69,613.46 Crores
- Benefits Evaluation: Rs.81,950.85 Crores

Environmental Cost Benefit Analysis Ratio= Value of Impact: Value of Benefits

Environmental Cost Benefit Analysis Ratio = 1:1.18

Hence, the project benefits are 1.18 times higher than the evaluated impacts.

9.7 INFERENCE

The cost benefit analysis for the Telangana STPP Phase–II (3x800 MW) indicates in favor of the proposed project. The financial expenditure incurred in preventing, containing, mitigation of environmental contaminations for the proposed project activity will further add to the environmental benefit.

CHAPTER 10: ENVIRONMENT MANAGEMENT PLAN

Environment Management Plan (EMP) describes various pollution control systems and other measures envisaged for mitigating environmental impacts identified separately for construction and operation phases. Each of the mitigation measures has been assessed with respect to:

- Adoption of state-of-the-art technological measures;
- Identification of human resources for its effective implementation;
- Allocation of financial resources for its effective implementation; and
- Effectiveness of mitigation measures.

EMP specifies various technological measures for pollution prevention, waste minimization, end-of-pipe treatment, attenuation etc. proposed to be undertaken to mitigate the adverse environmental impacts on each sector of environment during each phase of the project i.e. construction phase and operation phase.

Apart from mitigation measures, EMP also includes implementation of various measures, plantation/green belt development plan, ash utilization plan etc.

10.1 PROPOSED MANAGEMENT PLANS DURING CONSTRUCTION PHASE

The impacts of construction activities of Phase – II would be temporary and will reduce gradually with the completion of the construction activities. Various mitigation measures proposed to be implemented during construction phase of Phase - II are given in Table-10.1.

Table 10-1: Proposed mitigation measures to be implemented during construction phase

Proposed Mitigation Measures	Targets to Achieve	Risks and Consequence of Failure, if any
Water sprinkling in vulnerable areas	Control of fugitive dust from construction areas	Increase in PM emissions
Proper maintenance of vehicles & construction equipment	Control of vehicular emissions	Increase in gaseous pollutants.
Transportation of construction material in covered trucks, wherever possible	Control of fugitive dust during transportation	Increase in PM emissions

Proper maintenance of vehicles, equipment and machinery	Control of ambient noise and in-plant noise levels	Increase in noise levels
Provision of acoustic covers/ enclosures on equipment and machinery, wherever possible	Control of ambient and in-plant noise levels	Increase in noise levels
Provision of ear muffs/ earplugs to the workers in high noise areas and enforcement of its use	Protection of hearing capacity of workers	Health effects on individual workers
Channelization and construction of temporary sedimentation tanks for effluents from construction area through network of drains. Construction of temporary sedimentation tanks for the effluents from construction area.	Control of suspended solids in effluents from construction area	Increase in total suspended solids in effluents
Provision of environmentally safe camping area for the migrant labourers	To provide clean & healthy living environment to work force	Unhealthy living conditions, spread of diseases
Arrangements for water supply and sanitation	To reduce stress on surrounding population	Stress on existing utilities, conflicts with local people
Disposal of surplus earth and construction debris/waste	Control of pollution	Air/ water pollution
Reclaiming of un-built area with appropriate vegetation/ landscaping	Create a good visual environment aesthetics improvement	Unpleasant surroundings

10.2 PROPOSED MANAGEMENT PLAN DURING OPERATION PHASE

The impacts of operation phase will be long term in nature. The various mitigation measures proposed to be implemented during operation phase of the proposed project is summarized in Table-10.2. The proposed mode of implementation and identification of human resources for the implementation of the same is provided in Table-10.2.

Table 10-2: Proposed mitigation measures proposed to be implemented during operation phase

Mitigation Measures Proposed	Targets to Achieve	Risks and Consequence of Failure, if any
High efficiency ESPs	To reduce the emission levels of particulate matter below 30 mg/Nm^3	Increase in PM emissions
275 m stack	Wider dispersion of emitted air pollutants	Increase in ground level concentration of pollutants
NOx emission reduction system	To reduce the emission levels of NO_x as per applicable norms	Increase in NO_x emissions
Coal dust extraction and suppression systems	Control of fugitive dust from coal handling plant	Increase in fugitive emissions
Water cover in dry areas of ash disposal site	Control of fugitive dust from ash disposal area	Increase in fugitive emissions
Main plant effluent treatment plant	Removal of suspended solids, oil and grease and neutralization of pH, to conform to regulatory standards and recycled. Plant is designed to achieve Zero Liquid Discharge (ZLD) from plant (except monsoon season).	Change in concentration / value and increase in physico-chemical parameters
Sewage treatment plant	Removal of suspended solids, organic matter to conform to regulatory standards. Treated water shall be utilized for plantation	Increase in concentration of pollutants specifically biological parameters
Optimization of raw water requirement	To reduce the water consumption with semi dry mode ash disposal system	Increase in water consumption
Air-Cooled Condensers	To reduce make up water requirement and eliminate thermal pollution	Increase in water temperature of receiving water body
Ash Water treatment and recycle	Removal of suspended solids for recycle of effluents into ash water system	Increase in quantity of ash water tank overflow

Ash Handling, Storage & Disposal	To prevent the fugitive dust emissions by Dust Extraction Dust Suppression, Dry Fog Dust Suppression, Sprinklers To prevent the contamination of environment by proper lining in ash ponds	Increase in fugitive dust pollution and health hazards Contamination of land and groundwater
Design of equipment for noise control	To control noise levels below 90 dB(A) at 1 m distance	Increase of noise in work zone and ambient noise levels
Provision of acoustic enclosures/ barriers/ shields to reduce noise	Attenuation of noise at source -receptor pathway	Increase in in-plant and ambient noise levels
Provision of personal protective equipment-like ear plugs and ear muffs	Protection of health of workers	Health impact on workers in high noise areas
Dry collection of fly ash and supply of ash to entrepreneurs	Facilitate supply of dry ash to entrepreneurs	Reduction in quantity of ash utilized
Ash utilization	Reduced land requirement for ash disposal and less pollution from ash disposal site	Increased land requirement
Disposal of unused ash	Environmentally safe disposal of unused ash	_
Mill Rejects	Reuse within plant/ sale to other industries for reuse	_
Hazardous and Other Wastes	Temporary storage/Disposal as per applicable norms/ condition	Contamination of Air/ Water/ Land
Domestic solid waste	Environmentally safe disposal of municipal waste from township	Air and water pollution, spread of disease vectors
CSR-CD/CER activities for infrastructure development, education, health, sanitation,	Socio-economic development of the vicinity area	Low standard of living and public unrest on the power plant

capacity building etc.		
Afforestation/plantation (subject to space availability and feasibility)	Ecosystem improvement, attenuation of air pollutants (PM, SO_2 and NOx) and noise in source receptor pathway	Reduction in aesthetics and living space Higher pollutants in the ambient air
Control of fire and explosion hazards	Safety	Increased risk of fire and explosion

Table 10-3: Proposed mode of implementation and identification of human resources for mitigation measures for operation phase

Mitigation Measures	Mode of Implementation	Identification of Human Resources
Air Environment		
High efficiency Electrostatic Precipitators	Integral part of main plant package	ESP maintenance group at site
275 m high stack	Part of chimney package	Operation & Maintenance (O&M) group at site
NOx emission reduction system	Integral part of main plant package	Operation & Maintenance (O&M) group at site
Coal dust extraction and suppression systems	Integral part of main plant package	Coal handling group at site
Water cover over ash disposal area/ sprinklers in dry areas	Part of operation and maintenance system	Ash handling group at site
Reclamation of ash disposal area after abandonment	Part of operation and maintenance system	Ash handling & horticulture groups at site
Water Environment		
Main plant effluent treatment plant including Coal slurry settling pit and ZLD system	Integral part of main plant package	O&M group at site
Ash water recirculation	Ash Handling Package	Ash handling group at site

Sewage Treatment Plant	Station BOP package	Civil Maintenance in plant & Township administration in colony
Noise Environment		
Design of equipment	Included in technical specification	Engg. Group
Provision of acoustic enclosures/ barriers/ shields to reduce noise	Integral part of main plant package	Engg. and Project execution
Provision of personal protective equipment's like ear plugs and ear muffs	To be provided to workers in high noise area	Project Execution, O&M and Safety group at site
Solid Waste		
Dry fly ash collection and loading system	Ash Handling Package	Ash handling group at site
Disposal of unused ash	Ash Handling Package	Ash handling group at site
Ash disposal Dyke	Ash Handling Package	Ash handling group at site
Domestic solid waste	Civil package	Township Civil administration group
Hazardous and Other Wastes	Existing and Additional Facilities for Temporary storage/Disposal	O&M group/ Environment Management/ Horticulture Dept.
Ash Utilization	Ash utilization plan	Ash Utilization Group
Socio-Economic		
CSR-CD/CER activities for infrastructure development, education, health, sanitation, capacity building etc.	Part of CSR-CD/CER action plan	HR (CSR-CD) group at site
Others		
Afforestation/plantation (subject to space availability and	Environment Management Plan implementation	EMG/Horticulture group at site

feasibility)		
Control of fire and explosion hazard	Integral part of main plant package	CISF Fire Wing & Safety group at site
Environmental lab. equipment	Part of main plant package/purchase from market	Chemistry /Environment Management group at site

10.3 IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

The mitigation measures suggested as above shall be implemented so as to reduce the impact on environment due to the operations of the proposed project. In order to facilitate easy implementation of mitigation measures, the priority of implementation is given in Table-10.4.

Table 10-4: Implementation Schedule

Sr. No.	Recommendations	Time Requirement	Schedule
1	Air pollution control measures	Before commissioning of respective units	Immediate
2	Water pollution control measures	Before commissioning of the plant	Immediate
3	Noise control measures	Along with the commissioning of the plant	Immediate
4	Ecological preservation and up gradation	Stage wise implementation	Immediate & progressive

10.4 INSTITUTIONAL SET-UP FOR ENVIRONMENT MANAGEMENT

As per the present set-up, the environmental groups in NTPC have a three-tier organization structure, as given in Table-10.5.

Table 10-5: Organization structure of NTPC for overall Environment management

Corporate Centre	Engineering	Environmental Engineering Group
	Operations	Environmental Management Group
		Ash Management Group
		Safety

	Human Resources	Rehabilitation & Resettlement, CSR-CD groups
		Horticulture group
		Medical & public health
Regional Headquarters	Environmental Management	As coordinator
Projects	Coordinator	Environmental Management Group
	Operation & Maintenance	Chemistry Group
		ESP Maintenance Group/Township
		Ash Utilization Group
		Safety Group
	Human Resources	R&R, CSR-CD Group
		Horticulture
		Medical & Public Health

The overall responsibility of environmental management of an operating station lies mainly with head of the project who is assisted by Environmental Management Group at site, which acts as coordinator for environmental matters. This group is a nodal point for various groups at project, regional headquarters and corporate level as well as outside agencies like State Pollution Control Board, Central Pollution Control Board and Regional office of MoEF&CC. The site EMG receives technical support from Environmental Engineering Group, Environmental Management Group and Rehabilitation &Resettlement groups at Corporate Centre. The functions of main groups are summarized in following sections.

10.5 FUNCTIONS OF ENVIRONMENTAL GROUPS AT CORPORATE CENTRE

Environmental Engineering Group (EEG)

- Associating in site selection for new projects with engineering services
- EIA studies for new project sites and obtaining environmental clearances
- Special studies relating to environmental concerns
- Interaction with MoEF&CC, State Pollution Control Boards and funding agencies for new projects
- Provide assistance to sites in overcoming specific technical problems related to environment; and

- Implementation of NTPC Biodiversity policy

Environment Management Group (EMG)

- Coordination and monitoring with stations, regions, engineering division and other concerned agencies on all environmental matters concerning operating stations;
- Maintenance of an environment database, trend analysis of pollution monitoring data and prepare exception reports;
- Environmental audit of power stations;
- Providing operational feedback to engineering for carrying out necessary modifications in existing / future systems, overseeing implementation of modification / improvement programmes;
- Providing corporate support to stations through organization of meetings on environment management, obtaining management approvals;
- Organizing training workshops, seminars etc; and
- Implementation of organizational policies on environment, water, wastes etc.

Rehabilitation & Resettlement Group and CSR-CD Group

- Socio-economic study for Project Affected Persons (PAPs) due to land acquisition activities;
- Rehabilitation and Resettlement (R&R) of PAPs for new projects (involving land acquisition activities);
- Policy review and ensuring implementation;
- Collection and collation of various statistics on R&R measures;
- Providing these statistics to various agencies;
- Need assessment survey for planning CD activities;
- Planning and approval of CSR-CD budget for operating station;
- Monitoring of CSR-CD activities; and
- Finalization of the training programme in R&R, CSR-CD.
- Implementation of CSR policy

10.6 FUNCTIONS OF ENVIRONMENTAL GROUPS AT SITE

Environment Management Group (EMG) at Site

- Obtaining consent orders from SPCB;

- Environmental monitoring;
- Analysis of environment data, reports, preparations and transmission of data and submission of reports to statutory authorities, Corporate Centre etc;
- Compliance with guidelines and statutory requirements;
- Coordination with statutory bodies, functional groups of the station, Corporate EMG / engineering etc;
- Interaction for evolving and implementation of modification programmes to improve the availability/efficiency of pollution control devices/systems;
- Environmental appraisal (Internal) and environmental audit; and
- Plantation and afforestation.

Rehabilitation and Resettlement and CSR-CD Group

- Preparation, implementation and follow-up of R&R plan;
- Preparation and implementation of CSR-CD/CER plan in consultation with state government and village development advisory committee;
- Conduct social impact evaluation study and need based assessment survey; and
- To strengthen the public image of the company in respect of social aspects and maintain good relationship with the community in the vicinity.

10.7 ENVIRONMENTAL MANAGEMENT GROUP AT EXISTING TELANGANA STPP (PHASE-I)

An Environmental Management Group (EMG) is working at existing Telangana STPP (Phase-I). EMG has trained and environment qualified manpower, equipment for monitoring and other environmental related activities to ensure compliance of statutory requirements. It collects all monitoring repors, compiles reports and submit regularly to Telangana State Pollution Control Board (TSPCB) and Regional Office of MoEF&CC. The EMG team and monitoring systems would be strengthened for the proposed Phase-II project, as per requirement.

10.8 POLLUTION CONTROL AND MITIGATION MEASURES

The various environmental measures, pollution control systems and mitigation measures proposed to be adopted for the proposed Telangana STPP Phase-II (3x800 MW) are as follows:

I. Air Pollution Control System

High efficiency electrostatic precipitators (ESPs) will be installed to limit the particulate emission below 30 mg/Nm^3. To facilitate wider dispersion of particulate and gaseous pollutants, stacks of 275 m height will be provided. The stacks will be provided with personal access doors and sampling ports for monitoring of stack emissions. The steam generator shall be designed for low NOx formation by

adopting the appropriate burners.To achieve applicable NOx emissions norms suitable control measures will be installed as per techno-economic feasibility.

For control of fugitive dust emissions within and around the coal handling plant, dust extraction / suppression systems would be provided. Dust suppression system shall also be provided in the coal stockyard, Ash Handling and Ash Disposal areas.

II. Water Pollution Control System

An existing effluent management scheme, consisting of collection, treatment, recirculation, recycle, disposal and reuse of effluents has already been implemented in order to optimize the makeup water requirement as well as liquid effluent generation and its recycle based on ZLD scheme. The liquid effluents shall be collected and treated/ recycled as per the following design philosophy:

a. The sludge from clarifiers/tube settlers of water Pre-Treatment & Liquid Effluent Treatment plant collected in a sump/pit for further treatment and disposal as per statutory norms/ consent conditions.
b. The wastewater from neutralization pits of DM plant and condensate polishing plant collected in the respective neutralization pits and neutralized before pumping to ash slurry sump for use in Ash Handling.
c. Coal slurry settling ponds/sumps shall be provided to remove coal particles from coal handling plant waste. Decanted water is recycled back for use in the coal dust suppression system.
d. To receive & treat excess storm water (considering rain storm condition), clarifier feed pumps, reactor clarifier,clarified water transfer pumps and required chemical storage & dosing system has been envisaged.
e. The treated effluents conforming to the prescribed standards would be re-circulated and reused within the plant. Arrangements has been envisaged that plant effluents and storm water do not get mixed.
f. Service water effluents from various areas separately routed to a sump. From the sump the waste service water pumped up to lamella clarifier/tube settler for treatment. Treated service water sent back to service water tank & ash slurry sump to the extent possible for re-use.
g. Treated effluents (if any) collected in Central Monitoring Basin (CMB) and recycled & re-used after clarification as mentioned above based on ZLD methodology.

The sewage from plant and township shall be treated in existing sewage treatment plant. The treated effluent conforming to prescribed standards are utilized for plantation & horticulture to the extent possible.

III. Noise Pollution

The major noise generating sources are the turbines, turbo-generators, compressors, pumps, fans, coal handling plant etc. from where noise is continuously generated. Acoustic treatment, wherever required, shall be provided to control the noise level below 90 dB (A). Wherever required, the workers shall be provided with protective equipment such as ear plugs/ear muffs.

Proper acoustic enclosures in equipment, adoption of modern building design and the use of sound-absorbing materials will minimize noise and vibration from the powerhouse. Plantation will be done at available spaces, wherever feasible, to absorb noise. Existing Greenbelt / plantation developed under Phase–I will be maintained and further strengthened.

IV. Solid Waste Management

Fly ash generation

Ash is the major solid waste generated from the power project. An ash management scheme shall be implemented consisting of dry collection of fly ash, supply of ash to entrepreneurs for utilization and promoting ash utilization to maximum extent and safe disposal of unused ash.

Ash Utilization and Management

The Ministry of Environment, Forests and Climate Change (MOEF&CC) has issued a Gazette Notification dated 31-12-2021 in supersession of the Notification S.O. 763 (E), dated the 14th of September, 1999 except as respect things done before such supersession. The new notification stipulates that every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall be primarily responsible to ensure 100 per cent utilization of ash (fly ash, and bottom ash) generated by it in an eco-friendly manner.

The ash generated from coal or lignite based thermal power plants shall be utilized only for the following eco-friendly purposes, namely:

- Fly ash-based products viz. bricks, blocks, tiles, fiber cement sheets, pipes, boards, panels;
- Cement manufacturing, ready mix concrete;
- Construction of road and fly over embankment, Ash and Geo-polymer-based construction material;
- Construction of dam;
- Filling up of low-lying area;
- Filling of mine voids;
- Manufacturing of sintered or cold bonded ash aggregate;
- Agriculture in a controlled manner based on soil testing;
- Construction of shoreline protection structures in coastal districts.
- Export of ash to other countries.

- Any other eco-friendly purpose as notified from time to time.

Proposed Telangana Phase-II shall be provided with additional ash dyke. The fly ash and bottom ash is proposed to be collected in dry form. However, any unutilized fly ash is to be disposed off to ash ponds through high concentration slurry disposal (HCSD) system and bottom ash in the form of lean slurry.

Table 10-6: Ash Generation & Utilization details for previous years

FY	Ash Generation, LMT	Ash Utilization, LMT	AU %
2023-24	6.81	0	0
2024-25	27.35	7.46	27.29%

*Unit-I & Unit-II of the Telangana Phase-I have been commissioned in later part of the FY 2023-24 i.e., Oct-2023 & Mar-2024 respectively. Due to this the Ash Utilization for FY 2023-24 was NIL. Now after stabilization of the operations from both the units, tie-up have been done with end users of ash Utilization shall further improve as per the plan.

Ash Utilization Plan from FY 2025-26 to FY 2033-34:

- As per MoEF&CC Fly Ash Notification on dated 31.12.2021, starting w.e.f. April 2022, all TPPs to utilise 100% current ash (fly ash and bottom ash) generated during that year with minimum utilization of 80% every year in 03-year cycle while achieving average 100% AU in each 03-year cycle. However, there is relaxation of two years for newly commissioned Plants after 2021-22.

- Since first Unit of Telangana of Phase# I commissioned in October-2023 and second in March-2024, 05-year cycle shall start from April 2023. So accordingly, Ash Utilization Plan for MoEF&CC, three compliance cycles (from FY 2023-24 to FY 2033-2034) is as follows.

Table 10-7Ash Utilization Plan for Telangana STPP (Phase-I & Phase-II)

MoEF&CC Compliance Cycle	Year	Ash Generation (LMT)	Ash Development (LMT)	Outside Bricks (in MT)	Own Brick Plant (LMT)	Cement & Other Industries (LMT)	Roads Construction (LMT)	Ash Based Product/ others (LMT)	Mines filling (LMT)	Total Ash Utilized (LMT)	Ash Utilization (%)
	Operation from Existing 2x800MW										
First	FY2023-24	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	FY 2024-25	27.36	0.00	3.72	0.89	2.83	0.00	0.03	0.00	7.47	27.30
	FY 2025-26	28.00	0.00	20.00	0.00	20.00	0.00	0.00	0.00	40.00	142.85
	FY 2026-27	28.00	0.63	15.00	0.00	18.00	8.00	0.00	0.00	41.63	148.68
	FY 2027-28	28.00	1.74	12.00	0.00	15.00	0.00	0.00	0.00	28.74	102.64
Second	FY 2028-29	28.00	0.53	7.00	0.00	14.00	6.47	0.00	0.00	28.00	100.00
	With commissioning of Phase-II (Unit-I) in 2029: Operation from 2x800MW + 1x800MW										
	FY 2029-30	41.95	0.75	10.00	0.50	21.00	9.70	0.00	0.00	41.95	100.00
	With commissioning of Phase-II (Unit-I) in 2030: Operation from 2x800MW + 2x800MW										
	FY 2030-31	55.93	1.00	13.33	0.67	27.99	12.94	0.00	0.00	55.93	0.00
Third	**With commissioning of Phase-II (Unit-I) in 2031: Operation from 2x800MW + 3x800MW**										
	FY 2031-32	69.91	1.25	16.67	0.83	34.99	16.17	0.00	0.00	69.91	100.00
	FY 2032-33	69.91	1.25	16.67	0.83	34.99	16.17	0.00	0.00	69.91	100.00
	FY 2033-34	69.91	1.25	16.67	0.83	34.99	16.17	0.00	0.00	69.91	100.00
Note: The above data is tentative and the actual ash generation as well as utilization, shall depend upon a number of factors such as PLF, ash content of coal, demand of ash, etc.											

Domestic waste

NTPC has well-established facilities for solid waste management. These municipal solid waste management facilities will be utilized for the expansion project and increase of manpower.

V. Rainwater Harvesting

Apart from recycle and reuse of water for conservation of water, rainwater harvesting system is also provided at Telangana STPP, Phase-I for collecting rainwater through the localized catchment areas like paved, unpaved areas and roof top buildings. Collected water shall be used for recharging the ground water table and stored in pond for gardening purpose.

The rainwater harvesting systems in the plant helps to conserve the recharge volume of runoff during monsoon and recharge ground water when the water table level becomes deeper. Recharge pits are proposed for the buildings and overflow water is diverted to storm water drain. Recharge basins at three outfall points are connected with the nearest storm water drain and overflow water from the recharge basins are diverted to the nallah. Two rain harvesting ponds are proposed to conserve the runoff and for utilization in green belt /horticulture development. The approximate quantity of runoff for recharge from the plant site is 43,105 m^3/year. From the two rain water harvesting ponds, the quantum of water to be utilized for green belt /horticulture development is equal to 3,047 m^3/year.

NTPC as an environmentally responsible company is having a specific “Rainwater Harvesting Policy” of company. The rainwater harvesting will be planned as per said policy.

Rainwater harvesting structures are proposed to collect rainwater at plant and to recharge the ground water resources in the region as per feasibility. The run-off water from the roof of the structures and paved areas will be collected through storm water drainage system and led to rain water harvesting structures. The final location of structures will be decided during detailed engineering of the project. The typical rain water harvesting structure is shown in **Figure-10.1.**

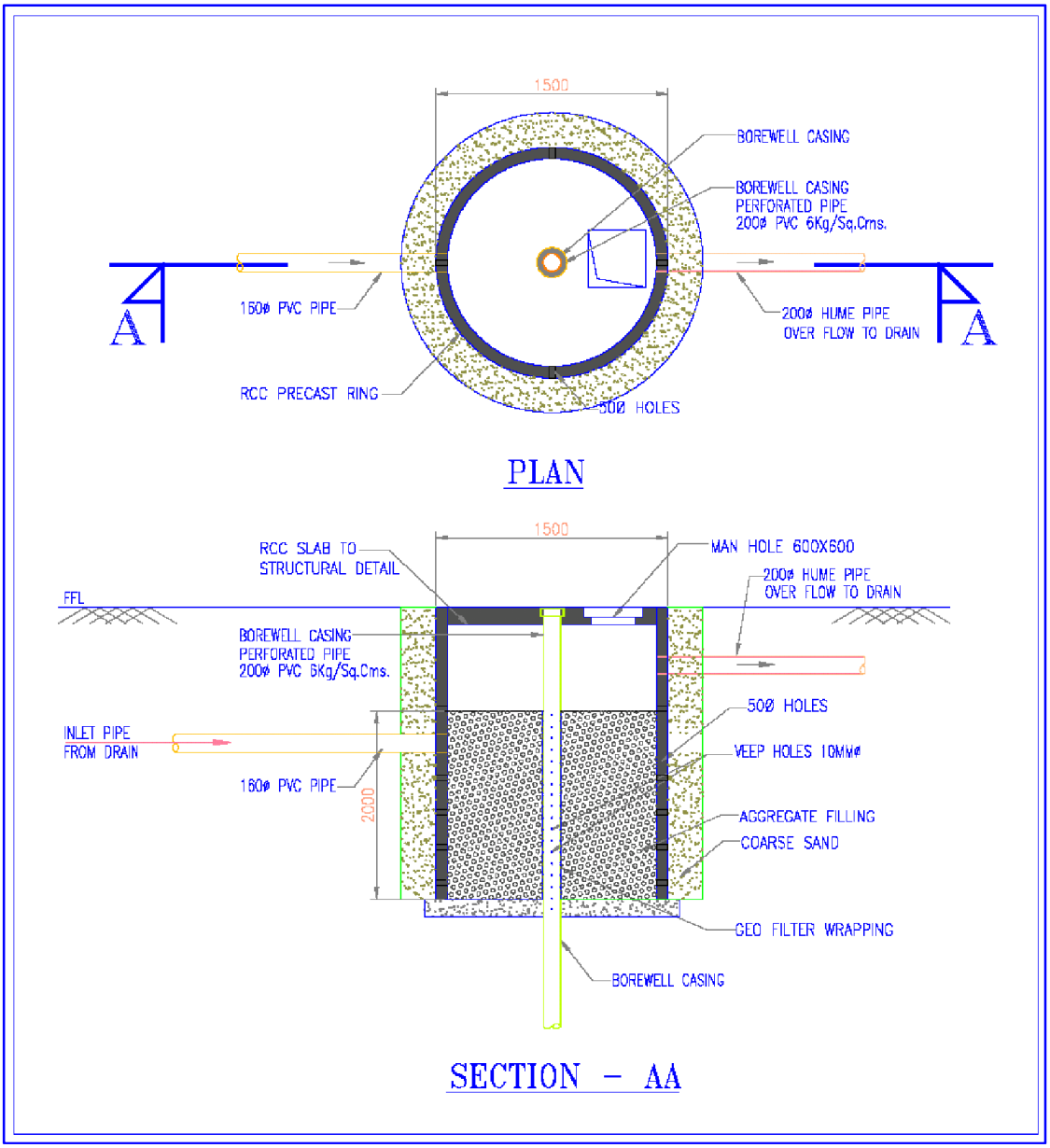


Figure 10-1: Typical Ground Rainwater Harvesting Structure

VI. Energy Conservation

A roof-top solar PV plant of capacity 1253 KWH has already been installed on rooftop of all suitable buildings in power plant premises. Same practice will be followed for the Phase- II. Also, the conventional Lights have been changed with LED Lights to reduce the energy consumption and also helps to reduce the carbon footprint.

Under Phase-II, a provision has been envisaged to install rooftop solar PV plant of 1125 kW capacity. Rooftop solar PV installations are envisaged to be done on various buildings in the plant area such as Main powerhouse, ESP control building, Water system control building and Ash/Coal handling control buildings etc.



Figure 10.2: Rooftop Solar PV installation at Telangana Phase-I

VII. Green Belt Development Plan

The greenbelt development plan aims to overall improvement in the environmental conditions of the industrial complex. The plan addresses issues such as prevention of land degradation due to activities during construction phase; increasing the green cover of the area; enhancing aesthetic value to the project area and maintaining the ecological equilibrium of the area.

Trees also help in removing carbon dioxide and other pollutants from air and release oxygen into the air, thereby improving air quality. A green belt development helps in removing particulate matter from the air by trapping particulate matters. A green belt also reduces the intensity of sound and acts as a noise barrier. Thus, Green belts in and around urban and industrial areas are important to the ecological health of any given region.
Environmental Guidelines for Industries developed by MoEF&CC, suggest that the industries must care about the surrounding environment and minimize the adverse impacts of industrial operations in the immediate neighborhood as well as distant places. It is recommended to raise plantation and develop greenbelt in maximum available land around the project site. The greenbelt development plan is based on CPCB Guideline "Guidelines for Development of Greenbelts. 2000. Programme Objective Series: PROBES/75/1999-2000".

- **Existing Greenbelt**

About 187.975 Ha land has been identified for development of plantation/Greenbelt covering Telangana Phase-I & Phase-II. Out of this, greenbelt/plantation development has been completed on 125.95 Ha. by plantation of approx. 3.10 lakh trees at various locations. Further, development of plantation/Greenbelt is proposed on 62 Ha. area during as per detailed action plan.

Overall, greenbelt/plantation has been developed on approx. 215 Ha area which also covers plantation within Telangana STPP and peripheral greenbelt/plantation under Ramagundam Super Thermal Power Station.

Miyawaki plantation method was adopted in Ramagundam Municipal Areas by planting 17,840 saplings. It created a mini forest, which acts as a carbon sink. The photographs of the plantation are shown as **Figure 10.3.**

Figure 10.3: Photographs of Plantation around the Plant area



Selection of Plant Species for Green Belt Development:

The selection of plant species for the green belt development depends on various factors such as climate, elevation aspect and soil of plantation area. The plants would exhibit the following desirable characteristics in order to be selected for plantation.

- The species should be fast growing and providing optimum penetrability.
- The species should be wind-firm and deep rooted.
- The species should form a dense canopy.
- As far as possible, the species should be indigenous and locally available.
- Species tolerance to air pollution like SO_2 and NO_2 should be preferred.
- The species should be permeable to help create air turbulence and mixing within the belt.
- There should be no large gaps for the air to spill through.
- Trees with high foliage density, leaves with larger leaf area and hairy on both the surfaces.
- Ability to withstand conditions like inundation and drought.
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- Attractive appearance with good flowering and fruit bearing.
- Bird and insect attracting tree species.
- Sustainable green cover with minimal maintenance.

Guidelines to be considered in Green Belt:

- Planting of trees in each row will be in staggered orientation.
- In the front row, shrubs will be grown. Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion.
- The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees may grow vertically and slightly increase the effective height of the green belt.
- Shrubs and trees will be planted in encircling rows around the project site
- The short trees (<10 m height) will be planted in the first rows (towards plant side) of the green belt. The tall trees (>10 m height) will be planted in the outer row (away from plant side).
- Providing the Greenbelt more than 33% area of the total project area with various species.

Plantation Details in and around the Plant area is presented in Table 10.8

Table 10-8: Greenbelt Plantation at Telangana STPP

Location		Area, Ha.	No. of Trees Planted
GB-1	Oxidation pond area Miyawaki Plantation	4.36	14592
GB-2	Area Between Ash pipe corridor and North side Road	7.13	14260
GB-3	Track Hopper North side Railway track bothe sides	7.51	15026
GB-4	East side of Coal Stack Yard	8.78	17560
GB-5	South side of Coal stack yard	2	4500
GB-6	South side of Coal stack yard	5.1	8700
GB-7	East side of Ash Dyke	2.6	6000
GB-8	Beside east side of bund road	1.5	2100
GB-9	South side of Ash Dyke	3.4	7500
GB-10	South side of Ash Dyke	17.21	34000
GB-11	Area Between Ash Dyke and Reservoir- Miyawaki	7.28	71200
GB-12	East side of Track Hopper	7.74	19000
GB-13	West side of Coal Crusher house	4.2	9000
GB-14	West side of Coal Stack Yard	5.93	13500
GB-15	Telangana plant gate-6 right side	2.37	5100
GB-16	Telangana plant gate-6 left side	2.59	5200
GB-17	Area in Lagoon-1	36.25	63000
Total Plantation/Greenbelt		**125.95**	**310238**

Table 10-9: Plantation /Greenbelt Development Plan

Year	Plantation		Location of Plantation			Approx Cost, Crores	Plant Species
	No.	Area, Ha.	Location Details	Lat.	Long.		
2024-25	10000	4.01	Railway siding Phase-1 **(P-2)**	18°42'38.91"N	79°28'37.66"E	2.28	Banyan, Peepal, Neem, Jamun, Amla, Arjun, Kadamba, Sandalwo
	23000	9.31	Area between Phase 1 Ash Pond and South Plant Boundary **(P-3)**	18°44'23.62"N	79°29'28.52"E	5.26	
2025-26	48000	4.8	Area between Balancing Reservoir & Phase 1 Ash Pond **(P-1)**	18°43'18.46"N	79°28'54.62"E	7.2	

2026-27	46000	4	Area between Balancing Reservoir & Phase 1 Ash Pond **(P-1)**	18°43'08.15"N	79°28'22.27"E	6.9	od, Tamarind, Indian Almond, Teak, Indian Beech (Pongamiapinnata) etc.
2027-28	35975	14.39	Inside Lagoon-1 **(P-4)**	18°42'48.82"N	79°28'16.60"E	7.91	
2028-29	37500	15.03	Inside Lagoon-1 **(P-4)**	18°42'58.43"N	79°28'16.84"E	8.25	
2029-30	20025	8.01	Area between Ash pipeline and Track Hopper **(P-5)**	18°44'36.29"N	79°28'54.44"E	4.45	
2031-32	6200	2.48	North side of project near highway **(P-6)**	18°45'43.24"N	79°28'08.09"E	1.36	
Total	**226700**	**62.03**				**43.61**	
Gap Filling Plantation							
2025-26	1000	0.5	Between Ash Pond & Plant Boundary (P-3)	18°44'23.62"N	79°29'28.52"E	0.22	
2026-27	500	0.2	Between Reservoir & Ash Pond (P-1)	18°43'18.46"N	79°28'54.62"E	0.1	
2027-28	500	0.2	Between Reservoir & Ash Pond (P-1)	18°43'08.15"N	79°28'22.27"E	0.1	
2028-29	1000	1	Inside Lagoon-1	18°42'48.82"N	79°28'16.60"E	0.22	
2029-30	1000	1	Inside Lagoon-1	18°42'58.43"N	79°28'16.84"E	0.22	
2030-31	800	0.4	Area between Ash pipe and Track Hopper	18°44'36.29"N	79°28'54.44"E	0.18	
Total	**4800**	**3.3**				**1.04**	

Following tree species are recommended for green belt. However, NTPC should take help of forest department during plantation.

Table 10-10: Floral species recommended for Greenbelt Development

r. No	Scientific Name	Common Name	Family
1	*Azadirachta indica*	Neem/Vembu	Meliaceae
2	*Alstonia scholaris*	Elilaippalai/Devils Tree	Apocynaceae
3	*Bauhinia variegata*	Segappumandrai/Pink Orchid Tree	Caesalpiniaceae
4	*Dalbergia sissoo*	Sisoo, Shisham	Fabaceae
5	*Thespesia populnea*	Purvasu/Portia Tree	Malvaceae

6	*Pterospermum acerifolium*	Vennangu/Kanak Champa	Sterculiaceae
7	*Haldina cordifolia*	Adina/Kadambai/Kadamba/Haldu	Rubiaceae
8	*Pongamia pinnata*	Karanj/Pungai/Indian Beech Tree	Fabaceae
9	*Dalbergia latifolia*	Kalashisham/Rose Wood	Fabaceae
10	*Tectona grandis*	Teak	Verbenaceae

The plant species shall be preferred for controlling Suspended Particulate Matter (SPM), SO_2, NOx and Noise as recommended by Forest Department.

10.9 CONSERVATION PLAN FOR SCHEDULE-I SPECIES

I. Introduction

This section deals with wildlife species conservation plan which include habitat restoration and development. Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. Therefore, conservation plan has been drawn taking the existing scenario into consideration and mainly includes general plans for the betterment of wildlife in the project areas. The conservation and management plans suggested here are mainly the issues identified during the survey, specific to biodiversity values of both terrestrial and aquatic systems.

Table 10-11: List of Schedule I species found in the authorized list of flora and fauna (as per the Wild Life Protection (Amendment) Act, 2022) in the study area during EIA study

Sl. No.	*Scientific name*	Common name	IUCN/W(P)A(Amendment,2022)
Mammalia			
1	*Melursus ursinus*	*Sloth Bear*	*VU/I*
2	*Hystrix indica*	*Indian porcupine*	*LC/I*
3	*Panthera pardus*	*Common Leopard*	*VU/I*
4	*Panthera tigris*	*Tiger*	*EN/I*
5	*Herpestes edwardsii*	*Common mongoose*	*LC/I*
6	*Canis lupus*	*Indian Wolf*	*LC/ I*
7	*Cuon alpinus*	*Indian wild Dog*	*EN/I*
8	*Canis aureus*	*Jackal*	*LC/I*

9	*Lutra lutra*	*Common Otter*	*NT/I*
10	*Ratufa indica*	*Indian Giant squirrel*	*LC/I*
11	*Rusa unicolor*	*Sambar*	*VU/I*
12	*Tetracerus quadricornis*	*Four -Horned Antelope*	*VU/ I*
Reptilia			
13	*Naja naja*	*King Cobra*	*LC/ I*
14	*Python molurus*	*Indian Python*	*VU/I*
15	*Crocodilus palustris*	*Crocodiles*	*VU/I*
16	*Vipera russellii*	*Russell's Viper*	*LC/ I*
Avians			
17	*Pavo cristatus*	*Peafowl*	*LC/ I*
18	*Milvus migrans*	*Black Kite*	*LC/ I*
Abbreviations: LC= Least Concerned, CR= Critically Endangered, VU= Vulnerable, DD= Data Deficient, NT= Near Threatened, EN= Endangered. Source: Government of Telangana Forest department			

II. Wildlife Management Plan

A Wildlife Conservation Plan has been developed with particular reference to Schedule-I faunal species to understand their habit, habitat, feeding, breeding and the potential threat for planning and undertaking necessary action plan for their protection and conservation.

The plan would provide appropriate guidance to the proponent to undertake required measures for conservation and protection of the rare and endangered species of the area. Implementation of the Wildlife Conservation Plan should be carried out in consultation with State Forest Department.

The management plan comprises of a brief description of all these schedules I species along with their conservation measures.

10.10 CONSERVATION AND PROTECTION MEASURES

A total of 18 Schedule-I species are reported from the study area. As per the description, threat status, habitat and ecology of these species, there are more or less common threats to these species such as habitat fragmentation, habitat loss, illegal hunting and less awareness towards the conservation and importance of the endangered species. Therefore, direct and indirect approach of conservation is required to provide effective conservation, which is recommended as below:

1. For conservation of schedule-I species, awareness campaign should be organized for the local community. The goal should be achieved by organizing various competition at local and community level such as wildlife poster making, slogan, and essay writing competition on the importance of these species and their habitat.
2. Forest fire, cutting of trees, firewood collection, and dumping of garbage, plastic waste, and waste materials from construction sites will be strictly avoided.

3. Forest department would be actively involved in wildlife conservation and protection activities.
4. Training for all the workers should be conducted before starting the project activity. This will include training on the importance of surrounding biodiversity and critically important species.
5. To reduce human wildlife conflict, signboard should be installed showing presence of schedule I species to make aware locals and tourists.
6. Restoration of habitats through tree and shrub/bush plantation so that grooves could be developed which are used both for nesting and roosting purposes by avifauna. This has to be carried out in association with forest department.
7. Restoration of water bodies for habitat improvement for example removal of obnoxious weeds like hyacinth, which poses great threat to aquatic ecosystem.
8. The changes in land use pattern, intensive agriculture, habitat fragmentation, and other factors are the greatest threats to reptiles. Hence, more green patches especially bushes should be grown around and the near forest and scrub area for conservation of reptiles.
9. For reptile conservation, schools and local communities should be sensitized to dispel myths and misconceptions about reptiles.
10. Local knowledge, traditions, attitude and perceptions on conservation of scheduled species would be accessed for long term conservation.
11. Farmers of the adjoining areas to be made aware of organic farming & will be motivated to avoid use of fertilizers and pesticides.
12. Proper precautions will be taken for carrying out the project activities at nighttime as animals are sensitive to noise and lights.

10.11 BUDGET FOR WILDLIFE CONSERVATION

The amount will be given to the State Forest and Wildlife department for the following purposes:

- Contributions to the Forest and Wildlife Department for implementation of conservation plans Habitat improvement – through increase in forest cover and desilting and Renovation of water bodies
- Support to Forest Department for establishing Anti-poaching barracks for monitoring poaching activities in the study area.
- To identify and engage the services of local wildlife lovers (as volunteers) for tracking any wildlife and wildlife related incidents in and around their locality and to report the same to the State Forest and wildlife department
- To engage the expert services of the Wildlife Institute of India (WII) or any agency or institute identified by the State Forest and wildlife department for making specific suggestion with respect to conservation of Schedule-I species identified in the study area.
- Organizing of awareness programs jointly by the NTPC and State Forest and Wildlife Department at village and school level on the occasions like Wildlife Week and World Environment Day and Plantation drive launched by the State Forest Department.

- Funds will be allocated for rescue and rehabilitation of wildlife by providing veterinary care.
- Clearing of obnoxious weeds from waterbodies and monitoring of garbage dumping into water bodies and wildlife habitats in near vicinity of villages and habitations.
- Assessment of success of wildlife management, periodical studies of biodiversity in the study area, population dynamics of different fauna, and carrying capacity of wildlife habitats are to be conducted.

The estimated budget for wildlife conservation plan is given in Table 10.12. The plan has been prepared in consultation with Forest Department and budget provisions have been made accordingly.

Table 10-12: Action Plan and Budget for Wildlife Conservation Plan

Sr. No	Item of work	Physical Target	Rate	Fin Target	Year Wise Budget Plan				
					1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	5th Yr.
1	**Habitat Improvement:** Habitat improvement is a critical process for enhancing natural environments to better support wildlife. This involves strategic actions like providing reliable water sources, bore wells and storage, and restoring native vegetation and planting local grasses and trees. Additionally, creating essential shelters such as dens benefits smaller animals, fostering a healthier and more balanced ecosystem.								
i.	Drilling of bore well and installation of Solar Pumps.	4 Nos	5.00 each	20.00	10.00	5.00	5.00	0.00	0.00
ii.	Construction of large PTs connected to solar bore wells. (2 PTs for each bore well).	4 Nos	2.00 each	8.00	4.00	2.00	2.00	0.00	0.00
iii.	Creation of natural grass lands by uprooting obnoxious weed and sowing of local grass and repeating the operations for 3 years in 6 Reserve Forests.	30 Ha	1.00 per Ha	30.00	6.00	6.00	6.00	6.00	6.00
iv.	Raising of nursery for roadside/gap planting with indigenous tree species @ Rs.35/-	20,000 Bag plants	35.00 each	7.00	5.00	1.00	1.00	0.00	0.00

	seedling.								
v.	Creation of dens and hideouts for small animals like Golden Jackal, Jungle Cat, Grey Mongoose, Porcupine, Small Indian Civet in 6 Reserve Forests.	12 locations	0.50 per locations	6.00	2.00	1.00	1.00	1.00	1.00
vi.	Dense planting of shrubs and grasses of 0.10 Ha each for providing green power for wild herbivores in 6 RF Blocks.	12 locations	0.50 per location	6.00	1.20	1.20	1.20	1.20	1.20
2	**Protection Measures: Protection measures** are essential for securing natural habitats, such as encompassing the construction of **integrated watchtowers.** Equipping teams with crucial **firefighting equipment** likeblowers is also vital to effectively manage and prevent potential threats.								
vii.	Construction of integrated watch tower with solar pump with PT and a room for protection watchers.	1 location	30.00 each	30.00 each	15.00	15.00	0.00	0.00	0.00
viii.	Engaging of protection cum fire watchers for 5 years	5 Nos for 5 years	7.20 per year	36.00	7.20	7.20	7.20	7.20	7.20
ix.	Purchase of firefighting equipment/blowers	12 Nos	0.60 each	7.20	3.60	3.60	0.00	0.00	0.00
3	**Managing Human Wildlife Conflict: It** is crucial to include key strategies such as **procuring camera traps** for monitoring, and **compensating victims** of conflict by depositing funds into a dedicated corpus account. Additionally, equipping **rescue teams** with **trap cages and specialized equipment** is essential for safe interventions and mitigating direct encounters.								
x.	Procuring camera traps	10 Nos	0.30	3.00	1.50	1.50	0.00	0.00	0.00
xi.	Compensating victims of human wildlife conflict. This amount shall be deposited in the corpus fund account of	5 years	10.00 per annum	50.00	10.00	10.00	10.00	10.00	10.00

	chief wildlife warden in SBI Treasury Branch, Abids, Hyderabad.								
xii.	Procuring trap cage and equipment for rescue team	1 Unit	10.00 per unit	10.00	5.00	5.00	0.00	0.00	0.00
4	**Research and Monitoring: Effective** research and monitoring are crucial for evaluating conservation initiatives.								
xiii.	Engaging Field Biologist for monitoring the impact of the project on the wild animals and their habitat in the 10km radius (Buffer Zone) from the project site.	1 No. for 5 years @ Rs. 0.35 per month	4.20 per year	21.00	4.20	4.20	4.20	4.20	4.20
xiv.	Purchase of a two wheeler for Field Biologist to monitor the wildlife conservation plan implementation in the 6 Reserve Forest Blocks location in the Buffer Zone of the project.	1 No.	1.20 each	1.20	1.20	0.00	0.00	0.00	0.00
5	**Publicity and Awareness:** Awareness initiatives are crucial for promoting wildlife conservation. This includes installing informative sign boards to alert drivers about animal movement and conducting nature camps for locals. Additionally, capacity building and training for staff ensures effective communication and support for conservation efforts.								
xv	Installation of large caution and informative sign boards of schedule 1 species at regular intervals to caution the vehicles about animal movement of 10x20 feet.	5 Nos	2.00	10.00	2.00	2.00	2.00	2.00	2.00
xvi	Conducting nature camps for children from	50 camps	0.20 each	10.00	2.00	2.00	2.00	2.00	2.00

	local schools.								
xvii	Capacity building and training for staff.	10 training	1.00	10.00	2.00	2.00	2.00	2.00	2.00
VI	**Administrative cost**	@ 10% of project cost							
	Office support	LS	As per actuals	26.80	5.36	5.36	5.36	5.36	5.36
	TOTAL (Lakh Rs.)			292.20	87.26	74.06	48.96	40.96	40.96

A budget of Rs. 292.2 lakhs have been earmarked for wildlife conservation for period of five years after approval of Principle Chief Conservator of Forest, Govt. of Telangana.

10.12 CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

As per the OM F. No. 22-65/2017-IA.III dated 30th September, 2020 on CER and subsequent amendments by Ministry of Environment, Forest and Climate Change Impact Assessment Division have stated that the Expert Appraisal Committee or State Level Expert Appraisal Committee shall deliberate on the commitments made by the project proponent to address the concerns raised during the public consultation and prescribe specific condition(s) in physical terms while recommending the proposal, for grant of prior environment clearance instead of allocation of funds under Corporate Environment Responsibility. Further, in the OM it is said that all the activities proposed by the project proponent or prescribed by the Expert Appraisal Committee or State Level Expert Appraisal Committee, as the case may be, shall be part of the Environment Management Plan. Accordingly, for this project after the public consultation is conducted the social commitments will be clearly marked out in the Environment Management Plan.

10.13 COST PROVISION FOR ENVIRONMENTAL MEASURES

A cost provision Rs. **2463.88** Cr has been kept towards providing environmental measures and details are presented in Table below.

Table 10-13: Cost Provision towards Environmental Measures

S. N.	Item Description	Capital Cost, Rs. in Crores	Recurring Cost, Rs. in Crores
1.	Electrostatic Precipitator	605.72	12.11
2.	Chimney	228.00	4.56
3.	Aux.Cooling Towers incl. Civil Works	35.44	0.71
4.	Ash Handling System	1096.45	21.93
5.	Ash Dyke	150	3.0
6.	Ash Water Recirculation incl. ETP	311.73	6.23

7.	Dust extraction & suppression System	8.00	0.16
8.	DM plant, Waste treatment systems	5.00	0.10
9.	Sewerage collection, treatment & disposal	2.00	0.04
10.	Rainwater Harvesting	0.64	0.01
11.	Green Belt, Afforestation & Landscaping	10.00	0.20
12.	Environmental Lab Equipment	0.50	0.01
13.	Environmental Monitoring Systems	6.40	0.13
14.	Implementation of Wildlife Conservation plan	2.92	--
15.	Implementation of Hydrogeology Study recommendation	0.39	
16.	Implementation of Watershed Development Plan	0.68	
	Total	**2463.88**	**49.19**
i	Cost provisions for addressing the issues raised in Environmental Public Hearing as per timebound actin plan	49.4	**--**

*Item Descriptions & their cost provisions are tentative and may vary during actual award of work.

10.14 NTPC's ENVIRONMENTAL POLICY

NTPC has a well-laid comprehensive Environmental Policy. The intent of this policy is to meet environmental expectations and provide actionable guidance, as NTPC strives to foster a culture of excellence and challenges itself for continual improvement. The policy is reviewed at periodical interval and the latest Environment Policy is updated in 2022. A copy of NTPC Environment Policy (2022) document is given in Figure-10.5.

A risk management committee comprising of members from senior functionaries of management as per provisions of Companies Act, 2016 has been constituted to establish system for reporting environment related parameters, deviations and constraints to management. Environmental risks perceived shall be reviewed through risk management mechanism for appropriate action.

Concerned group shall oversee compliance assurance of operating stations through reviews and appraisals. NTPC shall continue to identify all stakeholders and engage with them at appropriate levels, to exchange views on environmental concerns and mitigation measures thereof.



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Environment Policy-2022

I. Purpose:

NTPC being the country's largest power generator, with its presence across the energy value chain, recognizes that protection of environment is essential for sustainable business.

In the context of this Policy, the definition of Environment covers all the domains of environment - physical, chemical, biological and socio- economic aspect.

NTPC hereby adopts Environment Policy-2021, superseding its earlier policy document of 2017.

The intent of this policy is to meet environmental expectations and provide actionable guidance, as NTPC strives to foster a culture of excellence and challenges itself for continual improvement.

This document contains:

I. Purpose
II. Policy Statement
III. Applicability
IV. Principles
V. Institutional Framework
VI. Policy
- *Stewardship*
- *Compliance & Assurance*
- *Stakeholder Engagement*
- *Capacity Building*

VII. Review

II. Policy Statement:

"To provide cleaner energy by committing to the highest possible levels of performance in environmental compliance, practices and stewardship."

III. Applicability:

This policy shall apply to all establishments of NTPC and each employee shall be made a partner in implementing the policy.

IV. Principles:

This policy is based on the following principles:

1. Consideration of Environmental factors right from the stage of planning, design and operation of project/station to ensure that mandatory principles of conservation and sustainability are adhered to.

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2. Adopting the best possible environment management practices and state-of the-art technology to minimize impact of business on Environment.
3. Adopting the latest, relevant and feasible Environmental Management Systems (EMS) at all operating stations to improve our environmental performance through more efficient use of resources and reduction of waste.
4. To commit as a responsible corporate citizen by striving to achieve and sett benchmarks not limited to statutory compliances.
5. Innovation by carrying out Research & Developmental activities, coupled with enablers leading to continual improvement.
6. Accepting accountability for all operations and expeditiously respond to any aberration.
7. Continuous monitoring and sharing of environmental indicators with stakeholders.
8. Develop each employee as an Environmental Steward by improving his/her awareness levels while soliciting their commitment.

V. Institutional Framework:

Our three tier structure for environmental systems implementation is presented below:

1. Corporate Level Functions - Engineering, planning and monitoring
2. Regional Level Functions – Compliance monitoring, Facilitators to stations and Coordination between Stations & Corporate.
3. Stations: Functions - Execution and reporting





Note: These charts do not reflect the organizational structure/reporting arrangement, but serve to identify responsible departments within NTPC.

VI. Policy:

NTPC shall achieve these objectives by:

1. Stewardship:

NTPC shall:

a. Adopt a pro-active approach and place environmental aspects as one of the prime consideration in decision-making process.

b. Identify and manage environmental impacts due to business activities by adopting the latest environment management technologies and practices.

c. Act to manage risks, as identified by the Risk Management Committee (RMC)*.

d. Evaluate performance of our environment protection equipment, programs and practices with respect to legal provisions and prepare action plans for concerned functional groups.

e. Ensure efficient and optimal use of resources such as land, water, fuel, construction materials, oils, and chemicals etc, especially the non-renewable ones.

f. Spearhead waste management by adopting the 3Rs principle (Reduce, Re-use and Recycle) and safe disposal.

g. Adopt more environment friendly and energy-efficient inputs.

h. Provide innovative technological solutions to environment related issues.

i. Benchmark parameters to establish and adopt best practices.

j. Take up environmentally befitting projects in areas of climate change, renewable energy, conservation and responsible consumption of natural resources under Sustainable Development initiatives.

k. Adopt principles of green procurement by incorporating appropriate provisions in contracts and procurements.

l. To formulate and adopt separate Policies for Ash utilisation, Rehabilitation & Resettlement, Community Development – Corporate Social Responsibility and Sustainable Development.

m. Creation of carbon sink by adding green cover in and around NTPC stations.

*RMC comprises of members from senior functionaries of management as per provisions of Companies Act 2016.

2. **Compliance and Assurance:**

a. NTPC shall continue to comply with all relevant environmental regulations, standards and other codes of practice, by operating and maintaining the assets within the boundary of permits, consents, and licenses.

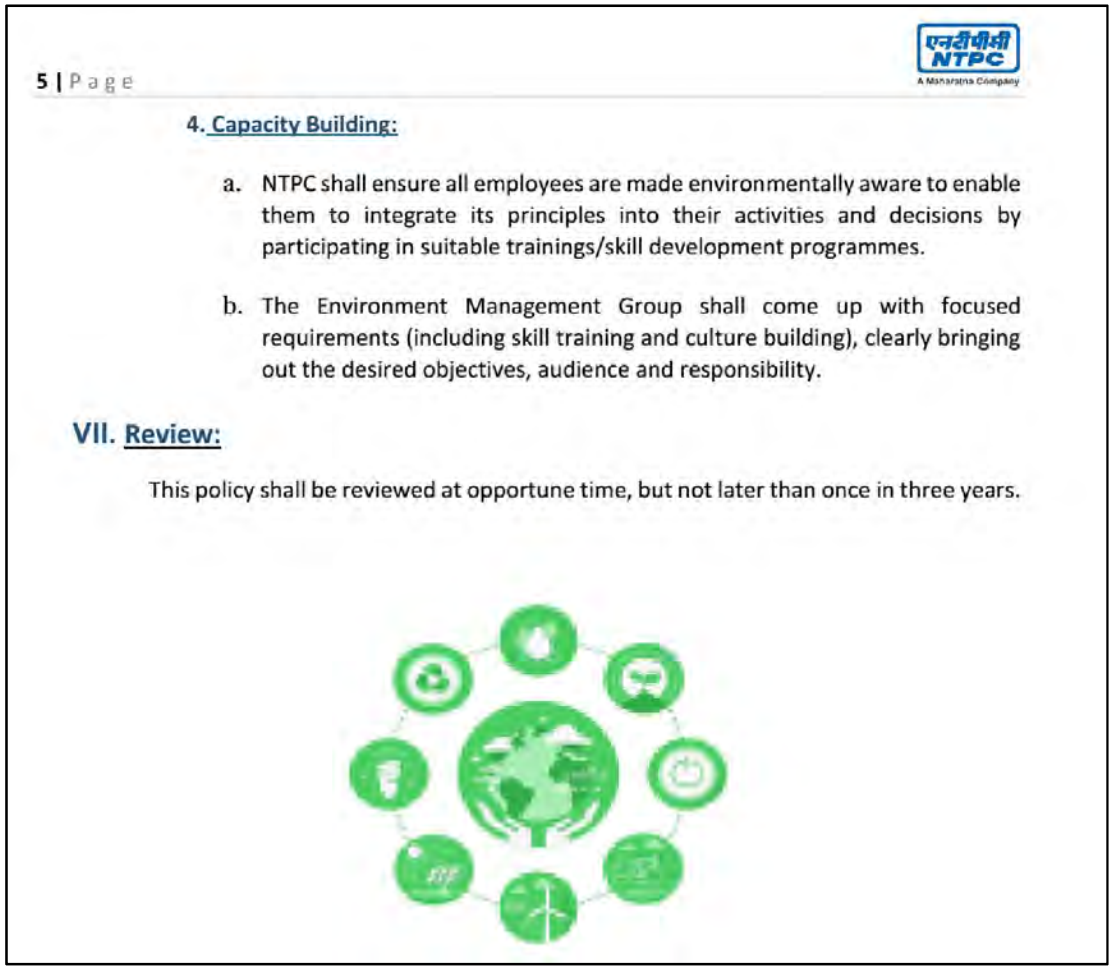
b. The RMC shall establish systems for reporting environment related parameters, deviations and constraints to management of risks. Potential environmental risks shall be reviewed through a risk management mechanism for appropriate action.

c. The concerned departments shall oversee compliance assurance of operating stations through reviews and appraisals.

d. Requirement stipulated in all obtained clearances shall be complied with, including in new establishments and expansions.

3. **Stakeholder Engagement:**

NTPC shall continue to identify all stakeholders and engage with them at appropriate levels, to exchange views on environmental concerns and mitigation measures thereof.



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4. Capacity Building:

a. NTPC shall ensure all employees are made environmentally aware to enable them to integrate its principles into their activities and decisions by participating in suitable trainings/skill development programmes.

b. The Environment Management Group shall come up with focused requirements (including skill training and culture building), clearly bringing out the desired objectives, audience and responsibility.

VII. Review:

This policy shall be reviewed at opportune time, but not later than once in three years.

10.15 NTPC's VISION

The vision of NTPC Ltd;

"To be the world's leading power company,

accelerating India's growth and Energy Transition."

In order to realize the above, the company has adopted the following mission:

"Provide Reliable Power and Energy Transition Solutions in an Economical,

Efficient and Environment friendly manner, driven by Innovation and Agility."

CHAPTER 11: SUMMARY AND CONCLUSIONS

11.1 SUMMARY

Power development is a key infrastructural element in the development of the economy.

NTPC Telangana Super Thermal Power Station has an installed capacity of 2x800 MW. Both the units of Phase-I are under commercial operation.

It is proposed to expand the capacity of project by adding three unit of 800 MW under phase -II. Proposed unit under Phase-II (3x800 MW) is planned to be located within the existing plant premises. However, 246.858 Ha. of land is proposed to be acquired for ash dyke. Telangana STPP, Phase-II Power Project will be a coal based thermal power project with Ultra-Super Critical Technology. As per EIA Notification dated 14th September, 2006, as amended from time to time; the project falls under Category "A", Project or Activity 1(d).

11.2 PURPOSE OF THE REPORT:

The Terms of Reference (TOR) for EIA study for Phase – II was accorded by MOEF&CC vide letter J-13012/112/2010-IA.II (T) dated 10.04.2024.

The Environmental Impact Assessment report (EIA) has been prepared based on the TOR accorded by MOEF&CC. Mantec Consultant Private Limited (MCPL), Delhi, an accredited agency with Quality Council of India (QCI) / National Accreditation Board of Education and Training (NABET) vide registration no. NABET/EIA/2326/RA 0305, valid till dated 20.04.2026is assigned by NTPC to undertake an Environmental Impact Assessment (EIA) study and prepare Environment Management Plan (EMP) on various environmental components, which may be affected due to the impacts arising out of the proposed expansion of thermal power plant.

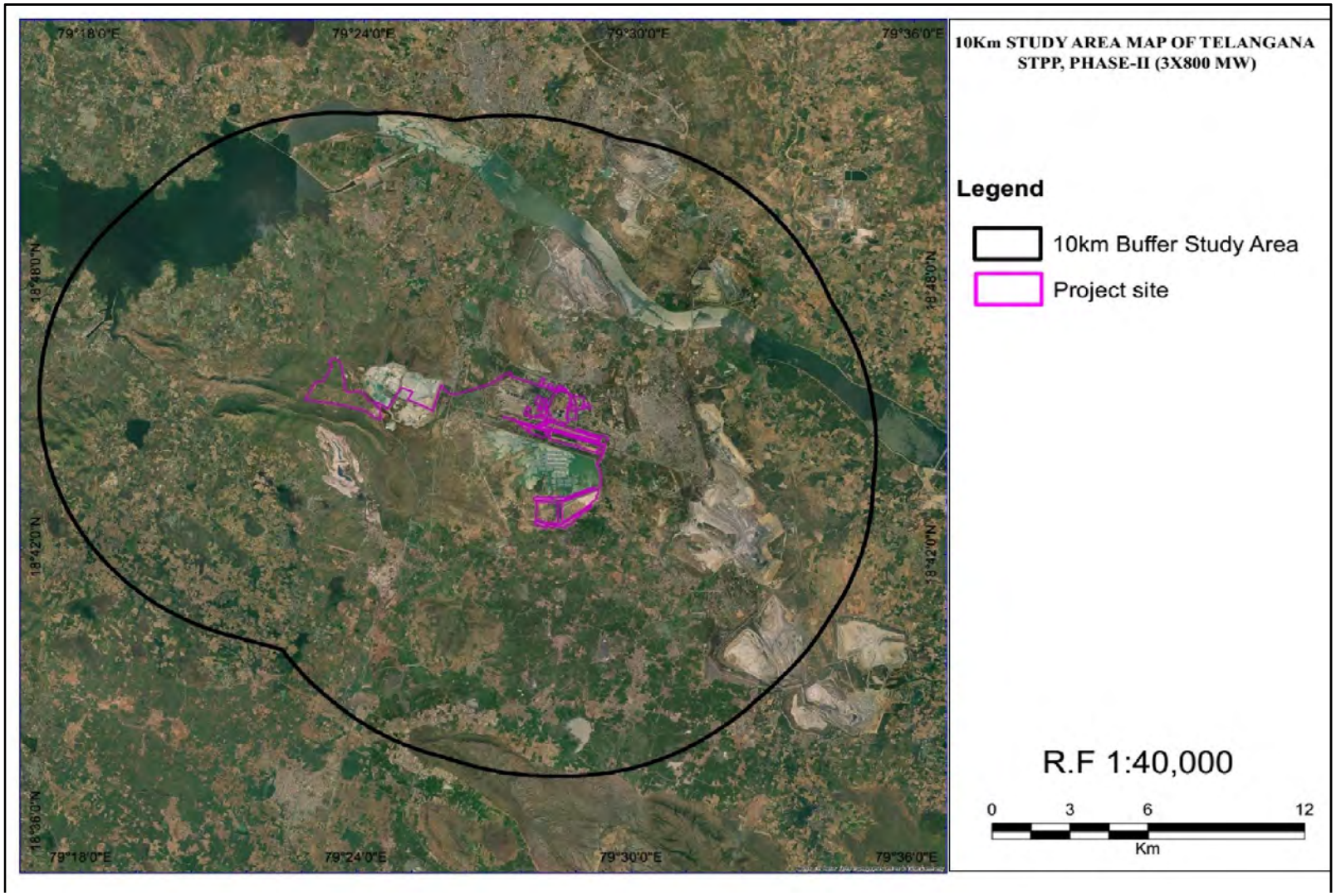


Figure 11-1: 10 km study area map

11.3 PROJECT DESCRIPTION

Project Location:

The project is located at village Ramagundam in Peddaplli District of Telangana. It is proposed to be established adjacent to Phase-I units within the MGR unloading bulb. The latitude and longitude of the project site are 18°46'08" N and 79°27'12" E, respectively. Project location is showing in Figure – 11.1.

Nature of Project:

Telangana STPP, Phase-II (2400 MW: 3x800 MW) will be coal based thermal power project. This is an expansion Unit of existing plant (2x800 MW).

The main components of the project include:

- Steam Generator and its Auxiliaries
- Steam Turbine and its Auxiliaries
- Electrical Generators, Transformers and Switchyard
- Control and Instrumentation Systems
- Air Pollution Control Systems like Dust Suppression and Extraction Systems, Electrostatic Precipitators and NOx Control System
- Water Intake and Treatment Systems
- Air Cooled Condenser
- Fuel Oil Handling and Storage System
- Coal Handling and Storage System
- Ash Handling, utilization and disposal system including Ash Dyke
- Site Drainage, Effluent Treatment and Sewage Treatment Systems with facilities for Recycle and Reuse,
- Green belt, Afforestation and landscaping.

SALIENT FEATURES:

The salient features of the proposed expansion of Telangana STPP are given in Table-11.1.

Table 11-1: Salient features ofProposedExpansion ofTelangana Coal Based Super TPP Phase-II

S. No.	Particulars	Details
1.	Phase - I Phase- II	2 x 800 MW (Commissioned) 3 x 800 MW (Present proposal)
2.	Technology	Ultra Super Critical
3.	Total Area of project	Non-Forest land already acquired (In Ha.): 491.6923 Non-Forest land to be acquired (In Ha.): 246.8580 Forest Area (In Ha.): 0 Total: **738.5503**
4.	Fuel Requirement & Its characteristics	Coal requirement for the project is estimated to be 11739276 TPA at 90% PLF considering GCV of 3800 Kcal/Kg. Sulphur in coal (maximum): %wt/wt: 0.4-0.6 GCV of Coal: Kcal/kg: 3300 - 3800 Ash Content: %: 38 - 43
5.	Source of Fuel	The coal requirements of Phase-I is 8 Million TPA which is being met through Tapering Coal linkage of with Singareni Collieries Company Limited (SCCL). For Phase-II, Coal allocation from Singareni Collieries has been recommended by SLC (LT) meeting held on 03.01.2024 and minutes of meeting dated 13.02.2024.
6.	Fuel Transportation	Transportation of Coal from Coal Mines to the project is proposed by MGR/Indian Railway.
7.	Water Requirement	Existing (Phase – I): 115200 KLD Proposed (Phase – II): 56,520 KLD
8.	Source of Water	Sreepada Yellampali Barrage on Godavari River

9.	Cooling System	Air cooled condenser and Aux. Cooling Towers
10.	Power evacuation	The Phase-II generation switchyard shall be interconnected to Phase-I through 400kV line for drawl of start-up power and additional flexibility in power evacuation through Phase-I lines. Power generated from proposed stage-II shall be stepped up to 400kV level. Considering the allocation of power from this project, Dual connectivity with both ISTS and STU network is proposed for the project as significant share of power from the project is proposed to be availed by beneficiaries outside the home state of Telangana.
11.	Effluent Discharge	Zero Liquid Discharge
12.	Fire Fighting System	Adequate firefighting systems as per Tariff Advisory Committee (TAC) and OISD guidelines will be provided

11.4 RESOURCE REQUIREMENT:

Table 11-2: Land Requirement

Telangana STPP Land Break-up (in Ha.)				
Description		**Area for Phase-I(in Ha.)**	**Area for Phase-II(in Ha.)**	**Total Area (Phase-I & II) (in Ha.)**
A	**Main plant and associated facilities**	94.900	127.880	222.7800
B	**Ash Dyke Area**	80.937	246.858	327.795
C	**Total area considered for Greenbelt calculation (A+B)**	**175.837**	**374.738**	**550.575**
D	**Greenbelt**	81.138	106.837	187.975
E	**Total Area (C+D)**	**256.975**	**481.575**	**738.550**

Coal Requirement:

Coal requirement for the project is estimated to be 11.7 MTPA at corresponding 90% PLF considering GCV of 3800 Kcal/Kg.

Water requirement:

Water for the Telangana STPP Phase – I is presently being drawn from Sreepada Yellampalli Barrage on Godavari River. Irrigation and CAD Dept. Govt of Telangana vide order dated 09.10.2015 accorded permission for drawl of 2.73 TCM water from Sreepada Yellampalli Barrage. Telangana STPP Phase-II (3x800) is proposed to be based on Air Cooled condenser (ACC) system. Make up water requirement for Telangana STPP Phase-II (3x800 MW) project would be about 2,355 m^3/hr i.e., 56,520 KLD.

The total water requirement for Phase-I is 1, 15,200 KLD.

Manpower Requirement

The proposed power plant will require skilled and semi-skilled personal during construction and operational phase. Many of the people from neighboring villages, as found suitable will get opportunity for indirect employment during construction and operational phase.

Approx. 179 nos. of NTPC employees are in Telangana Phase-I. For Phase II, the no. of NTPC employees during the construction and operation phases are approx. 96 and 216 respectively. The workforce employed during the construction phase by the EPC contractors would be much higher (about 3500-4000 during peak deployment)

11.5 POLLUTION CONTROL MEASURES

DURING CONSTRUCTION PHASE:

Water Quality: During monsoon season run off from construction site will be routed to a temporary sedimentation Tank for settlement of Suspended solids.

Air Quality: Sprinkling of water in the construction area and on unpaved roads, proper maintenance of vehicles will be done.

Noise: Equipment will be kept in good condition to keep the noise level within prescribed limit.

Terrestrial ecology: Landscaping and extensive plantation will be done.

DURING OPERATION:

Air Quality:

- Electrostatic Precipitators with 99.9% efficiency.
- NOx Control System

- Stacks of 275m height will be provided for the proper dispersion of pollutants. Motorable roads in the plant area will be paved to reduce dust emission.
- Afforestation programs will be undertaken around the plant area.
- Dust suppression measures will be implemented in the coal handling plant and stock yards

Water Quality: Adequate treatment facilities will be provided to all effluent streams and recycle/reuse of treated effluents in the plant operation. The system will be designed with ZLD concept.

Solid waste:

- Fly ash will be supplied to cement industries, brick manufacturing units etc. & unutilized ash will be disposed in ash pond in HCSD form.

Terrestrial Ecology: Emission will be controlled as well as dispersed through appropriate design.

Aquatic Ecology: The wastewater will be provided with adequate treatment and collected in Central monitoring basin. The treated wastewater will be used for ash handling, horticulture dust suppression etc.

Noise:

- Equipment will be designed to conform to noise levels prescribed by regulatory body.
- Provision of greenbelt and plantation would further help in attenuating noise.

11.6 DESCRIPTION OF ENVIRONMENT

The study area is 10 km radius from the project site. The baseline environmental quality monitoring has been carried out from March, 2024 to May, 2024 based upon which the Final EIA report has been prepared.

Seismic Zone

The project falls under Seismic Zone II which is liable to MSK VI or lower and is classified as the Low Damage Risk Zone. The IS code assigns a zone factor of 0.10 for Zone 2. It is the zone with low chances of having earthquakes.

Land Cover/ Land Use

There is a total of 64564.27 ha of land under the study area (10km radius) out of which, the built-up land is 5.25%, Forest and Vegetation land occupies 3.925%, agricultural land is about 73.355%, water body is 8.8% and barren land is 4.54%. Remaining land dedicated to mining activities.

Drainage Pattern of Study Area

The Godavari River, a major interstate river, flows northwest-northeast and is situated 3.90 km north-northeast of the proposed project area. It enters Telangana at Basar, originating near Triambakeshwar in the Sahyadri range near Nasik, Maharashtra, at an altitude of 1070 m above mean sea level. The river basin covers a vast area of 3, 12,800 sq. km.

Numerous feeder streams join the Godavari River within the study area, contributing to a dendritic to sub-dendritic drainage pattern with a dense network, averaging 1.65 km/sq km in density. Quarrying and mining activities for stone and coal in the region disrupt the natural drainage, leading to localized waterlogging issues.

Throughout the study area, there are several small to medium-sized ponds. Jyoti Sagar, located 0.90 km south of the existing NTPC plant, serves as a major water body. Water from the Yellampalli project, located 14 km away, is pumped to Jyoti Sagar, serving as a balancing reservoir for NTPC's water needs.

Meteorology

The meteorological parameters were recorded on hourly basis during the study period and comprises of wind speed, wind direction (from 0 to 360 degrees), temperature, relative humidity, atmospheric pressure, rainfall. The meteorological parameters have been recorded and are presented in Table-11-3.

Table 11-3: Summary of the Meteorological Data Generated At Site (March, 2024 – May, 2024)

Month	Temperature (^{0}C)	Relative Humidity (%)	Wind Speed (m/s)	Wind Direction
Maximum	43.63	99.0	12.10	From South to North
Minimum	14.45	10.56	0.11	
Average	28.53	47.94	3.85	

Source: Weather station installed at project site.

Month	Rainy Days	Rainfall (mm)
March-2024	4	0.6
April-2024	4	0.9
May-2024	7	23.9
Total	15	25.4 mm

Ambient Air Quality

Ambient Air Quality Monitoring was carried out for PM10, PM2.5, Sulphur-dioxide (SO_2), Nitrogen dioxide (NO_2) and Carbon monoxide (CO) at 10 Air monitoring stations.

- The minimum and maximum concentrations for PM_{10} were recorded as 48 µg/m^3 and 90 µg/m^3 respectively.
- The minimum and maximum concentrations for $PM_{2.5}$ were recorded as 28 µg/m^3 and 50 µg/m^3 respectively.
- The minimum and maximum SO_2 concentrations were recorded as 5 µg/m^3 and 17 µg/m^3 respectively.
- The minimum and maximum NO_2 concentrations were recorded as 14 µg/m^3 and 32 µg/m^{3}respectively.
- The maximum concentration might be due to nearby commercial activities, local fluctuations in the vicinity due to vehicular transportation.
- The minimum and maximum CO concentrations were recorded as 0.39 mg/m^3 and 0.62 mg/m^3. The maximum CO concentration might be due to vehicular transportation.
- The concentrations of PM2.5, PM10, SO2, NO2, O3, CO, NH3, Pb, BaP, Hg, As, Ni and C6H6 are observed to be well within the NAAQ standards prescribed by Central Pollution Control Board (CPCB) for industrial and rural /residential zone. The concentration can be attributed due to local industrial activities and also due to rural activities and traffic.

Water Quality:

The baseline water quality status in the region is established by analysing samples at 12 locations consisting of six ground water samples and six surface water samples.

Surface Water Quality

- The analysis results of Surface water samples showed that the pH ranges 7.15 to 7.52 which are with the specified standard limits of 6.5 to 8.5.
- The analysis results of Surface water samples showed that the Total Coliform ranges 410 to 2530 MPN/100ml.
- The analysis results of Surface water samples showed that the Dissolved Oxygen ranges 5.2 to 7.9 mg/l
- The analysis results of Surface water samples showed that the Total Biochemical Oxygen Demand ranges 3.8 mg/l- 9mg/l for all the locations.
- All the Heavy metals are under the permissible limits.

Ground Water Quality

- The analysis results of ground water samples showed that the pH ranges from 7.05 to 7.51 which are with the specified standard limits of 6.5 to 8.5.
- Electrical conductivity of the samples ranged from 741 to 979 µmhos/cm

- Total hardness of the samples ranged from 316 to 436 mg/l.
- Calcium concentrations ranged from 88 to 124 mg/l.
- Magnesium concentrations ranged from 21.38 to 35.96 mg/l.
- The total dissolved solids of the samples ranged from 482 to 637 mg/l.
- All the Heavy metals are under the permissible limits.

Ground Water Quality in 2 Km of Hotspot

- The analysis results of ground water samples showed that the pH ranges 7.09 to 7.53 which are with the specified standard limits of 6.5 to 8.5.
- Electrical conductivity of the samples ranged from 363 to 970 µmhos/cm
- Total hardness of the samples ranged from 166 to 422 mg/l.
- Calcium concentrations ranged from 97.6 to 128 mg/l.
- Magnesium concentrations ranged from 21.38 to 38 mg/l.
- The total dissolved solids of the samples ranged from 236 to 631 mg/l.
- All the Heavy metals are under the permissible limits.

Soil Characteristics

- It has been observed that the pH of the soil in the study area ranged from 7.08 to 7.46. The maximum pH value of 7.46 was observed at Repalle Wada Village (S9) and whereas the minimum value of 7.08 was observed at Lingapur Village (S4). Soil is Neutral in Nature.
- The electrical conductivity was observed to be in the range of 328 Micro mhos/cm to 396 Micro mhos/cm with the maximum observed at Existing Ash Dyke (S7) and the minimum observed in Lingapur Village (S4). The electric conductivity of the soil is average.
- The Nitrogen values range between 14.18 to 14.45 mg/100gm.
- The Phosphorus values range between 0.66 to 0.84 mg/100gm
- The Potassium values range between 9.63 to 10.05 mg/100gm.

Noise:

The noise monitoring has been conducted for determination of noise levels at 10 locations in the study area.

1. Day time Noise Levels (L_{day})

The daytime noise levels at all the locations were ranged in between 40.1 dB (A) to 52.5 dB (A). The minimum value 40.1 dB (A) was recorded near Hanuman Temple Vittak Nagar (N2) and the maximum value 52.5 dB (A) was recorded at Lingapur Village (N4).

2. Night time Noise Levels (L_{night})

The night time noise levels were ranged in between 35.4 dB (A) to 42.8 dB (A). The minimum value 35.4 dB (A) was recorded at Kasturbha Vidyalaya Santosh Nagar (N8) and the maximum value 42.8 dB (A) was recorded Near Existing Ash Dyke (N7).

As per above baseline data it has been observed that the Noise Level at all locations are within the Ambient Noise Standard Limits.

Ecology

Based on the present study, it is concluded that the study area harbors moderate to rich biodiversity. Natural vegetation is found in forest patches, in and around agriculture lands and in some wastelands. In total, 159 plant species (61 trees, 4 shrubs, 4 climbers, 12 herbs, and 5 grasses), 48 faunal species (17 mammals, 14 birds, 5 reptiles and 6 butterflies and 6 fishes), 13 phytoplankton and 12 zooplankton were recorded in the project sites and its surroundings during the present study. No ecologically sensitive, vulnerable or endemic species were encountered during the study in the project environs. However, 18 species of fauna are listed in Schedule I of the Wildlife Protection (Amendment) Act 2022.

A Wildlife Conservation Plan has been prepared for Schedule-I species along with budgetary provision.

Social Environment

According to Census 2011, total population of the study area has been worked out to 510625 out of which 259436 (50.8 per cent) are males and remaining 251189 (49.2 per cent) are females. The overall sex ratio in the study area has been worked out to 968 females per 1,000 males. The population density of the study area is 655 persons per square kilometer.

The entire population of the study area is distributed into 129627 households and the average household size is 4. The household size depicts there are mostly nuclear families existing in the study area.

In the study area, 327559 (64.1 per cent) of the population is literate in which 184257 (56.3 per cent) are male literates and remaining 143302 (43.7 per cent) are female literates. There is a gender gap of 12.6 per cent in the literate population. The overall literacy rate has been worked out to 69.9 per cent. The male literacy rate is 77.6 per cent and female literacy rate is 61.9 per cent, creating a considerable gender gap in literacy rate of 15.7 per cent.

Summary

The proposed project activity would be providing employment opportunities to the local population. The benefits of employment to the job seekers are expected to include, at a household and individual level with improvement in their living condition. All precautionary measures should be taken to reduce the generation of air pollution because of the power plant under operation, and proposed construction. There are other industries in the vicinity like SCCL Mines and Power Plant, Fertilizer Plant, Kesoram Cement Factory, few crushers etc. existing in the 10 km study area. Further, welfare activities can be taken up for the overall development in the field of health and other infrastructure facilities in the study area habitations.

Telangana STPP Phase-I (2x800MW) has been equipped with all the state-of-the-art pollution control facilities like High Efficiency ESPs, Low NOx burners & Over Fire Air, ETP, STP, Zero Liquid Discharge to ensure compliance with the emission norms. Proposed expansion project Telangana STPP Phase-II (3x800MW) is envisaged to have all these Environmental Measures and there will be no significant adverse impacts on the local environment.

11.7 ANTICIPATED IMPACTS DURING OPERATION PHASE.

Impact on Land use

During the operation phase of the project there could be conversion of agricultural/ other types of private lands to residential/commercial use. However, since Phase – I of the project is already in operation it is anticipated that this impact shall be marginal.

Impact on Soil

The impact on soil during operation of the project could result due to deposition of particulate matter and gaseous emissions on the soil. The soil within the deposition zone of pollutants may undergo physico-chemical changes due to deposition of PM (ash particles) and washout of gases (SO_2 and NO_x) during the rains. The impacts on soil due to operation of the power plant are likely to be negligible as the incremental concentration of particulate matter (PM), SO_2, & NO_x levels are observed within limit.

The emission of particulate will be dispersed through tall chimneys (275 meter) over wider area occurring negligible impact on soil.

The impact on the topsoil will be confined to the proposed main plant area and ash pond area. The probable sources of degradation of soil quality will be only due to generation of ash. The ash arrested through ESP will be led to ash pond. The ash pond will be designed in such a way that water will always cover the deposited ash to prevent fugitive dust.

Impact on Air Quality – Fugitive Emissions

The fugitive dust emissions is expected from coal storage yards, coal conveyor belt area, ash dumping areas, transportation of fuel and solid waste. The dust emissions, if any, from the above areas will be fugitive in nature. The dust emissions are likely to be confined to the place of generation only.

In the proposed project, coal handling plant will be properly operated with control measures such as dust extraction and dust suppression system. Similarly, HCSD system of ash disposal will be practiced and hence, no dust emissions are envisaged from ash dump areas. The fuel will be received through rail line and the solid waste will be sent to dyke areas in slurry form through pipeline. Hence, very minimal amount dust emissions from transportation are envisaged. Further, internal roads are to be asphalted to reduce fugitive dust emissions.

The quantification of these fugitive emissions from the area sources is difficult as it depends on lot of factors such as dust particle size, specific gravity of dust particles, wind velocity, moisture content of the material and ambient temperatures etc. Also, there is a high level of variability in these factors. Hence, these are not amenable for mathematical dispersion modeling. However, by proper usage of dust suppression measures, dust generation and dispersions will be reduced.

Impact on Air Quality

The emissions from point sources at TPS are very important for impact assessment as these sources are comparatively large, continuous in nature and are released at higher elevations above ground level. The impacts on air environment from stacks depend on the quality of coal used and can extend to far distances depending on prevailing meteorological conditions

The impacts of air pollution from a coal based thermal power plant (TPP) on air quality depend upon various factors, viz. design capacity, process technology, quality of fuel (coal) used for combustion, operation & maintenance of process units and air pollution control equipment installed. The severities of impacts on air environment from any thermal power project are also governed by terrain conditions around the project site and the prevailing micro-meteorological conditions in the project region. Generally, thermal power project besides the main units like boilers, turbines also have several onsite and offsite facilities, viz. coal yard, conveyor system, coal crusher/pulverizes, coal handling (loading/unloading) etc. which also contribute to air pollution in the form of fugitive emissions.

The major air pollutants from a TPP are Particulate Matter (PM), SO_2, NOx and CO which are emitted continuously from the stacks (point sources), attached with coal combustion boilers. The fugitive emission from thermal power station is coal dust.

Prediction of impacts on air environment has been carried out employing mathematical model based on a steady state Gaussian plume dispersion model. In the present case, AERMOD Version 8.8.9 dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from point sources.

Conclusion

The maximum resultant GLCs (Ground Level Concentrations) for the parameters PM_{10}, $PM_{2.5}$, SO_2, and NO_x (@100 mg/Nm^3 and @300 mg/Nm^3) are observed as 89.6 µg/m^{3}at AAQ10, 49.80, at AQ1, 34.9 µg/m^3 at AQ10,33.16 µg/m^3 and 35.04 µg/m^{3}at AAQ4 respectively .

After superimposing the incremental GLCs over the baseline concentrations, the resultant concentrations remain well within the stipulated limits of the NAAQS 2009 standards.

The proposed project envisages following measures for prevention and control of Air Pollution and Fugitive Dust control:

- High Efficiency Electrostatic Precipitators
- NOx Control System
- Stacks of 275m will be provided for the proper dispersion of pollutants.
- Motorable roads in the plant area will be paved to reduce dust emission.
- Greenbelt/Plantation in and around the plant premises
- Afforestation and plantation outside plant premises
- Dust suppression measures at coal handling plant, stock yards, ash handling and ash dykes

Impacts on Terrestrial Ecology

Air pollution from thermal power station is in the form of Particulate Matter, Ash/fine coal, SOx, and NOx, and due to transportation of ash. These pollutants can affect the surrounding vegetation and nearby agricultural crops.

Impact on Water Environment

- **Water Uses**

Make up water requirement for this expansion project would be about 2,355 m^3/hr. Telangana STPP will abstract its entire water requirement from Sreepada Yellampalli Barrage. Necessary permission/ commitment is given by Water Authority after considering all aspects of other users. Hence it is anticipating that the impacts on domestic users shall be insignificant. To optimize water requirement, Air-Cooled Condenser, ETP, STP, Rainwater Harvesting and ZLD system etc. provisions are envisaged for the project.

- **Impact on Ground Water**

As no ground water is proposed to be extracted and no discharge of wastewater is envisaged from the plant during operation phase, there will be no impact on hydrology/ground water resources during operation of the plant.

- **Wastewater Generation**

Approximately 1335 m^3/hr wastewater will be generated from coal handling, ash handling plant, DM plant, boilers & filters from water treatment plant and domestic waste. Besides, domestic wastewater from canteen and employees wash area will also be generated.

The wastewater in Phase-I is being treated in ETP plant; and MBBR based STP plant with methodology of ZLD and the same practice will be followed during the operational phase of the expansion Phase-II project, hence impact on water environment due to wastewater generation is not envisaged.

Impact of Solid Waste

Ash generated due to combustion of coal will be the main industrial/ solid waste generated from the project. About 80% of the ash shall be generated as fly ash while 20% of the ash shall be generated as bottom ash. With average annual coal requirement of proposed project will be 11739276 TPA and average 38-43 %(Max) ash in coal.

The ash, if not stored/ handled / treated properly may lead to air & water pollutions and impact the environment. However suitable mitigation measures have been envisaged to to control the same.

Impact on Noise Levels

The main sources of noise and vibration during operations are:

- Operation of generators and turbine
- Operation of various pump, fans and motors,
- Transfer of coal through railway line & CHP and other rotating machines.
- Delivery of equipment & raw materials by trucks.

Scheduling deliveries to daytime as much as possible would minimize noise generation by truck movement. Turbines, cooling towers, transformers, compressors, pumps, and other equipment during plant operation, will generate noise. However, proper acoustic enclosures would be provided to control the noise level within 80 dB (A), as per the requirement of Occupational Safety and Health Administration Standard (OSHA). The adoption of modern building design and the use of sound-absorbing materials will minimize noise and vibration from the powerhouse.

Impacts on Socioeconomics

There will be no significant increase in overall population of the study area as preferably local people will be recruited for employment. Hence, there will be no significant impact on the population composition in the study area. Since, there will be no significant change in population, the overall sex ratio will remain more or less the same.

The project will generate direct and indirect employment opportunities as well as opportunities for self-employment.

The number of direct employment opportunities will be approximately to 216 persons and approximately 1500 persons will be getting employment opportunities indirectly after the expansion of the project. The benefits of employment to the job seekers are expected to include, at a household and individual level, with improvement in socio-economic and health status, improvement in their

living condition, and the benefits from greater household expenditure on education & healthcare resources.

No major law & order problem is envisaged due to the proposed project. It is expected that the workers will attend to their duties from their residences and return to their homes after the day's work. However, during peak deployment period by Contractors all nearby Police Stations and Check Post should be informed in order to be alert to face any undue situation during their time of stay (if deployed from outside the district) during the construction phase.

11.8 ANALYSIS OF ALTERNATIVES

The Telangana Super Thermal Power Plant (STPP) with a capacity of 4000MW is being developed on the land originally acquired under Ramagundam Super Thermal Power Station (STPS). The development of Telangana STPP (400MW) is being carried out in two phases: Phase-I (2x800MW) and Phase-II (3x800MW).

Both the units of Telangana STPP Phase-I (2x800MW) have been commissioned and are under commercial operation. The main plant and associated facilities for Phase-II will be situated within the current land area allocated for the project, eliminating the need to seek alternative sites. However, an additional 246.858 hectares (610 acres) of land is required for constructing Ash Dykes. This land is proposed to be acquired near the existing Ash Dykes of the Ramagundam STPS.
However, the following three alternative sites were considered for ash disposal from proposed Telangana STPP Phase-II (3x800MW).

1. Medipalli Mine void

Medipalli Mine Void of Singereni Collieries Company Limited (SCCL) was proposed for disposal of ash from existing NTPC Telangana STPP (Phase-I). The proposal was put up for consideration of the Expert Appraisal Committee. The sub-committee observed that the ash disposal in mine void is environmentally not sustainable in the long term and asked NTPC to explore alternate site for ash disposal.

2. Area Near Existing Ash Dyke area of Telangana STPP Phase-I (2x800MW)

NTPC had proposed for construction of ash dykes on 400 Acres of area near balancing reservoir area for Telangana STPP Phase-I (2x800MW). However, due to nearness to the water body (NTPC balancing reservoir), later on the EAC put up many restrictions. Due to these restrictions, area near balancing reservoir is not being considered suitable for disposal of ash from proposed expansion project.

3. Proposed area towards south-west of existing ash dykes of Ramagundam STPS

Approx. 246.858 Ha (610 Acres) of land has been identified towards south-west of existing ash dykes of Ramagundam STPS. The land does not involve any forest area. Resettlement and Rehabilitation for the Mogalpahad village has already been done. Based on analysis of all the above-mentioned

alternatives, option no. 3 has been found to be most suitable for construction of the ash dyke for the proposed expansion project Telangana STPP Phase-II (3x800MW).

11.9 ENVIRONMENTAL MONITORING PLAN

The environmental monitoring program encompasses the location, duration, frequency of the parameters that have to be monitored. Monitoring of environmental components during the construction and operation phase is a part and parcel of the environmental mitigation measures. Only frequent monitoring can assess the functioning and efficiency of all pollution control equipment. Regular monitoring is being carried out for the existing Telangana Phase – I which covers monitoring activity for air quality, water quality, soil quality and noise levels and the data is submitted to Telangana Pollution Control Board (TPCB) at regular intervals and the same will be followed during the Phase - II.

The estimated expenditure for establishing the laboratory and other Environmental Monitoring Systems to regularly monitor various environmental parameters will be approximately Rs. 6.9 Crores, which covers the expenses for installing online stack emission, ambient air quality & effluent quality monitoring systems.

11.10 ADDITIONAL STUDIES

Public Hearing

The Environmental Public Hearing has been conducted as per the EIA Notification, 2006 and its subsequent amendments. The final EIA report has been prepared after the conduction of the public hearing and all comments raised during the public hearing have been incorporated in the Final EIA.

Table 11-4: Action Plan for issues raised during the Public Hearing with Budget for Telangana STPP Phase-II(3x800MW)

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
A	**Educational Initiatives**							
1	**Rehabilitation of mentally handicapped children of Manochaithanya.**	0.10	0. 10	0.15	0.15	-	**0.50**	Financial support to Manochaithanya for rehabilitation of mentally handicapped children and Tie-up for utilization of products made by Manochaithanya as per the proposal.
2	**Support rural primary education for weaker sections.**	0.40	0.20	0.20	0.20	0.20	**1.20**	Distribution of water coolers, Smart classrooms systems, Books, cycles to schools of Anthergaon area, Rompikunta, Jangaon, manthani areas.
3	School facility in Elkalapalli	-	-	0.20	0.80	-	**1.00**	Additional 4 rooms in existing school building in Elkalapalli.
	Sub Total	**0.50**	**0.30**	**0.55**	**1.15**	**0.20**	**2.70**	
B	**Community Health Initiatives**							
4	**Aids for Primary health centre & Veterinary hospital in Elakalapalli and other area**	0.30	0.30	0.30	0.30	0.30	**1.50**	Health equipment's will be provided to Govt. PHC & Govt. veterinary hospital as per requirement near project

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
								vicinity.
5	**Medical Facilities**	1.00	1.00	1.00	1.00	1.00	**5.00**	Medical camps will be conducted through Mobile Medical Unit with two doctors (including 01 lady doctor) for general health check-up, ANC & PNC check-up etc in all the project affected villages. Free Medicines distribution during Medical camps. Other than this, oral cancer detection camp, dental camp will be conducted for children others.
	Sub Total	**1.30**	**1.30**	**1.30**	**1.30**	**1.30**	**6.50**	
C	**Sustainable Livelihood and Women Empowerment**							
6	**Women welfare and other development activities.**	0.50	0.50	0.50	0.50	0.50	**2.50**	Development of infrastructure & training of local women for dairy farms, poultry, agriculture, food processing, plastic moulding
		0.50	0.50	0.50	0.50	0.50	**2.50**	Vocational training to local women for skill development
	Sub Total	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**5.00**	
D	**Community Rural Infrastructure Development**							

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
7	**Road works in Malkapur village.**	-	0.50	0.50	0.50	1.00	**2.50**	CC road laying 3 Kms approx.
8	**Infrastructure facilities at Ramagundam.**	4.00	4.00	5.00	5.00	2.00	**20.00**	Medipalli Crossroad to Medipalli village:CC/BT Road from Greenery, Central lighting & Dividers Internal CC roads, storm water drains & Underground drains in Annapurna colony, Auto nagar, Shalapally, poratpalli, CP office, Malkapur, nallah channelisation works in medipally area. Desilting at Ramagundam Cheruvu & Park development in Malkapur area.
9	**Laying of CC Roads (2 Kms approx) in Penchikalpet.**	0.50	0.50	-	-	-	**1.00**	CC road will be constructed in Penchikalpet village as per proposal.
10	**CC Road laying Road along with Side drain works from Penchikalpet to Repallewada.**	0.50	1.00	0.50	-	-	**2.00**	CC road will be constructed in Penchikalpet to Repallewada village as per proposal.
11	**Laying of CC Road Errakunta at Laxmipur**	0.50	1.00	0.50	-	-	**2.00**	CC road will be constructed in Errakunta at Laxmipur village

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
	lake way Road.							as per proposal.
	Sub Total	**5.50**	**7.00**	**6.50**	**5.50**	**3.00**	**27.50**	
E	**Development of Playgrounds for Sports**							
12	**Conducting Rural sports Programs in every year in all PAV's.**	0.20	0.20	0.20	0.20	0.20	**1.00**	Rural sports will be conducted for school children of govt school in the nearby area and promoting local sport with sponsorship.
	Sub Total	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**1.00**	
F	**Development of local youth & women for various activities at village level**							
13	**Distribution of agriculture implements in Elkalapalli and others.**	0.20	0.20	0.20	0.20	0.20	**1.00**	Distribution of agricultural implements & seeds. Training will be provided for using new technologies such as solar pump in agriculture and providing equipment.
14	**Avenue plantation in Penchikalpet.**	0.20	-	-	-	-	**0.20**	Raising of Avenue plantation through self-help groups. Distribution of fruit yielding saplings.
15	**Skill development programs in Elkalapalli.**	0.30	0.30	0.30	-	-	**0.90**	Training programs for professional services, competitive exams, physical fitness for police recruitment, plastic moulds, Tailoring etc

Sr. No.	Key Area Identification for Activities Based on Public Needs Highlighted During Environmental Public Hearing	Year-wise Proposed Expenditures (Rs. In Crores)					Total Proposed Expenditure (Rs. In Crores)	Physical Targets
		1st Year	2nd Year	3rd Year	4th Year	5th Year		
								for local youth in Elkalapalli.
	Sub Total	**0.70**	**0.50**	**0.50**	**0.20**	**0.20**	**2.10**	
G	**Providing water facilities to PAV's**							
16	**Drinking Water supply arrangement in Kundanpalli village.**	0.50	0.25	0.25	-	-	**1.00**	Pump house readiness, Pipeline laying till OH tank, Distribution lines connection.
17	**Drinking Water supply arrangement in Moghalpad village.**	0.30	0.70	-	-	-	**1.00**	Extension of lines from pump house till Moghalpahad Distribution lines connection.
18	**RO Drinking Water plants at various villages.**	0.25	0.50	0.50	0.25	-	**1.50**	New RO plant in Palakurthy, anthergaon and uplifting of existing 33 nos. RO plants at other villages.
19	**Providing New RO plant at Mathangi colony.**	0.20	0.10	-	-	-	**0.30**	RO plant will be provided to Mathangi Colony.
20	**Desilting/Dredging of Chinthala water tank.**	0.10	0.10	0.10	-	-	**0.30**	Desilting/ Dredging of Chinthala water tank.
	Sub Total	**1.35**	**1.65**	**0.85**	**0.25**	**-**	**4.10**	
H	**Sanitation**							
21	**Drainage system dev. in Mathangi Colony.**	0.50	-	-	-	-	**0.50**	Drainage system dev. in Mathangi Colony.
	Sub Total	**0.50**					**0.50**	
	Total (A+B+C+D+E+F+G+H)	**11.05**	**11.95**	**10.90**	**9.60**	**5.90**	**49.4**	

Risk Assessment

Risk Assessment is (a) Hazard identification, (b) Dose-response assessment, (c) Exposure assessment and (d) Risk characterization. Possible hazards in the thermal power plant were assessed and a threat zone was identified.

A Disaster Management Plan with emergency preparedness planning which is divided into

- Onsite Disaster Management Plan and
- Off-site Disaster Management Plan.

The Onsite Disaster Management Plan is aimed to ensure the safety of life, protection of the environment, protection of installation, restoration of production and salvage operation in this same order of priorities. It also briefs about the structure of the Disaster Management Team of the thermal power plant.

During the preparation of the off-site emergency plan, the district authorities and other organizations in the vicinity and the pollution control board would be consulted.

The key feature of a good off-site emergency plan is the flexibility in its application to emergencies. Earthquake is the only natural disaster posing a threat to the project site. General precautions by people before & after the earthquake are specified in the chapter.

It also provides an Occupational Health and Safety Management Plan which focuses on the safety &wellbeing of the employees involved in the plant functioning from construction to the operation phase.

Watershed Management

The Watershed Development Plan for the Telangana Super Thermal Power Project underscores the importance of strategic watershed management to ensure sustainable water resources for the region's growing industrial and agricultural needs. By focusing on integrated approaches, the plan addresses critical issues such as flood management, sediment control, and erosion, which are vital for maintaining ecological balance and supporting local communities. Through the implementation of soil and water conservation measures, the plan aims to enhance water quality and availability, promote sustainable agricultural practices, and mitigate the environmental impacts of industrial activities.

The successful execution of this watershed development plan requires the collaborative efforts of government agencies, industries, and local communities to achieve sustainable land use and water management. By fostering an adaptive management framework that prioritizes continuous monitoring and the adoption of innovative practices, the plan can effectively enhance the resilience of the watershed ecosystem. Ultimately, this will support economic growth, improve livelihoods, and protect the natural environment in the Peddapalli district, contributing to the long-term sustainability of both the thermal power project and the surrounding region.

11.11 PROJECT BENEFITS

The proposed expansion of power plant will fulfil the power generation gap of the country and also result in improvement of infrastructure as well up-liftment of social structure in the area. The setting up of the proposed project will lead to direct and indirect benefits to the overall socio-economic status of the region. The people residing in the nearby areas will be benefited directly and indirectly. It is anticipated that the proposed expansion of power plant will provide benefits for the locals in two phases i.e. during construction phase as well as during operational stage.

In addition, there will be beneficial impact of proposed expansion project on the civic amenities, as corporate social responsibility various activities will be started like welfare for poor/widows/physically challenged persons, capacity building programs, sports events, assistance to government schools, scholarships will be done. For community development trainings will be provided for woman for self- employment, community toilets, drinking water facilities etc. A separate budget will be made for these activities during operation of plant. Medical camps/health awareness camp will be organized in nearby villages.

11.12 COST-BENEFIT ANALYSIS

Environmental Cost Benefit analysis refers to the economic appraisal of policies and projects that have the deliberate aim of improving the provision of environmental services or actions that might affect (sometimes adversely) the environment as an indirect consequence. The project benefits are 1.18 times higher than the impacts evaluated.

The cost benefit analysis for the Telangana STPP Phase– II (3x800 MW) indicates in favor of the project. The financial expenditure incurred in preventing, containing, mitigation or removing environmental contaminations occurring as a result of the proposed project activity will further add to the environmental benefit.

11.13 ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Plan (EMP) is a description of the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness monitored, after approval of the EIA.

The responsibility of environmental management of an operating station lies mainly with environmental management group at site, which acts as coordinator for environmental matters. This group is a nodal point for various groups at project, regional headquarters and corporate level as well as outside agencies like State Pollution Control Board, Central Pollution Control Board and Regional office of MoEF&CC. However, this group draws technical support from environmental engineering group, environmental management group and Rehabilitation & Resettlement groups at Corporate Centre.

Table 11-5: Details of Cost Provision for Environmental Measures

S. N.	Item Description	Capital Cost, Rs. in Crores	Recurring Cost, Rs. in Crores
17.	Electrostatic Precipitator	605.72	12.11
18.	Chimney	228.00	4.56
19.	Aux.Cooling Towers incl. Civil Works	35.44	0.71
20.	Ash Handling System	1096.45	21.93
21.	Ash Dyke	150	3.0
22.	Ash Water Recirculation incl. ETP	311.73	6.23
23.	Dust extraction & suppression System	8.00	0.16
24.	DM plant, Waste treatment systems	5.00	0.10
25.	Sewerage collection, treatment & disposal	2.00	0.04
26.	Rainwater Harvesting	0.64	0.01
27.	Green Belt, Afforestation & Landscaping	10.00	0.20
28.	Environmental Lab Equipment	0.50	0.01
29.	Environmental Monitoring Systems	6.40	0.13
30.	Implementation of Wildlife Conservation plan	2.92	--
31.	Implementation of Hydrogeology Study recommendation	0.39	
32.	Implementation of Watershed Development Plan	0.68	
	Total	**2463.88**	**49.19**
i	Cost provisions for addressing the issues raised in Environmental Public Hearing as per timebound actin plan	49.4	**--**

*Item Descriptions & their cost provisions are tentative and may vary during actual award of work.

Ash Utilization and Management

The Ministry of Environment, Forests and Climate Change (MOEF&CC) has issued a Gazette Notification dated 31-12-2021 in supersession of the Notification S.O. 763 (E), dated the 14th of September, 1999 except as respect things done before such supersession.

The new notification stipulates that every coal or lignite based thermal power plant (including captive or co-generating stations or both) shall be primarily responsible to ensure 100 per cent utilization of ash (fly ash, and bottom ash) generated by it in an eco-friendly manner.

The ash generated from coal or lignite based thermal power plants shall be utilized only for the following eco-friendly purposes, namely: -

- Fly ash-based products viz. bricks, blocks, tiles, fibre cement sheets, pipes, boards, panels.
- Cement manufacturing, ready mix concrete.
- Construction of road and fly over embankment, Ash and Geo-polymer-based construction material;
- Construction of dam;
- Filling up of low-lying area;
- Filling of mine voids;
- Manufacturing of sintered or cold bonded ash aggregate;
- Agriculture in a controlled manner based on soil testing;
- Construction of shoreline protection structures in coastal districts.
- Export of ash to other countries.
- Any other eco-friendly purpose as notified from time to time.

Every coal or lignite based thermal power plant shall be responsible to utilize 100% ash (fly ash and bottom ash) generated during that year, however, in no case shall utilization fall below 80% in any year, and the thermal power plant shall achieve average ash utilization of 100% in a three-year cycle. 20% of ash generated in the final year of compliance cycle may be carried forward to the next cycle which shall be utilized in the next three years cycle along with the ash generated during that cycle.

Provided that the three years cycle applicable for the first time is extendable by one year for the thermal power plants where ash utilization is in the range of 60-80%, and two years where ash utilization is below 60% and for the purpose of calculation of percentage of ash utilization, the percentage quantity of utilization in the year 2021- 2022 shall be taken into account as per the table below:

Utilization % of thermal power plants	First compliance Cycle to meet 100 % utilization	Second compliance cycle onwards, to meet 100 % utilization
>80 per cent	3 years	3 years
60-80 per cent	4 years	3 years
<60 per cent	5 years	3 years

The un-utilized accumulated ash i.e., legacy ash, which is stored before the publication of this notification, shall be utilized progressively by the thermal power plants in such a manner that the utilization of legacy ash shall be completed fully within ten years from the date of publication of this notification and this will be over and above the utilization targets prescribed for ash generation through current operations of that particular year.

Provided that the minimum quantity of legacy ash in percentages as mentioned below shall be utilized during the corresponding year and the minimum quantity of legacy ash is to be calculated based on the annual ash generation as per installed capacity of thermal power plant.

Year from date of publication	1st	2nd	3rd -10th
Utilization of legacy ash (in % of Annual ash)	At least 20 %	At least 35 %	At least 50 %

Table 11-6: Ash Utilization Plan for Telangana STPP (Phase-I & Phase-II)

MoEF&CC Compliance Cycle	Year	Ash Generation (LMT)	Ash Development (LMT)	Outside Bricks (in MT)	Own Brick Plant (LMT)	Cement & Other Industries (LMT)	Roads Construction (LMT)	Ash Based Product/ others (LMT)	Mines filling (LMT)	Total Ash Utilized (LMT)	Ash Utilization (%)
	Operation from Existing 2x800MW										
First	FY 2023-24	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	FY 2024-25	27.36	0.00	3.72	0.89	2.83	0.00	0.03	0.00	7.47	27.30
	FY 2025-26	28.00	0.00	20.00	0.00	20.00	0.00	0.00	0.00	40.00	142.85
	FY 2026-27	28.00	0.63	15.00	0.00	18.00	8.00	0.00	0.00	41.63	148.68
	FY 2027-28	28.00	1.74	12.00	0.00	15.00	0.00	0.00	0.00	28.74	102.64
Second	FY 2028-29	28.00	0.53	7.00	0.00	14.00	6.47	0.00	0.00	28.00	100.00
	With commissioning of Phase-II (Unit-I) in 2029: Operation from 2x800MW + 1x800MW										
	FY 2029-30	41.95	0.75	10.00	0.50	21.00	9.70	0.00	0.00	41.95	100.00
	With commissioning of Phase-II (Unit-I) in 2030: Operation from 2x800MW + 2x800MW										
	FY 2030-31	55.93	1.00	13.33	0.67	27.99	12.94	0.00	0.00	55.93	0.00
Third	**With commissioning of Phase-II (Unit-I) in 2031: Operation from 2x800MW + 3x800MW**										
	FY 2031-32	69.91	1.25	16.67	0.83	34.99	16.17	0.00	0.00	69.91	100.00
	FY 2032-33	69.91	1.25	16.67	0.83	34.99	16.17	0.00	0.00	69.91	100.00
	FY 2033-34	69.91	1.25	16.67	0.83	34.99	16.17	0.00	0.00	69.91	100.00
Note: The above data is tentative and the actual ash generation as well as utilization shall depend upon a number of factors such as PLF, ash content of coal, demand of ash etc.											

Waste Management

NTPC already has well-established facilities for solid waste management, the same municipal solid waste management facilities will be utilized for the expansion of manpower. Management of Hazardous and other wastes will be as per applicable rules and conditions of Hazardous Waste Authorization granted by Telangana State Pollution Control Board.

Rainwater Harvesting

NTPC as an environmentally responsible company is working as a specific "Rainwater Harvesting Policy" of company. The rainwater harvesting will be planned as per said policy.

Rainwater harvesting structures are proposed to collect rainwater at plant and to recharge the ground water resources in the region. The run-off water from the roof of the structures and paved areas will be collected through storm water drainage system and led to rainwater harvesting structures. The final location of structures will be decided during detailed engineering of the project

Energy Conservation

A roof-top solar PV plant (estimated capacity 1253 kWH) has already been installed on rooftop of all suitable buildings in power plant premises. Same practice will be followed for the Phase- II. The provision regarding rooftop solar PV plant 1125 kW for Phase-II has been envisaged

Greenbelt

The greenbelt development plan aims to overall improvement in the environmental conditions of the industrial complex. The plan addresses issues such as prevention of land degradation due to activities during construction phase; increasing the green cover of the area; enhancing aesthetic value to the project area and maintaining the ecological equilibrium of the area.

- **Existing Greenbelt**

About 187.975 Ha land has been identified for development of plantation/Greenbelt covering Telangana Phase-I & Phase-II. Out of this, greenbelt/plantation development has been completed on 125.95 Ha. by plantation of approx. 3.10 lakh trees at various locations. Further, development of plantation/Greenbelt is proposed on 62 Ha. area during as per detailed action plan.

Overall, greenbelt/plantation has been developed on approx. 215 Ha area which also covers plantation within Telangana STPP and peripheral greenbelt/plantation under Ramagundam Super Thermal Power Station.

Miyawaki plantation method was adopted in Ramagundam Municipal Areas by planting 17,840 saplings. It created a mini forest, which acts as a carbon sink.

Year wise plantation done in and around the Plant area is presented in Table 11.6

Table 11-7: Greenbelt Plantation in and around Telangana STPP

Location		Area, Ha.	No. of Trees Planted
GB-1	Oxidation pond area Miyawaki Plantation	4.36	14592
GB-2	Area Between Ash pipe corridor and North side Road	7.13	14260
GB-3	Track Hopper North side Railway track bothe sides	7.51	15026
GB-4	East side of Coal Stack Yard	8.78	17560
GB-5	South side of Coal stack yard	2	4500
GB-6	South side of Coal stack yard	5.1	8700
GB-7	East side of Ash Dyke	2.6	6000
GB-8	Beside east side of bund road	1.5	2100
GB-9	South side of Ash Dyke	3.4	7500
GB-10	South side of Ash Dyke	17.21	34000
GB-11	Area Between Ash Dyke and Reservoir- Miyawaki	7.28	71200
GB-12	East side of Track Hopper	7.74	19000
GB-13	West side of Coal Crusher house	4.2	9000
GB-14	West side of Coal Stack Yard	5.93	13500
GB-15	Telangana plant gate-6 right side	2.37	5100
GB-16	Telangana plant gate-6 left side	2.59	5200
GB-17	Area in Lagoon-1	36.25	63000
Total Plantation/Greenbelt		**125.95**	**310238**

Table 11-8: Plantation /Greenbelt Development Plan

Year	Plantation		Location of Plantation			Approx Cost, Crores	Plant Species
	No.	Area, Ha.	Location Details	Lat.	Long.		
2024-25	10000	4.01	Railway siding Phase-1 **(P-2)**	18°42'38.91"N	79°28'37.66"E	2.28	Banyan, Peepal, Neem, Jamun, Amla, Arjun, Kadamba, Sandalwood, Tamarind, Indian Almond, Teak, Indian Beech (Pongamiapinnata) etc.
	23000	9.31	Area between Phase 1 Ash Pond and South Plant Boundary **(P-3)**	18°44'23.62"N	79°29'28.52"E	5.26	
2025-26	48000	4.8	Area between Balancing Reservoir & Phase 1 Ash Pond **(P-1)**	18°43'18.46"N	79°28'54.62"E	7.2	
2026-27	46000	4	Area between Balancing Reservoir & Phase 1 Ash Pond **(P-1)**	18°43'08.15"N	79°28'22.27"E	6.9	
2027-28	35975	14.39	Inside Lagoon-1 **(P-4)**	18°42'48.82"N	79°28'16.60"E	7.91	
2028-29	37500	15.03	Inside Lagoon-1 **(P-4)**	18°42'58.43"N	79°28'16.84"E	8.25	
2029-30	20025	8.01	Area between Ash pipeline and Track Hopper **(P-5)**	18°44'36.29"N	79°28'54.44"E	4.45	
2031-32	6200	2.48	North side of project near highway **(P-6)**	18°45'43.24"N	79°28'08.09"E	1.36	
Total	**226700**	**62.03**				**43.61**	
Gap Filling Plantation							
2025-26	1000	0.5	Between Ash Pond & Plant Boundary (P-3)	18°44'23.62"N	79°29'28.52"E	0.22	
2026-27	500	0.2	Between Reservoir & Ash Pond (P-1)	18°43'18.46"N	79°28'54.62"E	0.1	

2027-28	500	0.2	Between Reservoir & Ash Pond (P-1)	18°43'08.15"N	79°28'22.27"E	0.1	
2028-29	1000	1	Inside Lagoon-1	18°42'48.82"N	79°28'16.60"E	0.22	
2029-30	1000	1	Inside Lagoon-1	18°42'58.43"N	79°28'16.84"E	0.22	
2030-31	800	0.4	Area between Ash pipe and Track Hopper	18°44'36.29"N	79°28'54.44"E	0.18	
Total	**4800**	**3.3**				**1.04**	

Table 11.9: Floral species recommended for greenbelt development

Sr. No	Scientific Name	Common Name	Family
1	*Azadirachta indica*	Neem/Vembu	Meliaceae
2	*Alstonia scholaris*	Elilaippalai/Devils Tree	Apocynaceae
3	*Bauhinia variegata*	Segappumandrai/Pink Orchid Tree	Caesalpiniaceae
4	*Dalbergia sissoo*	Sisoo, Shisham	Fabaceae
5	*Thespesia populnea*	Purvasu/Portia Tree	Malvaceae
6	*Pterospermum acerifolium*	Vennangu/Kanak Champa	Sterculiaceae
7	*Haldina cordifolia*	Adina/Kadambai/Kadamba/Haldu	Rubiaceae
8	*Pongamia pinnata*	Karanj/Pungai/Indian Beech Tree	Fabaceae
9	*Dalbergia latifolia*	Kalashisham/Rose Wood	Fabaceae
10	*Tectona grandis*	Teak	Verbenaceae

11.14 CONCLUSION

The proposed expansion project would add significant value to Indian economy. The project will not only help ensure that our country by becomes self-sufficient in terms of power generation but will also drive macro-economic growth.

The proposed expansion project would have minimal impacts on the environment. However, with proper and judicious implementation of the mitigation and environment management measures, the impacts can be further minimized and can be maintained well within the permissible limits specified by the regulatory authorities.

Thus, it can be concluded that with the strict implementation of the pollution control and mitigation measures, with proper environment management system in place the proposed expansion project will be beneficial to the society and will contribute to the economic development of the state in particular and the country in general and should be implemented on priority at the earliest.

CHAPTER 12: DISCLOSURE OF CONSULTANT ENGAGED

12.1 INTRODUCTION OF ORGANIZATION

Mantec Consultants Pvt. Ltd., established in 1979, is a multi-disciplinary consulting firm offering infrastructural, environmental, management, technical and IT services.

Our team consists of technical and management experts coming from the top echelons of various professional services. The in-house capabilities are augmented and strengthened by our panel of associates who are well known experts in their respective fields.

We provide a complete range of environmental and social impact assessment services with an expert In-house team of professionals and associates. Mantec is an ISO 9001:2015 & OHSAS certified company, having a full-fledged Environmental Laboratory duly recognized by the Ministry of Environment Forest & Climate Change (MoEF&CC) and accredited by NABL (National Accreditation Board for Testing Calibration Laboratory). We are accredited by NABET/QCI for conducting the EIA studies.

Commitment to excellence has been the company's credo since the day of its inception and forms the central emphasis in all our operations.

12.2 SERVICES OFFERED

We Mantec is providing various environmental services in more than 15 industries/sectors including infrastructure, mining, irrigation, river valley projects, power plants, refineries, ports, airports, highways, residential colonies, hazardous waste sites, forestry and rural development projects etc.

1. Environmental Impact Assessment Studies
2. Environment Management Plans
3. Social Impact Assessment Studies
4. Rehabilitation and Resettlement Studies and Resettlement Action Plans
5. Safety Audits & Environmental Audits
6. Risk Analysis and Disaster Management Plans
7. Environmental Monitoring of Air, Water, Noise, Soil, Solid and Wastes
8. Environmental Monitoring of Industrial emissions, industrial effluents, ambient air etc.
9. Waste Water Management Both domestic (sewage) and industrial
10. Ground & Surface Water Treatment and Supply
11. Design and implementation of Wastewater Treatment Plants as well as Common Effluent Treatment Plants

12. Studies on River, Lake and Forest ecosystems
13. Watershed and Waste land management
14. Solid Waste Management including Hazardous and Biomedical Waste Management
15. Oil Spill Response
16. Rehabilitation of Mines
17. Remote sensing and GIS survey

Table 12.1: List of Functional Areas involved in the Proposed Project

S. No.	Functional Areas	Name of the Experts	Involvement (task & period)
1	**AP**	Mr. A.S. Brara (FAE) Cat A	**December, 2023-till now;** Identification of Air Quality Monitoring Network Supervision of ambient air quality monitoring Review of primary air quality monitoring report and analysis Addressing air quality issues in EIA Report and suggesting mitigation measures for impacts due to air pollution and review Review and analysis of primary meteorological data
2	**WP**	Mr. A. S. Brara (FAE) Cat A	**December, 2023 - till now;** Identification of water sampling locations, their time and frequency pertaining to site conditions Counter checking of analysis of data by literature study and consultation with local people and concerned departments Identification of water quality by analysis report study and detection of potential hazards due to developmental activity Checking of water availability by literature study and by interacting concerned Govt. Officials like GWB and irrigation dept.
3	**SHW**	Mr. Nilesh Vittal Potdar (FAE) Cat A	**December, 2023-Febraury, 2025;** Assess the waste sources and status in the study area. After studying the sources, prepared the Impact report and suggested Mitigation measures and involvment development of EMP.
4.	**SE**	Mr. Braj Vallabh Pandey (FAE) Cat A	**December, 2023 - till now;** Design and develop format/ questionnaire for baseline survey, social changes arising out of development projects and assessment of data so collected Evaluation of socio-economic status of tribal/ non- tribal areas Assessment of social impact Collection of secondary information Survey tool design

		Mr. Pankaj Kumar (FAA)	**December, 2023 - till now;** Data mining from Census of India 2011 and other sources. Assisted in report making under the guidance of the FAE
5	**EB**	Mr. Kamal Kumar Saxena (FAE) Cat A	**December, 2023 - till now;** Identification of potential impact due to the project interventions and developing mitigation measures. Field Visit to study the related impact and mitigation measures and study of biodiversity of the project area
6	**HG**	Mr. R. K. Khanna (FAE) Cat A	**December, 2023 - till now;** Identification of Hydro- Geological condition of the project and study the possible sources, prepared the Impact, risk report and suggested Mitigation measures and development of EMP
7	**GEO**	Mr. S. I. Tanveer (FAE)	**December, 2023- till now** Identification of Geological conditions of the project and study the possible sources and prepared the Impact and suggested Mitigation measures for EMP.
8	**SC**	Dr. B.J Prasad (FAE) Cat A	**December, 2023-March, 2025:** Review of soil quality and soil type for establishing the baseline condition. Assessing the impact on soil due to various activities of the project. Suggest mitigation measures for control the adverse impact and soil conservation
9	**AQ**	Mr. A.S. Brara (FAE) Cat A	**December, 2023-till now;** Analysisof air quality data, meteorological data, traffic data etc. as per the requirements of pollution dispersion model (ISCST3) Assessment of secondary data requirements for modeling, collection of secondary data like mixing height, stability class etc. Predict air quality using pollution dispersion model (ISCST3) Interpretation, analysis and presentation of predicted results of pollution dispersion modeling Review and finalization of report
10	**NV**	Mr. A. S. Brara (FAE) Cat A	**December, 2023 - till now;** Identification of Noise Quality Monitoring Network and noise sensitive location along the project stretch Supervision of ambient noise quality monitoring Review of noise quality monitoring report Addressing noise related issues in EIA report and suggesting measures for impacts due to noise pollution. Analysis of noise quality data, traffic data etc. as per the requirement of mathematical model of FHWA-TNM

			Interpretation, analysis and presentation of predicted results.
11	**LU**	Mr. Jai Deep Singh (FAE) Cat A	**December, 2023-till now;** Identification and collection of satellite images and other associated maps for the project. Creation of GIS database and processing of satellite imageries.
12	**RH**	Mr. P.K. Srivastava (FAE) Cat A	**December, 2023 - till now;** Identification of the potentially hazardous material and events that might occur during various Phases of the project Devising contingency plan for each type of hazard Incorporation of the same in the EIA report.

12.3 LABORATORY FACILITIES AND EQUIPMENTS

Mantec Environmental Laboratory (Recognized by MoEF&CC and Accredited by NABL)

Monitoring & Analytical Capabilities for;	Lab Equipment
• Ambient Air • Stack Gas emissions • Process and work zone • Indoor Air • Volatile organic compounds (VOC's) • PAH's in Ambient Air • Hydrocarbon in Ambient Air and Stack • Heavy metals in Ambient Air, water, Soil • Ultimate and proximate analysis. (C.H.N.S.O) • Air Modeling • Drinking Water, Raw Water and Process Water Analysis • ETP and STP Water Analysis • Soil, Sludge and Hazardous Waste Analysis	• Dust Samplers and $PM_{2.5}$ Sampler • Stack Monitoring Kit • Organic Vapor Sampler • Non-Dispersive Infrared Spectrophotometer (NDIR) • Atomic Absorption Spectrophotometer • Gas Chromatograph • UV Spectrophotometer • Flame Photometer • Mercury Analyser • COD Digester • Micro meteorological Station • ICP OES • ORSAT • CO Analyzer • Bacteriological Chamber • Digital Ultrasonic • Multigas Analyzer

12.4 ADDRESS & CONTACTS

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Environment Division,
D-36, Sector-VI, Noida- 210 301
Email: mantec@vsnl.com,
Ph: 0120 – 4215804, 4215000, Fax: 0120 – 4215809

12.5 ESTEEMED CLIENTELE

1. BHARAT HEAVY ELECTRICALS LIMITED
2. BHARAT ELECTRONICS LIMITED
3. FCI ARAVALI GYPSUM AND MINERALS INDIA LIMITED
4. HINDUSTAN PETROLEUM CORPORATION LIMITED
5. INDIAN OIL CORPORATION LIMITED
6. NTPC LIMITED
7. NATIONAL HYDROELECTRIC POWER CORPORATION
8. INDIAN COUNCIL OF FORESTRY RESEARCH AND EDUCATION
9. ISHIKA FERTILIZER LIMITED
10. JAI PRAKASH ASSOCIATES
11. JUBILANT AGRI AND CONSUMERS PVT. LTD.
12. TATA CHEMICALS LIMITED
13. NATIONAL HIGHWAY AUTHORITY OF INDIA
14. NATIONAL FERTILIZERS LIMITED
15. PUNJAB ALKALIES AND CHEMICALS LTD.
16. RAJASTHAN STATE MINES AND MINERALS INDIA LIMITED
17. MYSORE MINERALS LIMITED
18. KANDLA PORT TRUST
19. KARNATAKA POWER CORPORATION LIMITED
20. KUMAON MANDAL VIKAS NIGAM LIMITED
21. SAURASHTRA CHEMICALS LIMITED, GUJARAT
22. UTTARAKHAND FOREST DEVELOPMENT CORPORATION
23. SUMAN ENTERPRISES
24. JAI YAMUNA JI DEVELOPERS
25. MARKANDESHWAR CONSTRUCTION COMPANY
26. M.P. STATE MINING CORPORATION LTD.
27. JINDAL MECTEC PVT. LTD.

28. HARYANA MINING CO.
29. ELDECO INFRASTRUCTURE
30. ANSAL PROPERTY & INFRASTRUCTURE
31. DELHI STATE INDUSTRIAL AND INFRASTRUCTURE DEVELOPMENT CORPORATION (DSIIDC)
32. EXOTICA HOUSING LTD.
33. LOUIS BERGER GROUP
34. AMBUJA CEMENT
35. WAPCOS LTD.
36. INDIAN COUNCIL OF FORESTRY RESEARCH AND EDUCATION
37. IL&FS TRANSPORTATION NETWORK LTD.
38. THDC INDIA LTD.
39. MADHYA PRADESH ROAD DEVELOPMENT CORPORATION
40. VEDANTA RESOURCES
41. RAVI TAWI IRRIGATION COMPLEX, GOVT. OF J&K
42. INSTITUTE OF CHEMICAL TECHNOLOGY
43. JHARKHAND ISPAT PVT LTD
44. KARNATAKA VETERINARY ANIMAL AND FISHERIES SCIENCES UNIVERSITY
45. ESSAR STEEL INDIA LTD.
46. WELCOME FOOTWEAR
47. COIM INDIA PVT. LTD.
48. HARYANA STATE ROADS AND BRIDGES DEVELOPMENT CORPORATION LIMITED
49. ULTRATECH CEMENT LTD.
50. AXISCADES ENGINEERING TECHNOLOGIES LTD.
51. INVESTIGATION DESIGN & RESEARCH BOARD (IDRB), KERALA
52. WATER RESOURCE DEPARTMENT, RAJASTHAN
53. BHARAT PETROLEUM CORPORATION LIMITED
54. ADOR FONTECH LTD.
55. PUBLIC WORKS DEPARTMENT DELHI
56. THE INDIAN EXPRESS
57. WATER RESOURCES DEPARTMENT, GOVT. OF JHARKHAND
58. SUN PETRO CHEMICALS PVT.LTD.
59. TANCEM
60. FCI ARAVALI
61. SATLUJ JAL VIDYUT NIGAM (SJVN)



National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

MANTEC ENVIRONMENTAL LABORATORY

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

D-36, SECTOR-6, NOIDA, UTTAR PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-15175

Issue Date: 24/12/2024 Valid Until: 23/12/2028

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: Mantec Consultants Private Limited

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

NABL Certificate

भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL OF INDIA
QCI Creating an Ecosystem for Quality

NABET

National Accreditation Board for Education and Training

Certificate of Accreditation

Mantec Consultants Pvt. Ltd., Noida

D-36, Sector-6, Noida, Uttar Pradesh-110019

*The organization is accredited as **Category-A** under the QCI-NABET **Scheme for Accreditation of EIA Consultant Organization, Version 3**: for preparing EIA/EMP reports in the following Sectors.*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals-opencast mining only	1	1 (a) (i)	A
2.	Offshore and onshore oil and gas exploration, development & production	2	1 (b)	A
3.	River Valley projects	3	1 (c)	A
4.	Thermal power plants	4	1 (d)	A
5.	Petroleum refining industry	10	4 (a)	A
6.	Chemical fertilizers	16	5 (a)	A
7.	Pesticides industry and pesticide specific intermediates (excluding formulations)	17	5 (b)	A
8.	Synthetic organic chemicals industry	21	5 (f)	A
9.	Oil & gas transportation pipeline (crude and refinery/ petrochemical products), passing through national parks/ sanctuaries/coral reefs /ecologically sensitive areas including LNG terminal	27	6 (a)	A
10.	Isolated storage & handling of Hazardous chemicals	28	-	B
11.	Air ports	29	7 (a)	A
12.	Ports, harbours, break waters and dredging	33	7 (e)	A
13.	Highways	34	7 (f)	A
14.	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
15.	Building and construction projects	38	8 (a)	B
16.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated September 15, 2023, and Supplementary Assessment minutes dated December 22, 2023 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/23/2942 dated October 11, 2023. The accreditation needs to be renewed before the expiry date by Mantec Consultants Pvt. Ltd., Noida following due process of assessment.

Issue Date
January 31, 2024

Valid up to
April 20, 2026

Mr. Ajay Kumar Jha
Sr. Director, NABET

Certificate No.
NABET/EIA/23-26/RA 0305_Rev.01

Prof (Dr) Varinder S Kanwar
CEO-NABET

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

NABET Certificate