CH.S.S.PRASAD
CHIEF ENGINEER (SOUTH)

Lr.No.APIIC-16026/5/2018-ENGG WING-I, Dt: .07.2020

To
The Member Secretary,
New Construction Project and Industrial Estates,
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhavan,
6th Floor, Akash Wing, Jorbagh Road,
New Delhi-110003.

Sir,

Sub: Submission of point wise replies for Additional Details sought (ADS) by EAC for Industrial Park at Guttapadu Village, Orvakal Mandal, Kurnool District, Andhra Pradesh for grant of Environmental Clearance - Reg.

Ref: 1. ToR issued vide File No. 21-74/2018-IA.III, dated 16.05.2019 (Proposal No. IA/IP/NCP/99167/2019)
2. ADS raised by EAC during 237th EAC meeting held on 29.06.2020.

******

It is to submit that the issue of Environmental Clearance for industrial park at Guttapadu village, Orvakal Mandal, Kurnool District, Andhra Pradesh has been discussed by the Expert Appraisal Committee (EAC) during its 237th meeting held on 29th June 2020 and sought some additional information.

In connection to the above, we are here with submitting the point wise compliance report along with necessary attachments for the proposed project as desired by the EAC.

We are hereby requesting you to kindly consider the additional details furnished and accord Environmental Clearance to the proposed project at the earliest.

Encl: As above

Yours faithfully,

Chief Engineer (South)

Signature valid
Digitally signed by CH S SRINIVASA PRASAD
Date: 2020.08.05 12:05:55 IST
Reason: Approved

Point wise replies for the Additional Details Sought (ADS) – 237thEAC meeting held on 29.06.2020

S. No	ADS Points	Action plan
1	Proponent is required to submit an undertaking: a) That no construction has been undertaken for this project and there is no violation of EIA Notification, 2006 as amended from time to time. b) That no groundwater will be extracted and used for this project.	As suggested, undertakings are given for the following: **a)** The undertaking informing no construction activity has been taken up within the proposed industrial park at Guttapaduvillage and there is no violation of EIA notification, 2006 as amended from time to is given as **Attachment 1.** **b)** No groundwater shall be used for proposed project. An undertaking in this regard is attached as **Attachment 2.**
2	No integrated iron and steel plants shall be permitted, and only secondary steel-based industries shall be establishedalong with other industrial units proposed in this industrial park. Textile and apparel industries will be limited to stitching of cloths only and there shall be no manufacturing of the cloths. Proponent should avoid establishing more water intensive industries within the proposed industries. The proponent is required to revise the layout accordingly.	As instructed no integrated iron and steel plants and water intensive industries will be allowed in the industrial park Only secondary steel-based industries will be permitted within the industrial park. Textile and apparel industries shall be limited to Weaving + apparel/ fabrication workshop/ apparel design & training center/ginning only and all the industries which are proposed within the industrial park are less water intensive industries.
3	The wastewater generated from the proposed industrial park will be treated and reused within the industrial park. No wastewater shall be allowed to contaminate the downstream water bodies	The effluent generated from industrial activities will be treated in Common Effluent Treatment Plant (CETP) and sewage from domestic uses will be treated in Common Sewage Treatment Plant (CSTP). The project adopts the concept of "Zero Liquid Discharge", entire treated water will be reused within the Industrial Park and no wastewater shall be allowed to contaminate the downstream water bodies.
4	The proposed site is on rocky surface having undulating terrain and streams passing through the proposed project site. The water bodies and drainage system in and around proposed site should not be disturbed and necessary measures for its protection are	The water bodies and drainage system in and around the proposed site will not be disturbed and necessary measures for its protection required will be taken up. To protect the water bodies and drainage system within the industrial park 9m wide greenbelt will be provided on either side.

	required to be taken. Proponent has to prepare a detailed hydrological report indicating the runoff that is generated through the drainage systems passing through the project site. In order to protect streams and natural drainage, proponent is required to develop green belt up to 9 m on either side of streams and water bodies.	A detailed hydrological report indicating the runoff that generated through the drainage system passing through the project site is attached as **Attachment 3**.
5	Water quality issues for the villages Konthalapadu and Guttapadu need special attention as these are located in the downstream of the project site. What measures are proposed for protection of water quality in the downstream villages.	For the protection of water quality in downstream villages, the following measures are considered: To prevent contamination of downstream water bodies from the proposed project Zero Discharge Concept is followed. The industrial park will be provided with storm water drains all along the roads having Water Harvesting structures for proper infiltration of rain water. An amount of Rs 80 lakhs is allotted under CER budget towards water quality protection measures (rain water harvesting structures, check-dams, etc.) in downstream villages.
6	As per the water balance chart presented before EAC, the industrial water requirement is to the tune of 9,800 KLD. As per the type of industrial units proposed, the water demand will be on higher side and need to be revised. Therefore, PP is required to prepare a detailed water budget and its management.	The water requirement for the proposed industrial park is calculated taking into consideration type of industries proposed i.e. for Solar renewable energy industries 2 KLD/Ha to Secondary steel and Steel production industries 20 KLD/Ha. Water intensive industries are not proposed within the industrial park. The water requirement of 9,800 KLD will be sufficient for the proposed project.
7	Why the project proponent is mixing the CSTP and CETP water for recycling/ reuse? Water balance chart is to be revised with proper explanation.	The treated water from CETP & CSTP shall be reused separately without mixing them. The revised water balance is attached as **Attachment 4.**
8	As per the drainage map, huge runoff is generated from the catchment at SW about 5 KM of the project boundary and the same is passing through the project site at the SE notch. No	No land use development will be permitted along the drains and 9 m wide buffer will be provided on both sides toward protection of the drains and the buffer land will be used for greenbelt development.

	land use development is to be permitted and the drainage is to be protected in this part.	The detailed runoff calculations are given in the Hydrology report attached as **Attachment 3.**
9	It was observed that a good number of deer population in the area. A detailed wildlife management plan be prepared in consultation with the State Wildlife division.	No deer population was observed during the primary baseline survey.There are no notified ecological sensitive areas having sensitive species of flora or fauna for breeding, nesting, resting, migration etc. within 15 km. However as suggested a detailed wildlife management plan for deers was prepared and submitted to Divisional Forest Officer (DFO), Kurnool. The wildlife management plan is attached as **Attachment 4A.**
10	It appears that the total land for the project has not been acquired. A clarification along with land acquisition details be submitted.	Total project area 1697.38 Ha, from which an area of 1433.22 Ha land has been acquired and the remaining area of 264.16 Ha land is under initial stage of acquisition. The land procession document is attached as **Attachment 5.** As per OM F. No. 22-76/2014-IA-III dated 7th October 2014, by MoEFCC on status of land acquisition, full acquisition of land may not be a pre-requisite for consideration of the case for EC, there should be some credible document to show the status of land acquisition w.r.t project site when the case is brought before the concerned EAC/SEAC for appraisal. The OM is attached as **Attachment 6.**

11	The project area is primarily inhabited by economically weaker community in 35 villages with a population of around 111908 and with a density of 144 persons per km^2. It was informed that no evacuation/shifting of people has been planned for this project, hence, there will not be any rehabilitation of communities /villages. However, EAC felt that there should be at least 500 m buffer between habitation and industries of the proposed industrial park.	No evacuation/shifting of people has been planned for this project. However all mitigation measures to control air, water and noise pollution from the project shall be provided. All along the boundary of the proposed industrial park 15m wide greenbelt is proposed, whereas near the habitations additional 15m wide greenbelt is proposed. In the proposed industrial park following highly polluting 17 category of industries as per CPCB are not proposed 1. Aluminium smelter 2. Cement 3. Chloro alkali 4. Copper smelter 5. Distillery including fermentation 6. Dyes and dye intermediates 7. Fertilizer (basic) 8. Integrated iron & steel 9. Oil Refinery 10. Pesticides 11. Petrochemicals 12. Bulk drugs 13. Pulp & paper 14. Sugar 15. Thermal power plants 16. Zinc Smelter 17. Tanneries
12	CER activities do not address the issues raised during public hearing. It is also observed that Rs. One crore has been provisioned for any other requirements of the community. Proponent is required to allocate this fund to specific activities under CER for issues raised during public hearing.	As suggested, CER budget is allocated as per the public hearing issues and the revised CER budget allocation is attached as **Attachment 7.**

13	The water required for this project will be drawn from Srisailam foreshore (HNSS lift station) at Muchumarri village or HNSS canal. The required water will be drawn only after obtaining approval from the competent authority. Proponent is required to submit letter showing permission of competent authority to use water from this source.	As per the water permission vide letter No. CE(P)/KNL/DEE.1/AEE.3/IWS/154 Govt., dated 01.06.2016, about 1.5 TMC (116 MLD) of water is allotted for Orvakal Industrial Cluster, a huge industrial area of about 12203 acres, within which the proposed Industrial park Guttapadu (4194.32 acres / 1697.38 Ha) is being established. The proposed Industrial park at Guttapadu village is a part of Orvakal Industrial cluster and it requires only 19 MLD, which will be drawn from above mentioned allotment. The water permission is attached as **Attachment 8.**
14	Proponent has informed that total requirement for electricity is 115 MW. It is not mentioned that how much of this (out of 115 MW) will be obtained from Solar panels to be proposed for installing under this project.	About 1.0 MW solar power will be generated for the proposed project. Around Rs. 5 Crores is allotted for solar power generation in the EMP budget. In addition to that, while allocating the land to Individual industries, APIIC will put a condition that to use roof area for solar power generation.
15	Air quality prediction modelling is done using DG sets only. It is required to do AQIP considering all sources of air pollution for this project.	Air quality prediction modeling is done using DG sets and boilers used by the member industrial units. The Air quality prediction modeling report is attached as **Attachment 9.**
16	The information presented before EAC does not capture the issue mentioned in public consultation proceedings. All the issues should be categorically complied and elaborated before EAC.	All issues raised during public hearing have been complied and provided in the **Attachment 10.**
17	It was informed that the Environmental Management Cell was headed by the Chief Engineer of M/s APIIC. However, some of the EAC members recalled that M/s APIIC never had any structured and functional Environmental Cell to oversee day to day environmental issues. Details of Environmental Cell comprising suitably qualified persons to be submitted.	An exclusive EMP cell will be maintained for regular monitoring and maintenance of environmental and social concerns related to the proposed project and in Head Office level. The organogram of the EMP cell is attached as **Attachment 11.**

18	Public hearing issues raised along with commitment made by PP with time bound action plan and budget provision to be submitted.	The public hearing issues which require monetary and budgetary requirements have been considered in the CER budget plan. The time bound action plan and budgetary provision has been given in **Attachment 7.**

Attachment 1

CH.S.S.PRASAD
CHIEF ENGINEER (SOUTH)

Lr.No.APIIC-16026/5/2018-ENGG WING-I, Dt: .07.2020

Undertaking - To whomsoever it may concern

Andhra Pradesh Industrial Infrastructure Corporation Limited (APIIC), here by inform that no construction activity has been taken up within the proposed Industrial Park at Guttapadu Village, Orvakal Mandal, Kurnool District. Andhra Pradesh and there is no violation of EIA notification 2006 as amended from time to time.

Chief Engineer (South)

Signature valid

Digitally signed by CH S SRINIVASA PRASAD
Date: 2020.08.06 15:32:49 IST
Reason: Approved

Attachment 2

CH.S.S.PRASAD
CHIEF ENGINEER (SOUTH)

Lr.No.APIIC-16026/5/2018-ENGG WING-I, Dt: .07.2020

Undertaking - To whomsoever it may concern

Andhra Pradesh Industrial Infrastructure Corporation Limited (APIIC), here by informs that no withdrawal of groundwater shall be done for the proposed Industrial Park at Guttapadu Village, Orvakal Mandal, Kurnool District, Andhra Pradesh.

Chief Engineer (South)

Signature valid

Digitally signed by CH S SRINIVASA PRASAD
Date: 2020.08.06 15:32:22 IST
Reason: Approved

Attachment 3

Hydrology report

Overview:

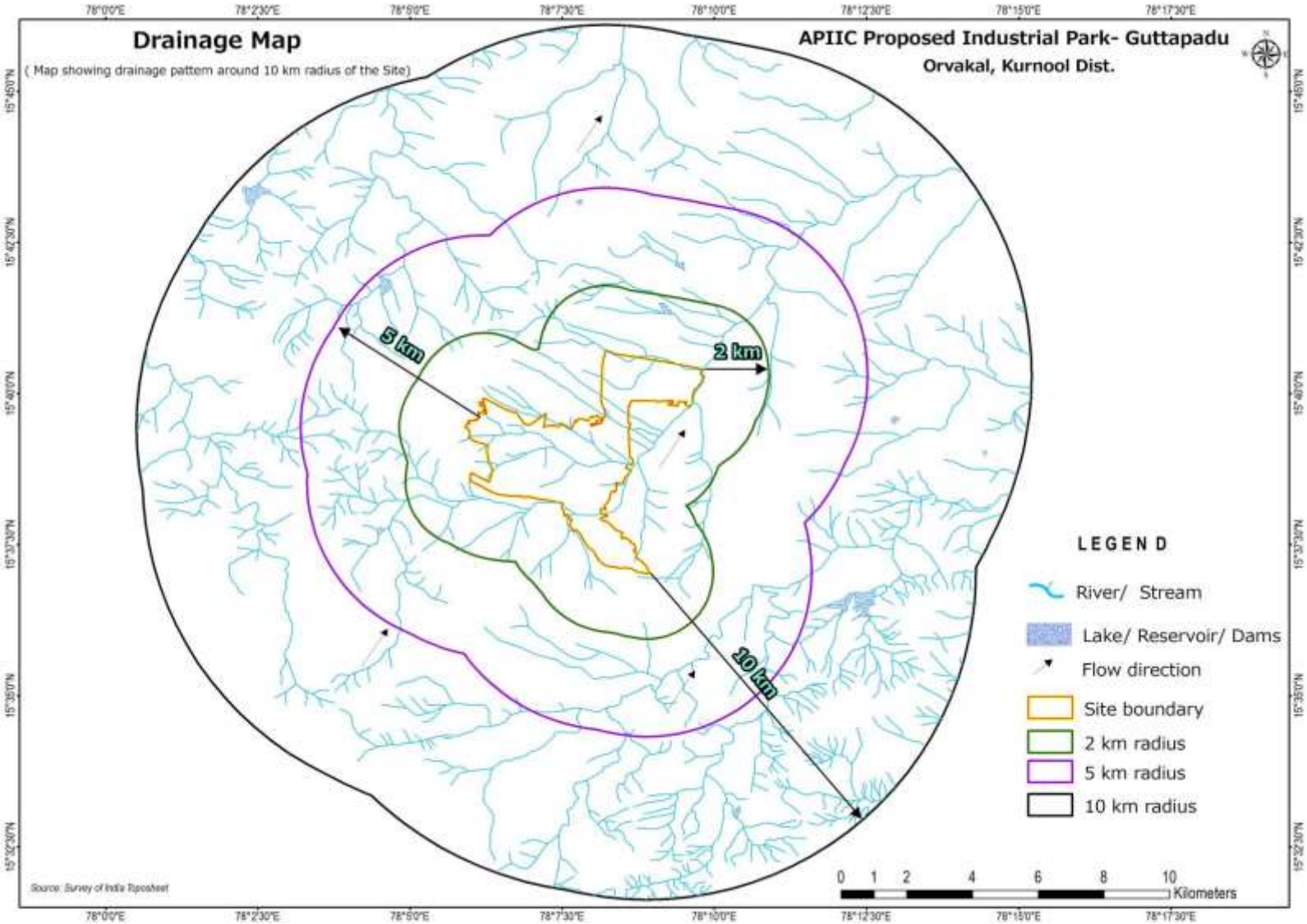
The proposed project site area is located in the central part of the Kurnool district and is near Orvakal Town of Kurnool district in Andhra Pradesh state. The project site surroundings, in the study area of 10 km radius, comprise of hills, plains and valleys. The hills are of low type spread in southeast, south, west and north directions; they are mostly exposed as rocky and also with low to medium open woody vegetation. And, the plains are undulating. The high hill is of 534 m amsl (metres above mean sea level) and is located towards southeast side. The topographic elevation, in the study area within 10-kilometre radius, is ranging from 295 to 534 m amsl (as per Survey of India toposheet 1:50000 scale). The main slope of the land surface is varying from very steep to very gentle slope and is towards northeast direction. The area is spread and covered with red, black cotton and alluvial soil types. The colour type of the soil are of black, red, reddish-brown, yellowish-red; and consists of course, sandy, loamy and clayey texture type soil. The landforms include are: structural hill, plateau, cuesta, pediment, pediplains and valley. The region falls in dry sub-humid climate, and is characterized by hot and dry climatic conditions with summer, rainy, monsoon and winters seasons. The rainy season is with southwest monsoon from June to August months. The maximum rainfall will be during June, July, August and October months. In addition, rains occur also due to cyclonic storms in the Bay of Bengal sea.

Hydrologically, the drainage system, in the study area of 10 km radius, is consisting of streams, ponds and lakes. All the drainage channels flowing in this area are ephemeral in nature and the water flows in these channels occur only during rains which are occasional due to erratic rainfall conditions which depend on the hydro-meteorological conditions prevailing in this area.

The streams flowing in this area are showing a sub-parallel and sub-dendritic drainage pattern with 1st order streams flowing downslope then joining with 2nd order stream and so on, joining with bigger stream channels in the downstream further during their downward coarse then to the river. The drainage basin falls in the Kunderu sub-basin of Penna river basin. The small and big waterbodies which are scattered in and around the project site and many of these are linked with small and bigger streams and other small water courses through which all the rainwater gets collected through these and flow towards the main stream. The drainage map of study area within 10-kilometre radius is shown below in **Figure 1**.

During the preliminary study, it was observed that, there are streams crossings through the project area. These streams are originating at the uplands with reference to the project site area, they are originating at distance of hundreds of metres away. The streams are of 1st to 4th order types. In the north portion within project site, the streams of 1st, 2nd and 3rd order are crossing through and flowing towards southeast and, finally are joining the Kunder river (as a main stream of 4th order).

Figure 1 Drainage map of study area

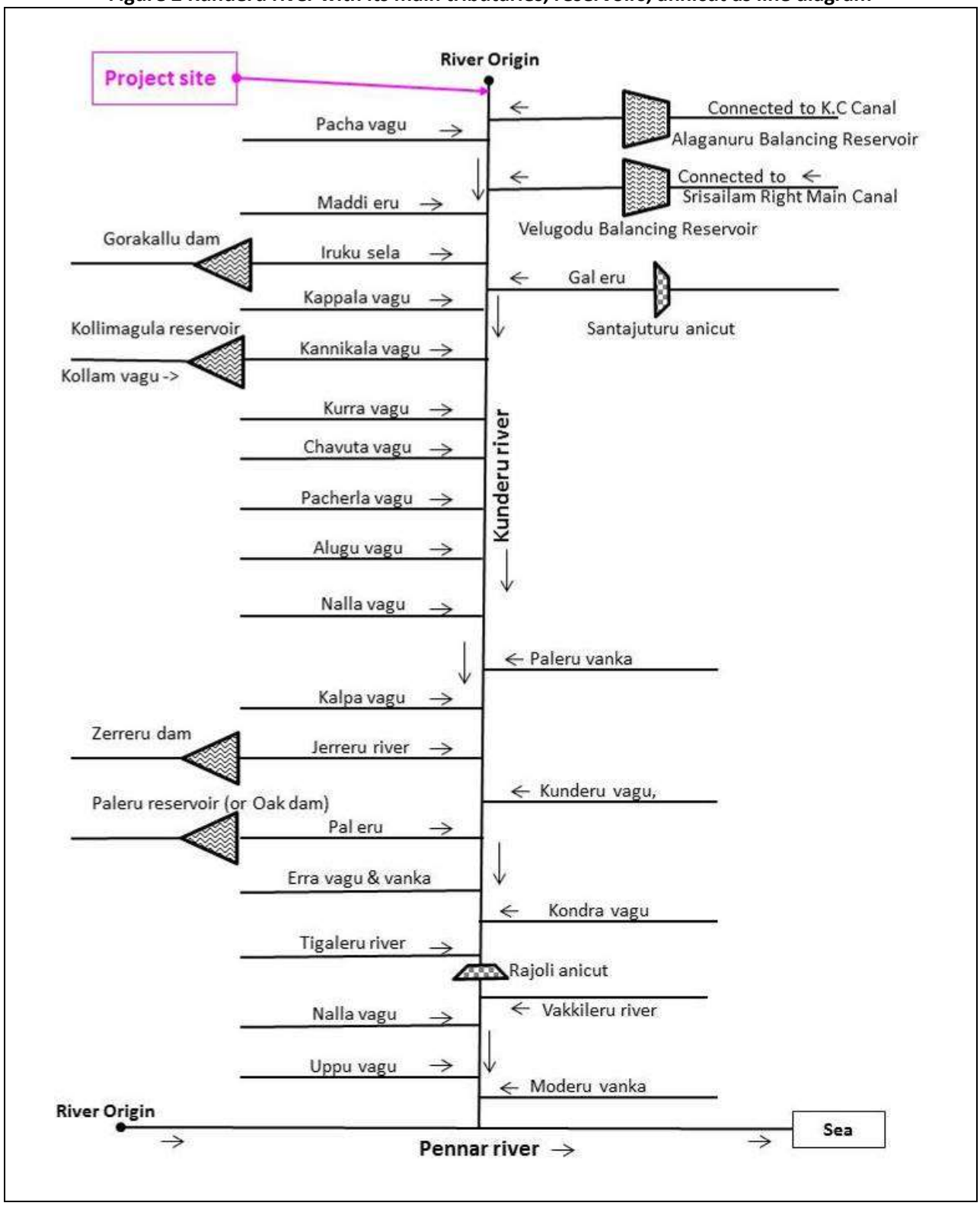


Kunderu river catchment and Pennar river basin:

The Kunderu river (or Kundu or Kumudvathi) is one of the tributary of the Pennar river. The river has originated as spring located at the foot-hills near Uppalapadu village in Orvakal Mandal of Kurnool District. The river, as a major stream (as 4th order), is passing adjacent to south side of project site and then it going through the project site area in the southeast portion, then it is turning north then passing and flowing adjacent to the project site on the east side. Further, it is flowing towards northeast, finally it is turning towards south and merging with the Pennar river to its left bank near Eturu village south of Alladapalle village in Kalasapadu mandal of Dr.Y.S.Rajasekhara Reddy (old name, Cuddapah or Kadapa) district of Andhra Pradesh state.

The project site area falls in the upper Kunderu river catchment of Upper Pennar sub-basin (northern portion of Pennar basin area is falling in Andhra Pradesh state) of Pennar basin of the water resource region 'Rivers draining into Bay of Bengal'. The Kundru river basin (catchment) area is semi-circular in shape, and the river traverses to a length of 205 kilometers. The total drainage area of this river is 8712 square kilometers (data source: SRTM data (Shuttle Radar Topography Mission)). The main tributaries of this river are: Pacha vagu, Maddi eru, Iruku sela, Gal eru, Kappala vagu, Kannikala vagu, Kurra vagu, Chavuta vagu, Pacherla vagu, Alugu vagu, Nalla vagu, Paleru vanka, Kalpa vagu, Jurreru river, Kunderu vagu, Pal eru, Erra vagu/vanka, Kundra vagu, Tigaleru river, Vakkileru river, Nalla vagu, Uppu vagu, Moderu vanka are tributaries joining to this river in addition to many other major and minor streams. The drainage system shows sub-parallel to dendritic pattern. The drainage map of Kunderu river with its main tributaries is shown as line diagram in **Figure 2**. Within the project site area, the water flow in the streams (1st to 3rd order) which are passing through the site area, the streams are mostly dry and there will be no water available in these stream channels throughout the year, except during good rainfall times.

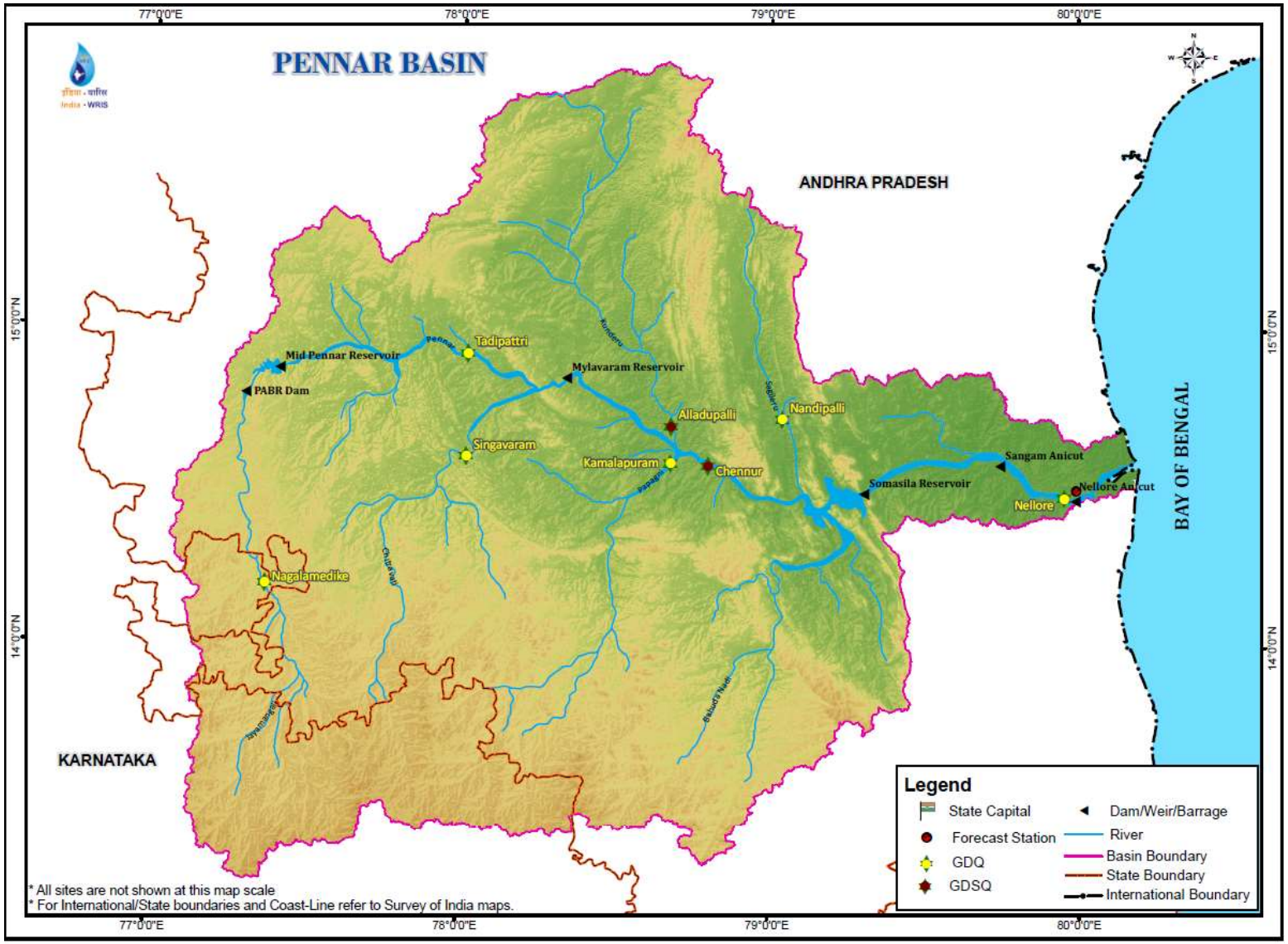
Figure 2 Kunderu river with its main tributaries, reservoirs, annicut as line diagram



The major reservoirs on the Kunderu and of its tributaries are: Gorukallu dam on Iruku sela or Mallama sela vagu; Kollimagula reservoir on (upstream of Kollam Vagu) Kannikala vagu; Zerreru dam on Jurreru river; Paleru reservoir (or Oak dam) Pal eru; Rajoli anicut on main Kunderu river, Santajuturu anicut on Gal eru. There are also Velugodu Balancing Reservoir (or Pothireddypadu Reservoir) constructed on and in between Mogili vagu & Salla vagu tributaries which brings backwaters from Srisailam reservoir of Krishna river through Srisailam Right Main Canal (SRMC) which flows into Penna river through the Kunderu river, and Alaganuru Balancing Reservoir constructed for water storage from K.C Canal and its outlet connected to the main Kunderu river.

The Pennar basin is a large basin extended and covered in both the states of Andhra Pradesh and Karnataka. The Pennar river (or Penna, Palar, or North Pinakini) is one of the major river in Andhra Pradesh state. This river rises at Chenna Kesava hills in Chikkaballapura district of Karnataka state and flows through Andhra Pradesh state, and finally is debunching in the sea of Bay of Bengal near Utukuru village in Nellore district of Andhra Pradesh. The basin is bounded by high hills; the river travels to a distance of 597 kilometers before debunching in to the sea. The other major tributaries of this river are, Jayamangali, Sagileru, Chitravati, Papagni and Cheyyeru. The total catchment area is 55000 square kilometers approximately (data source: elevation data of SRTM [Shuttle Radar Topography Mission]) of which the major portion of the catchment area lies in Andhra Pradesh state, that is with an area of 87% approximately out of total catchment area. The major land use and land cover features include are agriculture land, built-up, forest, wasteland areas and, the waterbodies such as streams, rivers, ponds, lakes, water reservoirs. The Nellore city is the major settlement. The major water reservoirs on this river are, Dr. K. Sriramakrishnaiah Penna Ahobilam Balancing Reservoir (Dr K.S. P.A.B.R), Mid Penna Reservoir (MPR) dam, Mylavaram and Somasila reservoirs, in addition to these, there are also many minor water reservoirs completed and existing also some are planned and proposed for construction later. The basin map of Pennar river is shown in **Figure 3**.

Figure 3 Basin map of Pennar river

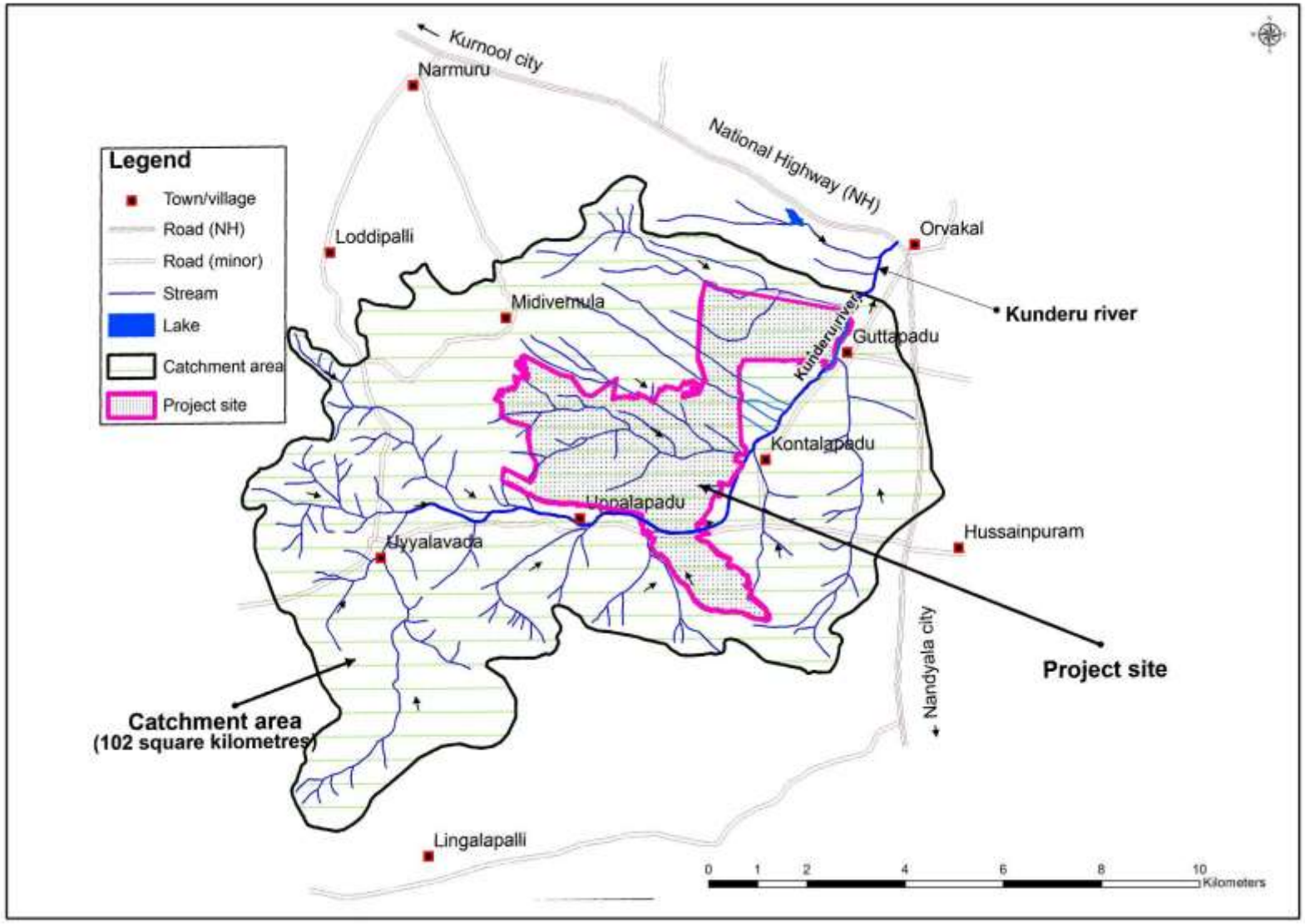


The Pennar basin is a fan-shaped basin bounded by hills, spread with plains and covered by valleys. There are Erramalla hill range on North, Nallamalla and Velikonda hill ranges of Eastern Ghats on East, and Nandidurg hills on South and on the West by narrow hill ridges separating it from Vedavathi sub-basin of Krishna basin. The topographic elevation is ranging from 0 to 1440 metres above mean sea level; the slope is varying from very steep to flat; the terrain is of hilly and uplands, undulating and rolling plains, fluvial, deltaic and coastal plains; and the entire catchment area is slopping towards east direction. The rock formations found are granite, gneisse, basic intrusives, quartzite, schist, limestone, sandstone, shale, etc., and alluvium belongs to archean, dharwar, cuddapah and kurnool formations of Quaternary to Archean of age. The soil types found are black cotton, red and alluvial soils which are of coarse to fine texture. The land use class types found is of mostly agricultural lands. The hills are exposed with bare rock also with woody. In both the Pennar and Kunderu basin, the water flow in these streams and rivers is of ephemeral in nature that is water flows in these fluvial channels is mainly during rains. The rainfall is erratic and depends on the hydro-meteorological conditions prevailing in this area. The basin experiences semiarid, dry sub-humid and wet sub-humid types of climatic conditions with summer, rainy and winters seasons. The temperature, mean maximum, is varying with 15 to 40 degree Celsius. The southwest and northeast monsoons are the rain occurring events in addition to rains occurring due to natural and cyclonic depressions. The maximum rainfall will be during June, July and August months in which maximum water levels will occur in these rainy months. The north-northwestern, western, southwestern and central portions of the basin receive less of mean annual rainfall distribution-wise due rain-shadow region of Western Ghats, whereas the eastern portion of the basin which is close to the sea receives good and high amount of mean annual rainfall mainly due to southwest monsoons also from cyclonic storms of Bay of Bengal sea. The average annual rainfall ranges from 508 to 988 millimetres of the basin.

Stormwater runoff in project site, artificial recharge, and stream discharge:

The mapped catchment area of the streams crossing through the project site area is shown in below **Figure 4.**

Figure 4 Watershed map of streams crossing through project site area



Based on the topographic conditions, the watershed boundary was delineated and land area was computed. The entire area of the stream catchment for the crossing streams is computed as 83 square kilometres (considered 'Catchment-A' only, whereas, the 'Catchment-B' is not considered since overland runoff from this area is not directly influencing). The runoff generated from the entire catchment area also of the area of influence by the project site area (that is, 'Catchment-A') is calculated and the total overland runoff is estimated and is provided in below **Table 2**.

Table 2 Overland surface water runoff estimate

Estimated yield of surface flow at outfall location, outside project site:		
Area, total catchment area of streams	=	83195926 sq.m
Rainfall, maximum, per day	=	0.0188 m
Runoff coefficient (considered as)	=	0.5
	=	83195926 x 0.0188 x 0.5
Total:		782042 cu.m/day or 9 cu.m/sec
Note: Used abbreviations of units: sq.m =square metre, ha=hectare, mm=millimetre, m= metre, cu.m=cubic metre, hr=hour, sec=second; rainfall data (reference: project environmental impact assessment report)		

The runoff generated within the project site area is calculated and the total surface runoff is estimated and is provided in the below **Table 3**.

Table 3 Surface runoff

Estimated water yield is as below:				
Rainfall[*1]	:	0.0188 metres		
Type of catchment area		**Area of surface**	**Runoff coefficient**	**Yield of water**
Green belt within industrial units	:	2360000	0.15	6655
Road, paved and impervious area within industrial units	:	5912200	0.65	72247
Greenbelt within common facilities area	:	470000	0.15	1325
Road, paved and impervious area within common facilities area	:	1194130	0.65	14592
Open spaces (for greenbelt)	:	1976100	0.20	7430
Green buffer	:	798100	0.15	2250
Roads	:	928000	0.65	11340
Total, yield per day	**:**	**9280000**		**115839**
Total, yield per hour				**4826**
Note: *1) Rainfall, 0.0188 metres per day (source: rainfall and surface runoff table, project environmental impact assessment report; (2) Units: area of surface, in square metres; yield of water, in cubic metres.				

An amount of 115839 cubic metres volume per day (or 4826 per hour or 1.3 per second) will be generated during peak day rainfall. For the generated rainwater it will be re-used for landscape and greenbelt development also will be sent to recharge pits for rainwater harvesting (excluded is, the

rainwater for harvesting; from industrial area and common facilities and logistic hub it is estimated as 51551 cubic metres volume per day, will be separately collected and harvested by individual member industry units).

The artificial recharge is a means by which ground water is augmented at much higher rate than natural percolating conditions to replenish the aquifer. In the project area, during the rains all the storm water will be collected, pre-treated, stored then utilized also recharged and excess sent to outside natural drains. This improves: local ground water levels there by enhancing yields, also reduction in cost of lifting it, control the land subsidence, improved water quality, utilizable in future; and at the site, it facilitates to minimize inundation due to excess runoff from the surface area if any during times, also on-site re-use of rainwater for landscape and green belt development.

In the project area, it is proposed to construct a stormwater drains and a required capacity recharge pits. The location will be identified as per topographic slope, geomorphology, soil, site land use, and geology of the terrain. Detailed engineering survey will be conducted prior to construction to verify the site location and the type of structure feasible, then a design is prepared which makes effectiveness and efficiency of the proposed structure utilization.

The entire area of the stream catchment for the passing streams (through project site) is computed as 83 square kilometres. Based on the topographic conditions the watershed boundary was delineated and land area was computed. Based on amount of storm water the carrying capacity of stream is derived and estimated discharge (flow rate) is provided in below **Table 4.**

Table 4 Stream flow discharge

<u>Stream discharge for catchment:</u>
Total length of major streams & minor streams (L) = 130768 m (GIS computed)
Average top width of main streams (A) = 4 m
Average base width of main streams (B) = 1.5 m
Average depth of main streams (H) = 3 m
Channel side slope of main streams = 1:0.8
Discharge (flow rate) = V x Ac = 1.3 x 8.25 = 10.725 (rounded-of as, 11) cu.m/sec
Where, V=Velocity (considered as 1.3 m/sec),
Ac= Area of cross section of wet part (as trapezoid [½ x (A+B) x H]=[0.5 x 5.5 x 3=8.25 sq.m])
Note: Abbreviations of units used :km=kilometre, m=metre, cu.m/sec= cubic metres per second

With the above tabulated hydrological calculation, the discharge rate of the streams is 11 cubic metres per second, and it is more than the total surface runoff volume generated during heavy rain in the stream entire catchment (which is 9 cubic metre per second). The capacity of streams area sufficient to carry the surface runoff generated in the catchment area during maximum amount of rainfall.

Surface water quality:

Regarding water quality, the parameters and its values of samples of downstream side of both the Pennar and Kunderu rivers are tabulated in below **Table 5**. The parameter values are compared with surface water quality standards of IS: 2296 – 1992.

Table 4 Surface water quality of Pennar and Kunder rivers

Parameter	Unit	SW1[*2]	SW2[*2]	Surface water standards[*1] IS:2296 – 1992				
				A	B	C	D	E
pH	--	7.0–8.3	7.0–7.0	**6.5–8.5**		**6–9**	**6.5–8.5**	**6–8.5**
Chloride (as Cl^-)	mg/l	53.9–118.1	43.8–169.3	**250**	**-**	**600**	**-**	**600**
Sulphate (as SO_4)	mg/l	39.9–75.0	57.5–178.3	**400**	**-**	**400**	**-**	**1000**
Nitrates (as NO_3)	mg/l	0.19–0.19	0.05–1.0	**20**	**-**	**50**	**-**	**-**
Total hardness (as $CaCO_3$)	mg/l	94–159	122–281	**200**	**-**	**-**	**-**	**-**
Calcium (as Ca)	mg/l	23–31	21–60	**-**	**-**	**-**	**-**	**-**
Magnesium (as Mg)	mg/l	8.7–21.4	9.7–36.9	**-**	**-**	**-**	**-**	**-**
Sodium (as Na)	mg/l	58.9–142.6	35.5–182.6	**-**	**-**	**-**	**-**	**-**
Potassium as K	mg/l	4.3–11.1	3.1–14.0	**-**	**-**	**-**	**-**	**-**
Fluoride (as F)	mg/l	0.49–4.71	0.56–0.78	**1.5**	**1.5**	**1.5**	**-**	**-**
Dissolved oxygen (DO)	mg/l	--	5.5–7.8	**6**	**5**	**4**	**4**	
Biological oxygen demand (BOD), at 27°C	mg/l	--	0.2–3.9	**2**	**3**	**3**	**-**	**-**
Bicarbonate (HCO_3)	mg/l	129–326	155–465	**-**	**-**	**-**	**-**	**-**

Note:
(1) Class A–Drinking water source without conventional treatment; Class B–Outdoor bathing; Class C–Drinking water source with conventional treatment followed by disinfection; Class D–Fish culture and wild life population; Class E–Irrigation, industrial cooling.
(2) Data source: **SW1**= Water quality of Pennar river at Nellore; **SW2**= Water quality of Kunder river at Alladupalli (near confluence point of Kunder river and Pennar river), data source: Integrated Hydrological Data Book, 2012, data period 2009-2010 of Central Water Commission (CWC) of India.
(3) Abbrevations of units: mg/l = milligrams per litre, meq/l = milliequivalents per litre.

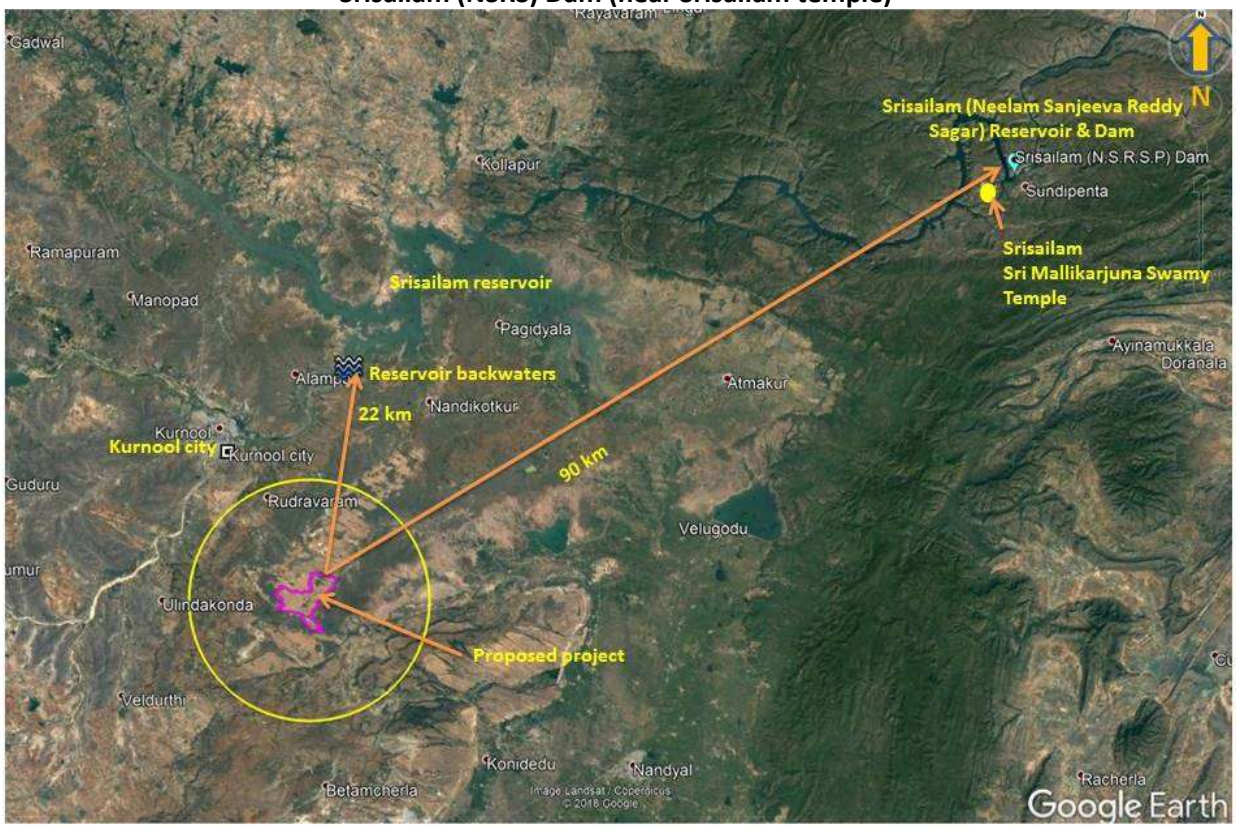
The pH meeting all the class norms, total hardness value (maximum value) of SW2 is above tolerance limits, fluoride concentrations within limits, DO minimum value within but maximum value is slightly above class-A limits, BOD minimum value below class-A but maximum value is above class-C tolerance limits.

Other information:

From the project site area, the backwaters of Srisailam reservoir (Northeast of Kurnool city), which is falling in Krishna basin, is at 22 km towards Northwest; and, the Srisailam (Neelam Sanjeeva Reddy Sagar) dam (near Srisailam Sri Mallikarjuna Swamy temple) is located at 91 km towards Northeast from the project site. The locations of Srisailam reservoir is shown in below **Figure 5**.

Figure 5 Image map

Showing locations of Srisailam reservoir (near Kurnool city) and Srisailam (NSRS) Dam (near Srisailam temple)



Map source: Satellite imagery at Google earth

Effects on local hydrology:

The increase in amount of runoff and subsequent discharge of water into the streams which is due to changes in the land cover area by the proposed project could not have any significant stream flow changes and stream morphology. The land use and land cover of the project site area is a wasteland with open scrub and rocky area, and the soil cover will be of very low depth so there will not have significant soil erosion from the proposed site, and this will not have significant increase of rate of sedimentation in and nearby streams otherwise which may reduce and/or obstruct flow of water coming from the upstream side.

The drainage texture with low stream frequency rate, stream bifurcations with few 1st to 2rd order streams, and hydrogeological conditions in the upper catchment areas of the river indicating higher recharge rate to the ground and lesser overland flows which result a low water discharges in to the river. The catchment area falls in the transition zone and is dry most of the year, and these fluvial channels are ephemeral.

Regarding the flood effect of Kunder river, the past history of the river indicates the flood is mainly due to increase of water flow into the river which mainly from the release of water from the Alaganuru Balancing Reservoir and Velugodu Balancing Reservoir only. The sudden outflow from these reservoirs is

flooding the areas in the downstream side. The Alaganur Balancing Reservoir is constructed to store water from K.C canal as reserve for future utilization in the dry season period and similarly Velugodu Balancing Reservoir is constructed to store excess water from the Srisailam Reservoir which is connected through Srisailam Right Main Canal for water use. On few main tributaries of Kunder river such as Iruku sela, Kannikala vagu, Jerreru river, Pal eru there are dams with reservoir are constructed to control or restrict direct flows into the main Kunderu river. Also, there are constructed annicuts on the main Kunder river, Rajoli anicut near Rajoli village and is near river confluence with the Pennar river, also there is annicut, Santajuturu annicut constructed on Galeru to control the direct water flow and to utilize the water locally. The main tributaries of Kunderu river, reservoirs, annicuts constructed are shown as line diagram in above **Figure 3**. So, with a small percent increase of overland runoff from the project site area there will not have significant effect in the Kunderu river downstream and in to the Pennar river.

Impact and mitigation measures:

Impact on surface water quality during construction phase, the activities includes civil structures, storing of construction materials, cleaning and washing of equipment, vehicles etc., which produces polluted waste water. During rainy season the run-off storm water from these areas carries the waste materials and accumulates in the near-by water-bodies resulting in change in water quality. The storage of used or un-used engine oils, lubrication oils etc., may create spillages, if not maintained the storage facilities properly. These spillages infiltrate into the top surface soil layers and also run-offs into the near-by water bodies resulting in contamination of groundwater and surface water resources with increase in hydrocarbon levels. Waste water from eating areas, sewage water from temporary sanitary facilities used by the personnel stationed in the site area. These causes change in water quality in the receiving water bodies, if this waste water is not treated properly before it gets released.

The precautions need be taken to prevent change in water quality of near-by water resources. The run-off from the site area need to be collected in a sedimentation tank, and the overflow excess water should be diverted to greenbelt/plantation areas. The waste water generated from cleaning of equipment, eating areas has to be collected and diverted to sedimentation tank in which the suspended solids, if any, will be separated and the settled water will be re-used construction purposes and also used for sprinkling on roads to control the dust suppressions. The waste water from the temporary toilets needs to be diverted to a septic tank followed by soak pit. The sewage waste water is also to be treated properly. The waste oil has to be segregated and disposed to authorized recyclers. The solid waste like — soiled cotton, paper etc., are to be disposed to municipal bins. With the proper management of these measures, the impact on water quality during the construction activity is expected to be insignificant.

Impact on water resources during operation phase, in the industrial park area, spillages from used engine oils, solvents, cleaning agents, chemicals, waste water and contaminants, occur and percolate and infiltrate in to the soil and pollute it then to the ground water also, and the surface runoff from these areas when mixed with water in the surface waterbodies also pollutes these surface waterbodies thereby causing environmental concern generated will be and the release of this into the outside

waterbodies can cause severe pollution. The wastewater and the domestic waste water contaminate outside surface and ground water sources.

The water requirement for the project operation purpose makes impacts on the ground water resources causing depletion locally, causing water scarce situations. The rain water falling in the site area after contact or if pass through any hazardous material, using if any, after runoff from these areas will further pollute at the downstream surface water environment.

The storm wate*r* separately diverted, pre-treated and then the clean water shall be released to outside drains. The water quality of surface water drainage, treated leachate will be monitored within the facility area regularly to avoid damages. Also there will be regularly monitoring and reporting of water quality of both the surface and ground water samples within the surrounding 10 kilometers radius of the project site during the entire operational life of the facility, as per pollution control board norms.

The effluent or waste water generated will be treated fully in the effluent treatment plant located in the premises. Also, the domestic waste water, the wastewater from floor cleaning, vehicle and tank cleaning will be treated and, the recycled water is used for project operations and greenbelt development. The water will be recovered from all the waste water generated by purifying with the best waste water treatment technology and this recycled water will be used for more water re-utilization for the industrial park operations (by individual industries) which saves water, money and makes no discharges of the effluents outside the facility, which also makes to comply with pollution norms.

For the industrial park requirement, for operations, all the water will be sourced from Srisailam foreshore at HNSS (Handri-Neeva Sujala Sravanthi) canal's Phase I Package II, lift irrigation scheme (lift station–zero) (or Machumarri II) at Muchumarri village in Pagidyala mandal, of Kurnool district in Andhra Pradesh and is about 36 km from project site. Out of the total water requirement is 19000 KLD (kilo litres per litre), out of this fresh water requirement is 11460 KLD which includes, supply to industrial units, domestic, utilities and greenbelt at industrial park level. Apart from the above mentioned use, there would be no substantial requirement, no water shall be wasted and the use of it shall be controlled. Water will be saved by good plumbing and sanitary fixtures for efficient use.

<u>Protection measures for natural streams are given below:</u>

Due to the proposed project, the impacts, if any, will be minimized and mitigated in the project site area, so there will have no influence to the surface waterbodies. Even though there will have no impacts from the project activities to the natural streams passing through the project site area, precautions and measures will be taken care to mitigate any future impacts arising out of project activities. The cross-section of main stream, as prospective view, with bund wall, stone boulder pitching, and stream bed and tree buffer is shown in **Figure 6**. A photograph of depiction of stream bank protection with rock rip-rap is shown in **Figure 7**.

- To the major stream passing through the project site, for free flow of rainwater coming from up-stream direction; a clear width of space will be left on either side from the center. And within

the project site boundary, no construction activity will be under-taken over and along the buffer zone of the major stream (2nd to 3th order). The streams of 1st order (flowing within project) will be diverted as per slope into the storm water drains of project.

- Along the stream (2nd to 3rd order) a buffer area of 2 to 9 metres (as per width) will be left as open land, and this open land is designed and covered with carpet grass and also by planting with selected native plants which are tolerant in dry season, sustainable throughout the times and during running and standing water in case, grown in a short-interval of time (reference: setback distance to waterbodies for building/construction projects/area development projects and townships, buffer width is 2 and 9 metres for nala/stream of width 'up to 10 metres' and 'more than 10 metres' respectively, model building by-laws-2016 of Government of Andhra Pradesh Building Rules-2017). This benefit in prevention of soil erosion thereby slope stability of the stream bund and also getting damage of roads or any other civil constructions in the long time duration; prevents release of contaminants due to dust and other substances. This also enhances beautification within the project site area.
- Periodical removing of mud-cake and dicing or scraping of the surface layer in the nullah/stream (major stream courses) will be carried out to improve the water carrying /recharging capacity
- The channel flow banks of these streams are preserved and stabilized with rock riprap liners/earth bunds also vegetated to prevent, channel erosion, sediment accumulation on the channel side surface, and to facilitate smooth flow of water on the stream surface.
- Along major water courses, a small bund wall with 0.5 meter height will be constructed to stop entering dust like leaves, papers, plastic bags etc., due to wind blowing into these waterbodies. Waste food material, paper decaying vegetables and plastics will not be thrown and, no effluents from sewage treatment plant will be discharged into these waterbodies.
- Necessary measures for protection of major streams will be taken up.

Figure 6
Prospective view of
cross-section of main stream

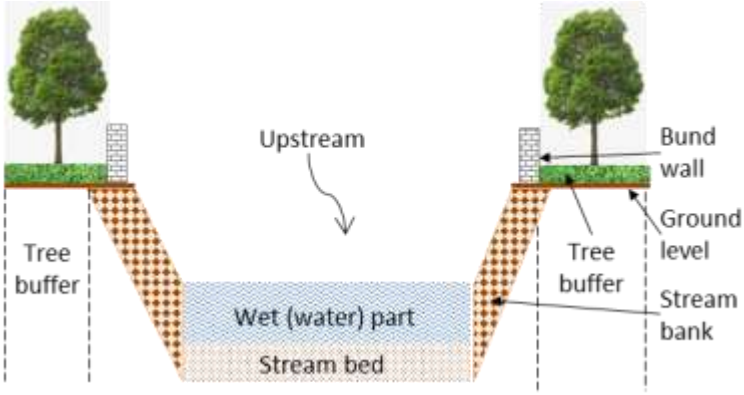


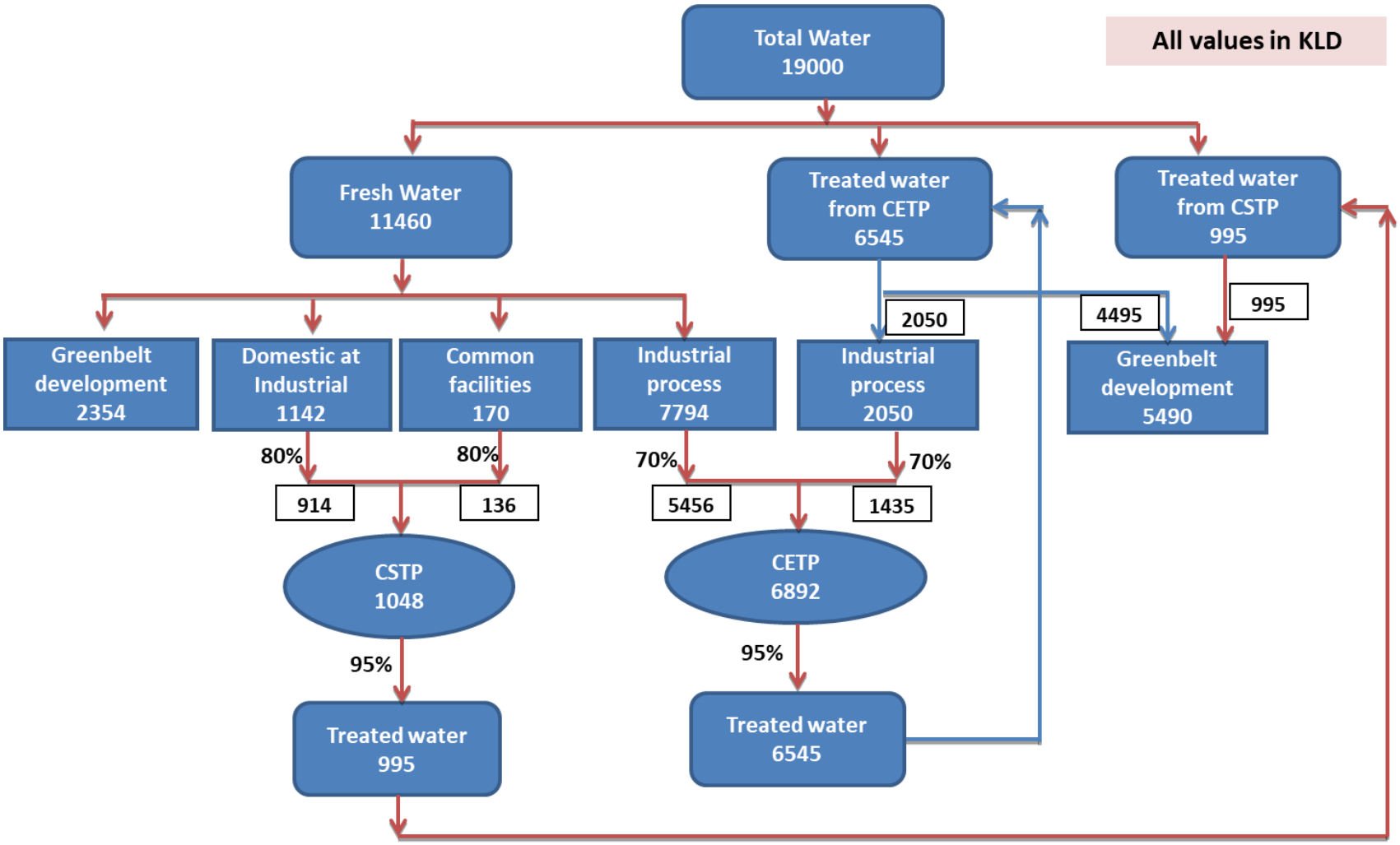
Figure 7
Photograph of depiction of
stream-bank protection rock rip-rap

In the project site area, during the rains all the surface runoff will be collected, pre-treated, stored then utilized also recharged and excess sent to outside natural drains. This will be implemented by the industrial park as well as by the individual member industry units. This improves: in maintaining water flow in the streams; augments local ground water levels there by enhancing yields, also reduction in cost of lifting it; to rejuvenate waterbodies at downstream side; it facilitates to minimize inundation due to excess runoff from the overland, if any during heavy rain times; also on-site reuse of rainwater for landscape and green-belt development.

With the above mentioned stream protection measures, it is anticipated there would not be any significant impacts from the proposed development of land cover with industries and other facilities to the natural streams which are flowing through the project site area.

Attachment 4

Water balance

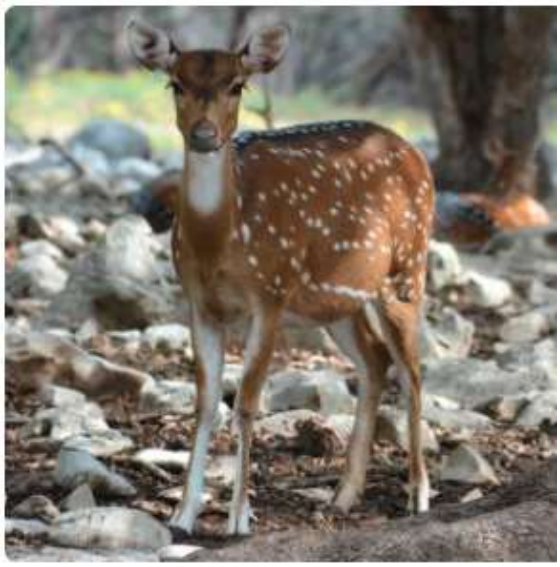


Note: The treated water from Common Effluent Treatment Plant (CETP) shall be reused for industrial purpose and greenbelt development. The treated water from Common Sewage Treatment Plant (CSTP) shall be reused for greenbelt development.

Attachment 4A

Wildlife Management Plan for Deer in Orvakal/Guttapadu Area of Kurnool District for the Proposed Industrial Park Project

(Industrial Park area and location : 1697.38 Ha, Orvakal, Uppalapadu, Guttapadu, Meedivemula and N. Konthalapadu villages of Orvakal Mandal, Kurnool District of Andhra Pradesh.)



Submitted by

Andhra Pradesh Industrial Infrastructure Corporation Limited
APIIC Towers, 9, 10, 11 Floors, CFC-1, IT Park,
Mangalagiri, Guntur District - 522 503

Prepared by

Ramky Enviro Services Pvt Ltd,
Ramky Enviro Services Private Limited
Ramky Grandiose, Ramky Towers Complex, Gachibowli,
Hyderabad, Telangana – 500 032

Table of Contents

List of Tables

List of Figures

1. Identification of project

APIIC has identified land at Orvakal Mandal, Kurnool District in Andhra Pradesh where an industrial park housing multi-sector industries based on site suitability and market potential is proposed. APIIC is in possession of this land to promote an orderly development of industries in the State.

2. Need of the project

Industrial parks have a tremendous socio-economic impact on our country's economy. They have contributed to the growth and development of the economy in terms of exports, employment and investments. Further, they have made the country globally competitive. Establishment of industrial park promises to change the existing scenario and cluster the scattered community in and around the region. The setting up of industrial park is expected to boost the state's multiproduct sector by ensuring a fair share of export revenues and raise the living standard of workers. The setting up of the industrial park is also expected to bring about a marked improvement in the operational efficiency of the units in the state and reduce the monopoly of a few units.

3. Project description

The industrial park is envisioned for establishment of heterogeneous industries as per MoEF&CC, EIA notification 14th September, 2006 and Red, Orange, Green & White industries as per CPCB notification 29th February, 2016. For the proposed industrial park, APIIC would develop the following:

- Basic infrastructure: water source and supply lines, power supply lines, development of internal roads, approach roads, street lights and development of industrial plots.

- Environmental infrastructure: Greenbelt, storm water drains, wastewater treatment facilities, solid waste collection system, temporary storage and disposal facilities

- Social infrastructure: Post offices, banks, ATMs, communication center, health center, parks, etc.

Salient features of the project are given in **Table 1**

Table 1 Salient features of the project site

EIA Notification – 14.09.2006 No.S.O.1533 & Subsequent Amendments	
Name of the project	Development of industrial park at Guttapadu Village
Location	Guttapadu Village, Orvakal Mandal, Kurnool District, Andhra Pradesh.
Project Area	1697.38 Ha (4194.32 acres)
Project Activity	Project/Activity 7 (c) – Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes
Category	Category 'A' (Industrial park area > 500 Ha and housing at least on Category 'B' industry)
Present Land use	Project site mostly occupied by rocky area and is largely open scrub
Nearest Highway	National Highway NH-18 (Kurnool to Chittoor) is located 1.2 km (E)
Nearest Railway station	Kurnool railway station at a distance of approx. 20 km (NNW)
Nearest Airport	Proposed Kurnool International Airport 5 km (N) Kadapa Domestic airport 146 Km (SE)
River/stream	Kunderu River Stream (Adj. to project site towards E), Rock Garden Lake 1.5 km (N), Kommu Cheruvu 5.5 km (ESE), Bayanna Cheruvu 9.3 km (W)
Archeologically important places	None within the study area.
National Parks/WLS	Great Indian Bustard (GIB) Rollapadu wildlife sanctury 19.7 km (NNE)
RF/PF's	Gani RF 6.0 km (SE), Yambayi RF 7.1 km (SW), Lanjabanda RF 7.8 km (NW),

	Ramallakota RF 8.3 km (SW), Yaparlapadu RF 8.4 km (W), Bethamcherla RF 9.4 km (SE), Panyam RF 10.2 km (SE), Pullaiah RF 14.5 km (NW)
Defence Installations	None within the study area
Estimated Cost of the Project	Rs: 495 Crores
Budget for EMP	Capital cost Rs.160 Crores
Budget for CER	Rs. 7.5 Crores
Seismicity	Seismic zone II as per the Seismic Zoning Map of India (BIS 1893-2002), and this is classified as low damage risk zone.

Figure 1 Location of the project site

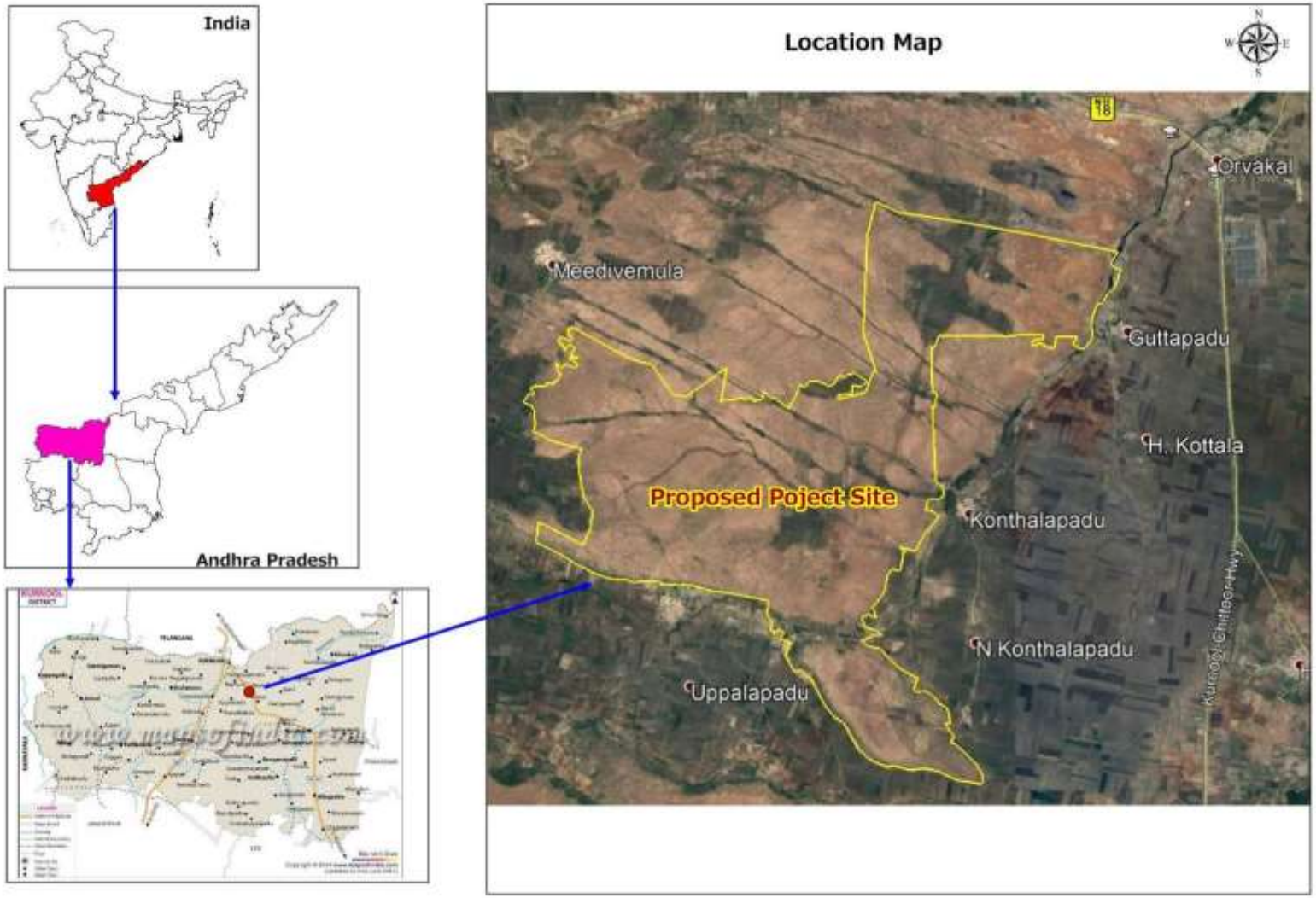


Figure 2 Site Photographs






Figure 3 Location of project site in 10 km radius Toposheet

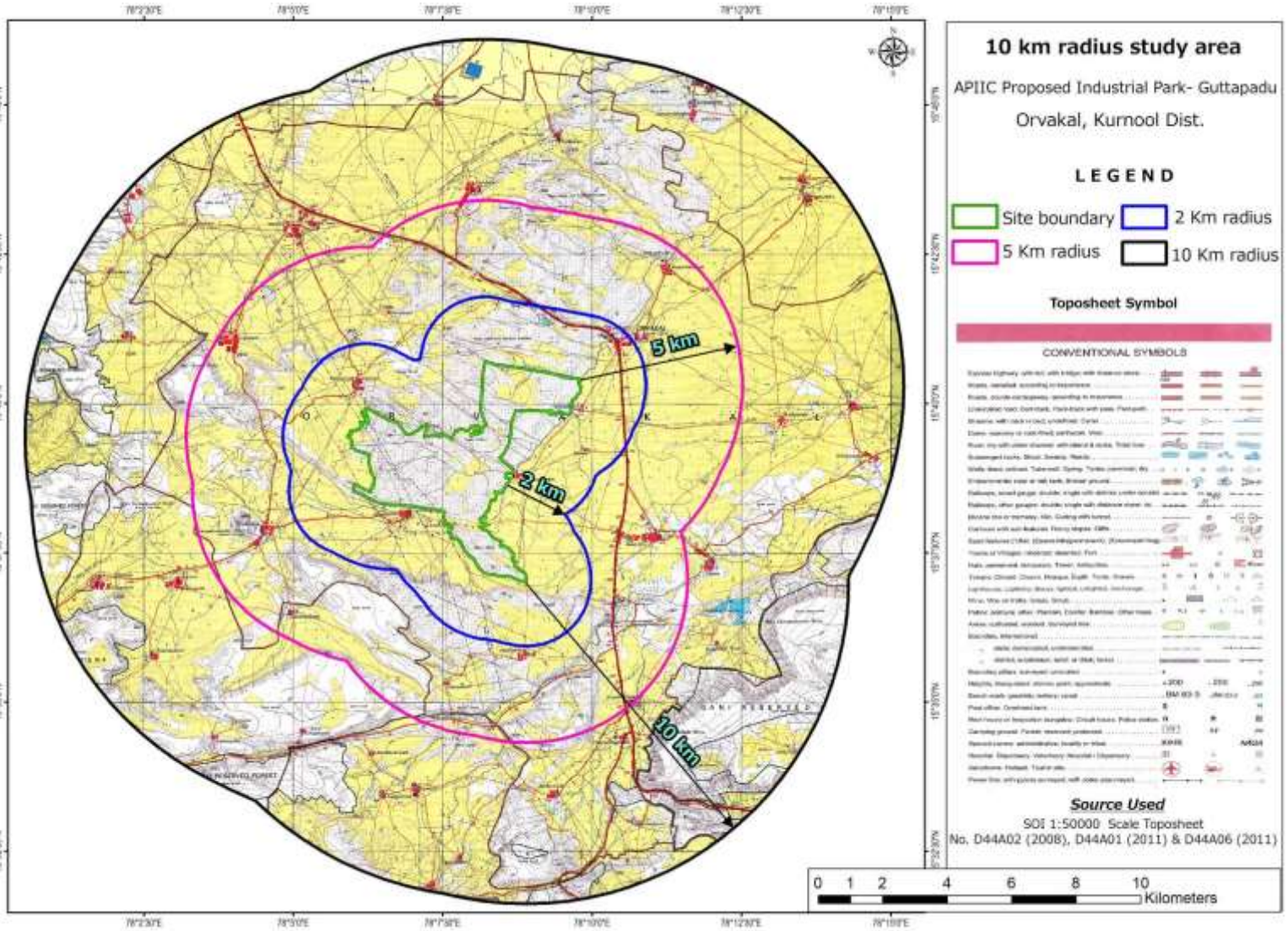
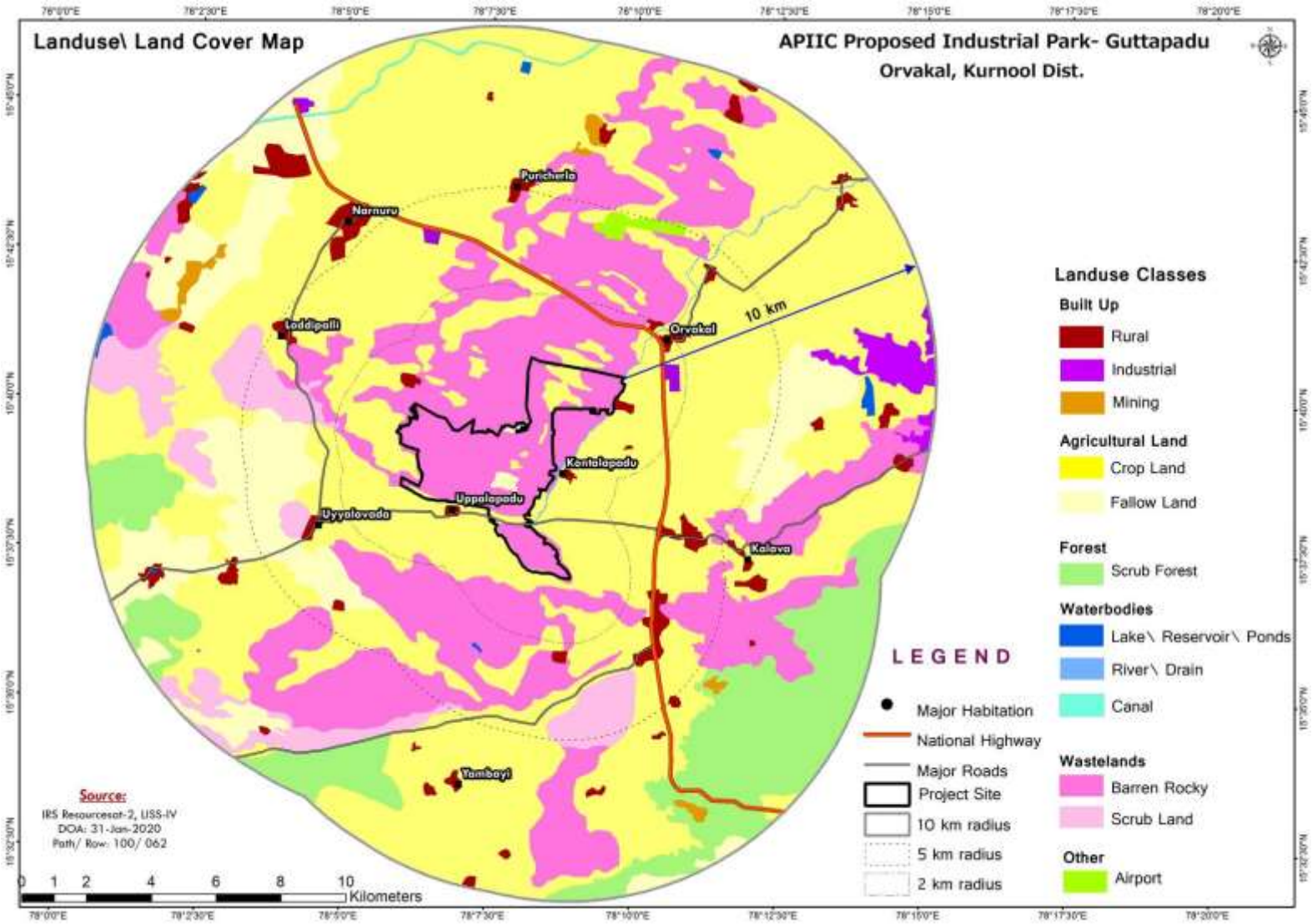


Figure 4 Land use map of 10 km radius



4. Land use details of the project site and study area

For the project, the land use/land cover map was prepared using available data from Bhuvan web portal of NRSC, land use pattern of study area is given in **Table 2**, and the present Land use of the Project site is given in **Table 3**.

Table 2 Land use pattern of study area

Level 1		Level 2	
Class	**Area (Ha.)**	**Class**	**Area (Ha.)**
Built up	1860	Rural	1143
		Industrial	505
		Mining	212
Agriculture	33145	Crop land	28316
		Fallow land	4829
Water bodies	243	Reservoir/pond/lakes	99
		River/drain	70
		Canal	74
Forest	4722	Scrub forest	4722
Waste land	15087	Barren rocky	12862
		Scrub land	2225
Other	128	Airport	128

Table 3 Present land use of the project site

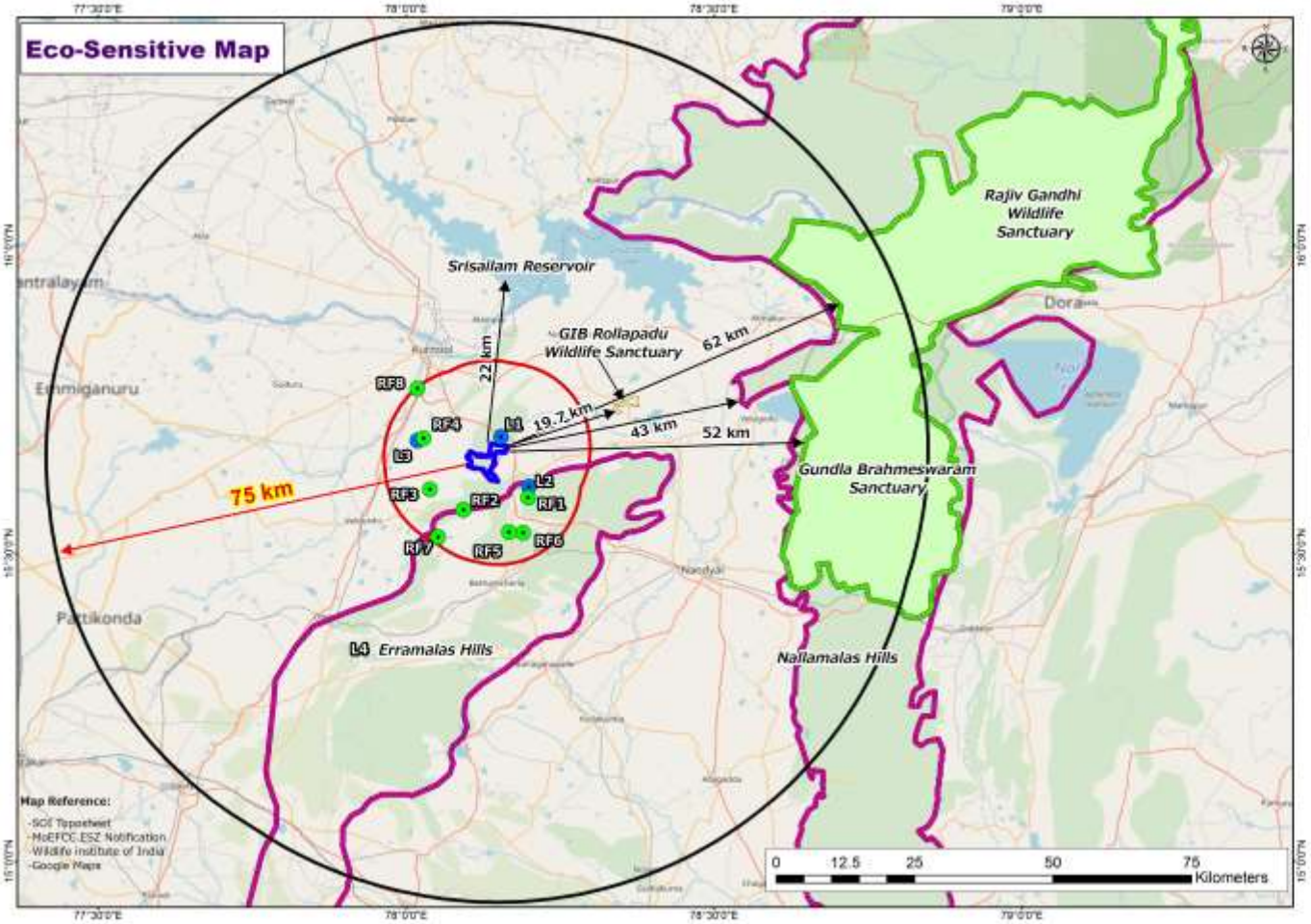
L1		L2		
Class	**Area (Ha.)**	**Class**	**Area (Ha.)**	**Percentage (%)**
Agricultural land	243.41	Crop land	195.15	14.34
		Fallow land	48.26	
Water bodies	28.85	Drain	28.85	1.70
Waste land	1425.12	Barren rocky	1425.12	83.96
		Total	**1697.38**	**100**

5. The Eco-sensitive areas within 10 km of the project site

There are no ecologically sensitive areas such as the Wildlife Sanctuaries, National Parks, Biosphere Reserves, Important Bird Areas (IBAs), Wetlands or any other protected area either in the project site or in the buffer zone except the below mentioned forests.

- Gani RF 6.0 km (SE),
- Yambayi RF 7.1 km (SW),
- Lanjabanda RF 7.8 km (NW),
- Ramallakota RF 8.3 km (SW),
- Yaparlapadu RF 8.4 km (W),
- Betamcherla RF 9.4 km (SE),
- Panyam RF 10.2 km (SE),
- Pullaiah RF 14.5 km (NW).

Figure 5 Eco-sensitive map



Within 15 km radius			
ID	Name	Distance(km)	Direction
L1	Rock Garden Lake	1.5	N
L2	Kommu Cheruvu	5.5	ESE
L3	Bayanna Cheruvu	9.3	W
L4	Erramalas Hills	3	S
ID	Name	Distance(km)	Direction
RF1	Gani RF	6	SE
RF2	Yambayi RF	7.1	SW
RF3	Ramallakota RF	8.3	SW
RF4	Yaparlapadu RF	8.4	W
RF5	Betamcherla RF	9.4	SE
RF6	Panyam RF	10.2	SE
RF7	Lanjabanda RF	13.8	SW
RF8	Pullaiah RF	14.5	NW

Beyond 15 km radius		
Name	Distance(km)	Direction
GIB Rollapadu WLS	19.7	NE
Srisailam Reservoir	22	N
Nallamalas Hills	43	E
Gundla Brahmeswaram Sanctuary	52	E
Rajiv Gandhi WLS	62	NE

LEGEND

- Natural lake
- WLS boundary
- Nagarjunasagar Srisailam Tiger Reserve
- Hills
- Reserved Forest
- Site boundary
- 15 km radius
- 75 km radius

6. Wildlife Management Plan for Deer in Orvakal/Guttapadu area of Kurnool District

Spotted deer (Axis axis), Barking deer (Muntiacus sps.) and Mouse deer (Tragulidae sps.) are most commonly present deer in Andhra Pradesh and near Kurnool District. Out of these spotted deer are most common and specific to the region.

Classification

Class	Mammalia
Order	Artiodactyla
Family	Cervidae
Genus	Axis
Species	Axis axis
Common name	Spotted deer

Spotted deer (*Axis axis*) is a "schedule – III" animal, according to Wildlife Protection Act, 1972 (WPA) and classified as "least concern" (LC) by the International Union for Conservation of Nature (IUCN).

Appearance

The Spoted deer is a beautiful mammal with spotted body and short tail. Both males and females have markings on their bodies; the markings are white, running in rows along the length of their bodies. The body of spotted deer is bright golden brown in color while the head is a bit lighter shade of the same color. Around their eyes, they have stripes of fur that are paler in colour. Males have black spots on their face and three times on each of their magnificent antlers. These deer have dark stripe, running along the length of their back and bordered by a row of spots. The outer parts of their legs are light brown in colour while the under parts can be both white and creamy. The Spotted deer has white spot on its throat, which is more noticeable in males. In addition, the tail of the spotted deer has white under part.

The weight of spotted deer is between 25 to 75 kg. The average lifespan is 9 – 11 years. They tend to live in shady areas with heavy and dense forests, semi-evergreen forests, and open grasslands.

Study approach

The assessment of flora and fauna of the study area was carried out as per the MoEFCC guidelines in winter season from 20th – 22nd of January 2019. The proposed project site and the surrounding areas majorly consisted of rocky lands with sparse vegetation and patches of temporary agricultural fields. Primary survey carried out through physical observations, information gathered from surrounding villagers and nearby forest department revealed the presence of certain common mammals like squirrels, rats, bandicoots, monkeys, rabbits and wild boar and common avian species & reptiles. However, spotted deer or mouse deer or barking deer, none were seen or observed in the core or buffer zones of the proposed project. However, deer were reported to be observed in the agricultural field of one of the villagers from Bharmanapalli village. Subsequently, the Additional Details Sought (ADS) by the panel of 237th EAC meeting held on 29.06.2020 during the EAC meeting for grant of environmental clearance, the EAC panel members have recommended providing a wildlife management plan prepared in consultation with the State Wildlife division.

In this regard, the present wildlife management plan with particular focus on spotted deer is prepared with necessary information related to the deer population near to the project site.

Sighting and habitat use

Spotted deer or mouse deer or barking deer, none were sighted in the core or buffer zones of the proposed project site, during the primary survey carried out during winter season from 20th – 22nd of January 2019. However, as per the observation by a villager, some deer are seen in the agricultural fields.

Food and feeding habitats

Spotted deer are herbivores, and feed on various type of grasses, herbs, shrubs, leaves, flowers and fruits fallen from the trees.

Threats in the study area

The study area, has been observed and found to be devoid of any threats to the survival or breeding of deer or its habitats. However, habitat improvement programme is recommended for improvement of population status of this deer.

Areas harbouring Deer population in Kurnool District

The total area under forests in Kurnool District accounts to around 340669 hectares holding about 19 percent of a total geographical area of the district. The major part of the forest area is confined mainly to the Nallamalas including its extensions, the Erramalas and a part of the Velikondas. Maximum wild life of the district which include animals like Tiger, Panthers, Bears, Jackals, Hyaenas Wild bears, Foxes, Spotted deers, Sambars, Black bucks, Neelgais, Wild sheep etc., are confined to these forest areas, while a few species are present in wildlife sanctuaries like Gundla Brahmeswaram WLS. However, these forest areas are present distantly from the proposed project site. Nallamalas are around 47 km East and Erramalla hills at around 3 km south, the Gundla Brahmeswaram WLS is located at about 60 km from the project site. The Great Indian Bustard, Rollapadu Wildlife Sanctuary is around19.7 km NE.

As per the Facts & Figures Report 2013 issued by AP State Govt. Forest Department, the major Deer population of Kurnool district is found in Nallamalas with around 172 Deers and Gundla Brahmeswaram WLS with around 136 Barking Deers. However, no major Deer populations were encountered during the primary ecology & biodiversity survey and through the information gathered from the villagers & other inhabitants near to the site.

There are no notified ecological sensitive areas having sensitive species of flora or fauna for breeding, nesting, resting, migration etc. within 15 km of the proposed project area. However, there are some reserved forests existing near to the site at about 6 km and above from the boundary.

The following action plans have been proposed to provide measure for reducing risks and conserving deer population around the proposed project area.

Habitat improvement action plan

Habitat improvement programme will include plantation of various plant species reported from the study area should be taken in to priority. In order to improve vegetation cover, it is suggested to carry out extensive afforestation program in different phases. These species will help to provide habitat for faunal species, and also increase the species diversity and maintain the naturalness of the surrounding area.

Water filling in the existing water bodies during summer

Water will be filled in the existing water bodies (selected by forest department) by water tankers.

The project proponent has proposed a sum of Rs. 4,00,000/- for the wildlife management plan for "Spotted deer" under the following heads up to five years in consultation of local forest department.

Table 4 Expenditure budget for five years for spotted deer

S. No	Activity	1st year	2nd year	3rd year	4th year	5th year	Budget (INR)
1	Plantation approximately 500 tree/year plants of local species for five years						
Amount		30,000	30,000	30,000	30,000	30,000	1,50,000/-
2	Small water hole – 10 in number in 10 villages situated in close vicinity of the site						
Amount		20,000	20,000	20,000	20,000	20,000	1,00,000/-
3	Awareness programme for "Spotted deer" conservation will be scheduled in a year in five villages every year						
Amount		20,000	20,000	20,000	20,000	20,000	1,00,000/-
4	Water Supply distribution						
Amount		10,000	10,000	10,000	10,000	10,000	50,000/-
Total budget							4,00,000/-
(Four Lakhs Rupees)							

All the above activities will be carried out with the consultation of local forest department.

1. Plantation approximately 500 tree/year plants of local plant species for five years.

   Plant species/varieties will be suggested by the local forest department and plant saplings will be distributed in project surrounding villages.

2. Small water hole – 10 in number in 10 villages situated in close vicinity of the project site.

Water hole will be constructed at the area where “Spotted deers” generally (nearby habitat). Location of water holes will be suggested by the local forest department in consultation with the Gram panchayat (Sarpanch).

3. Awareness programme for “Spotted deer” conservation will be scheduled in a year in five villages every year.

RAMKY GROUP

Request for approval of - Wildlife management plan for Guttapadu/Orvakal area

1 message

Dr Sri Sasi Jyothsna T <srisasijyothsna.t@ramky.com> Mon, Jul 27, 2020 at 8:28 PM
To: dfokurnool1@gmail.com
Cc: Krishna Reddy R <krishnareddy.r@ramky.com>, Santosh Kumar Jampala <santoshkumar.jampala@ramky.com>, Vijay Kumar V <vvijaykumar@ramky.com>, EMP WING HO <apiicempcell@gmail.com>, Siva Reddy <sivareddy03@gmail.com>, "Dr. Chakradhar B" <drchakradhar@ramky.com>

Dear Sir,

Warm greetings from Ramky!

We hope and wish for the safety and good health of you and all your family at home and at work.

This is with reference to the telephonic discussion I (Dr. T.S. Sasi Jyothsna, Deputy Manager, Consultancy, Ramky), had with you today, requesting your suggestion and approval of wildlife management plan for protection of deer population existing near Guttapadu & Orvakal area of Kurnool district. As briefed to you we, Ramky Enviro Services Pvt. Ltd. are the environmental consultants for the proposed project - “Development of Industrial Park at Guttapadu Village, Orvakal Mandal, Kurnool District By APIIC” and have conducted baseline studies and Public hearing successfully for the same project. However, during the 237th EAC meeting held on 29.06.2020 for grant of environmental clearance for the proposed project, we were asked by the honorable EAC members to provide a wildlife management plan in consultation with the wildlife division, as deer population is observed in the area. In this regard, we have prepared a draft wildlife management plan with specific information regarding deer population. The following reports/documents are being submitted for your kind review, suggestions and further approval.

1. Draft ‘Wildlife Management Plan for Deer in Orvakal/Guttapadu Area of Kurnool District for the Proposed Industrial Park Project’
2. MoM of 237th EAC meeting with point highlighted in yellow for your kind reference mentioning - It was observed that a good number of deer population in the area. A detailed wildlife management plan be prepared in consultation with the State Wildlife division.
3. Brief Summary of the proposed project
4. Final EIA report – please download from the following we transfer link –

https://wetransfer.com/downloads/ff7dff78247dd0164bf116c4a614f25e20200727143544/b1dffed84800b88c4e642ff269bcf75920200727143559/b86377

We request your good self to kindly go through the wildlife management plan and provide your valuable inputs and/or approval.

Warm regards,

Dr. T.S. Sasi Jyothsna

Thanks & Regards,

Dr.T. Sri Sasi Jyothsna |

3684186/2020/ENGINEERING WING I -APIIC

Deputy manager|

Consultancy Division**|**

Ramky Enviro Services Private Ltd. |

12th Floor|Ramky Grandiose| Ramky Towers Complex|

Gachibowli|Hyderabad - 500032 | Telangana| India |

Fax: +91-40-23015100| Mob: 9866575303|

E: srisasijyothsna.t@ramky.com | www.ramky.com |

---

3 attachments

Brief project summary.pdf
194K

EAC (Infra-1)- Final MoM.pdf
2233K

Wildlife management for Deers.pdf
1961K

Attachment 5

Office of the Tahsildar,
Orvakal Mandal.
Dt.: 04.07.2017.

Rc.A/690/2014

HANDING OVER OF POSSESSION CERTIFICATE

The Collector & Dist. Magistrate, Kurnool, vide Proceedings Rc. E1/3519/2014 dt. 15.05.2015 (Principal Secretary to Government , Memo No. 10114/Assn.V(1) 2015-1 Revenue (Assignment-I) Department Dt:30.04.2015) had ordered for handing over advance possession of 10921.45 acres relating to Brahmanapalle, Guttapadu, Kannamadakala, Kethavaram, Komarolu, Loddipalle, Meedivemula, N. Konthalapdu, Orvakal, Palakolanu, Somayajulapalle and Uppalapadu villages of Orvakal Mandal, Kurnool District to the APIIC for establishment of Industrial Hub in Orvakal Mandal. Accordingly advance possession of 10921.45 acres of the Government land in 13 villages was handed over to the Zonal Manager, APIIC, on 16.05.2015.

The Government in their Memo No.10114/Assn.V(2)/2015 Dt.05.08.2016 have decided to earmark an extent of Ac.4948.45 cts. to Mines and Geology Department for creation of Mining Zone. Therefore, the Government vide their Order G.O. Ms. No.442 Revenue (Assn.V) Department Dt.27.09.2016 have issued revised orders deducting the entire extents of lands of Kethavaram (2468.39 acres) and Loddipalle (640.57 acres) and reducing an extent of 557.56 acres of Orvakal and an extent of 40.06 acres in Puricherla Village totaling 3706.58 acres. Accordingly, the Collector & Dist. Magistrate, Kurnool, vide Proceedings Rc. E1/REV-ESECOLALN (RA)/12/2017-SA(E1)-COLLKRNL, Dated:30/04/2017 has ordered for handing over an extent of Acs. 7214.87 Cts. Therefore the following land is handed over as Ordered:-

Sl. No.	Name of the Village	Name of the Mandal	Survey Number	Extent in Acs		
				Govt. Land	DKT Land (No cultivation)	Total
1	2	3	4	5	6	7
1	BRAHMANAPALLE	ORVAKAL	1	0.21	3.48	3.69
2			2/1A	1.25	0.00	1.25
3			2/2A	0.88	0.00	0.88
4			2/3A	0.74	0.00	0.74
5			2/3C	0.64	0.00	0.64
6			3/2	0.00	1.76	1.76
7			7/B	0.00	7.84	7.84
8			7/C	0.07	0.00	0.07
9			9	0.00	1.33	1.33
10			10/A	0.00	3.64	3.64
11			10/B	5.40	5.40	10.80
12			10/C	0.00	2.63	2.63
13			14/A	0.00	8.36	8.36
14			14/B	0.00	4.48	4.48
15			14/C	0.60	0.00	0.60

16			15/A	0.00	10.04	10.04
17			15/B	6.20	0.00	6.20
18			15/C/1	0.76	0.00	0.76
19			15/C/6	2.24	0.00	2.24
20			15/D1	0.65	0.00	0.65
21			15/E	1.48	2.00	3.48
22			16	4.08	0.00	4.08
23			17/3	4.82	0.00	4.82
24			18/A	0.00	8.84	8.84
25			18/B	4.06	4.06	8.12
26			19	0.00	7.83	7.83
27			20/A1	3.25	0.00	3.25
28			20/A2	0.50	0.00	0.50
29			20/A/3A	2.30	0.00	2.30
30			20/B	5.48	0.00	5.48
31			22/A	0.00	0.79	0.79
32			29-A	0.00	8.88	8.88
33			104/B	0.33	0.00	0.33
34			105/B	0.90	0.00	0.90
35			105/C	4.00	0.00	4.00
36			105/D	0.00	10.84	10.84
37			106	0.00	5.08	5.08
38			107/A3	0.56	0.00	0.56
39			107/B	6.80	0.00	6.80
40			108/3	2.45	0.00	2.45
41			109/B1	0.00	5.00	5.00
42			109/B2	0.80	0.00	0.80
43			113/C	1.31	0.00	1.31
44			117/1	4.36	0.00	4.36
45			117/2B	3.98	0.00	3.98
46			119	0.00	1.18	1.18
47			122/A	0.40	0.00	0.40
48			164/B	0.26	0.00	0.26
49			165	3.20	0.00	3.20
50			167/A	0.00	5.48	5.48
51			169	1.30	5.00	6.30
52			171	3.26	2.50	5.76
53			172/B	5.64	0.00	5.64
54			174/2	1.14	0.00	1.14
55			175/A	3.60	0.00	3.60
56			175/B1	1.28	0.00	1.28
57			177/B	3.45	4.79	8.24
58			177/C2	5.27	0.00	5.27
	Total :			**99.90**	**121.23**	**221.13**
59	GUTTAPADU	ORVAKAL	181	289.58	19.95	309.53
60			184	0.00	1.50	1.50
61			186/A1B	0.39	0.00	0.39
62			186/A1D	19.31	0.00	19.31
63			186A/1A	0.34	0.00	0.34
64			194	0.13	0.00	0.13
65			261	0.19	0.00	0.19
66			272-1	9.83	0.00	9.83
67			274	288.73	62.00	350.73

68			275	4.10	0.00	4.10
69			276	10.15	0.00	10.15
70			281	150.33	11.00	161.33
71			303	148.74	0.00	148.74
72			294/B/B	0.00	1.36	1.36
73			294/B/C	0.00	1.36	1.36
74			294/B2	10.42	0.00	10.42
75			296/A3	14.95	0.00	14.95
76			296-A	0.00	0.63	0.63
77			301/1B	0.84	0.00	0.84
78			301/2	0.16	0.00	0.16
79			301/3	0.32	0.00	0.32
80			316/2	0.12	0.00	0.12
81			316/3	0.74	0.00	0.74
82			352	5.41	0.00	5.41
83			353	11.00	0.00	11.00
84			354	5.26	0.00	5.26
85			355	0.94	0.00	0.94
86			356	12.17	0.00	12.17
	Total :			**984.15**	**97.80**	**1081.95**
87	KANNAMADAKALA	ORVAKAL	372	72.01	66.36	138.37
88			389/1	7.52	0.00	7.52
89			389/2A	2.93	0.00	2.93
90			391	0.89	0.00	0.89
91			393	0.48	0.00	0.48
92			398	33.10	0.00	33.10
93			431/A4	2.18	0.00	2.18
94			431/B1A	3.00	0.00	3.00
95			431/B1B1	4.20	0.00	4.20
96			435/A3A	7.75	0.00	7.75
97			449-1	5.20	0.00	5.20
98			450-1	0.33	0.00	0.33
99			450-4	3.96	0.00	3.96
100			460	1.73	0.00	1.73
101			466/2	0.26	0.00	0.26
	Total :			**145.54**	**66.36**	**211.90**
102	KOMAROLU	ORVAKAL	155-A	91.14	1111.77	1202.91
103			484-A	14.75	326.39	341.14
104			489/1A	0.00	0.41	0.41
105			489/1C	0.00	3.16	3.16
106			489/2	0.00	3.38	3.38
107			489/3	0.00	1.34	1.34
108			495	0.00	3.19	3.19
109			524-2	0.00	0.15	0.15
110			528-4	0.00	0.67	0.67
111			536-2	0.00	0.71	0.71
	Total :			**105.89**	**1451.17**	**1557.06**
112	MEEDIVEMULA	ORVAKAL	406	111.05	5.00	116.05
113			408/4	2.32	0.00	2.32
114			457	21.82	0.00	21.82
115			465	9.46	1.50	10.96
116			467	0.46	0.00	0.46
117			469-A1A	41.57	0.00	41.57

118			473	0.91	0.00	0.91
119			475	125.00	0.00	125.00
120			478	51.30	0.00	51.30
121			479	37.90	0.00	37.90
122			481	0.08	0.00	0.08
123			483-B	80.53	0.00	80.53
124			484	376.40	0.00	376.40
125			485	0.15	0.00	0.15
126			487	0.06	0.00	0.06
127			489	53.44	2.00	55.44
128			491	0.05	0.00	0.05
129			493	0.65	0.00	0.65
130			494-1	1.42	0.98	2.40
131			494-2	0.00	11.10	11.10
132			494-3	0.00	1.11	1.11
133			494-4	0.00	1.30	1.30
134			494-5	0.00	1.15	1.15
135			494-6	2.34	0.00	2.34
136			495	204.38	8.97	213.35
137			496	1.10	0.00	1.10
138			498	2.00	0.00	2.00
139			500	0.09	0.00	0.09
140			502	238.01	12.25	250.26
141			503	27.60	4.50	32.10
142			506	0.00	9.79	9.79
143			508	88.00	17.10	105.10
144			510	0.40	0.00	0.40
145			514	0.63	0.00	0.63
146			521	0.00	2.68	2.68
147			526	0.00	0.63	0.63
148			527	0.00	0.87	0.87
149			550/1	1.78	0.00	1.78
150			555/2	1.74	0.00	1.74
151			565/2	0.40	0.00	0.40
152			586/3	0.18	0.00	0.18
153			587/2	0.82	0.00	0.82
	Total :			**1484.04**	**80.93**	**1564.97**
154	N. KONTHAL APADU	ORVAKAL	10	67.15	0.00	67.15
155			16-1	9.66	18.00	27.66
156			16-2	0.00	1.17	1.17
	Total :			**76.81**	**19.17**	**95.98**
157	ORVAKAL	ORVAKAL	474/D	17.32	0.00	17.32
158			477/1	3.90	0.00	3.90
159			477/2	3.95	4.00	7.95
160			578	0.00	5.40	5.40
161			579	5.04	0.00	5.04
	Total :			**30.21**	**9.40**	**39.61**
162	PALAKOLANU	ORVAKAL	38	19.31	2.30	21.61
163			69	24.89	15.00	39.89
164			141/2B	90.08	7.17	97.25
165			149/2A	42.95	4.58	47.53
166			233/A1	0.00	1.17	1.17
167			233/A5	32.21	0.00	32.21

	Total :			**209.44**	**30.22**	**239.66**
168	PUDICHERLA	ORVAKAL	29/A	79.14	0.00	79.14
169			30/A	0.25	0.00	0.25
170			30/B6	0.42	0.00	0.42
171			30-C1	0.38	0.00	0.38
172			30-C2A	20.85	0.00	20.85
173			30-D	1.75	0.00	1.75
174			37/A	11.40	9.54	20.94
175			37/A2A	0.00	0.55	0.55
176			37/A/2B	28.55	2.00	30.55
177			37/A/2C	0.00	2.26	2.26
178			402	71.19	44.75	115.94
179			412	7.37	0.00	7.37
180			414	3.86	0.00	3.86
181			417	0.00	3.20	3.20
182			423-4	1.75	0.00	1.75
183			431	0.00	0.90	0.90
184			436-4	0.37	0.00	0.37
185			437-2	2.44	0.00	2.44
186			437-4	1.65	0.00	1.65
187			438	1.49	0.00	1.49
188			439/1	0.00	1.57	1.57
189			439/2	1.23	2.51	3.74
190			444	0.00	1.35	1.35
191			445/1	0.82	0.00	0.82
192			445/2	0.00	2.16	2.16
193			446/1	0.00	1.40	1.40
194			477-2	1.65	0.00	1.65
195			478	4.75	0.00	4.75
196			480-2	0.45	0.00	0.45
	Total :			**241.76**	**72.19**	**313.95**
197	SOMAYAJULAPALLE	ORVAKAL	1	972.49	48.50	1020.99
198			2	1.52	0.00	1.52
199			3	0.66	0.00	0.66
200			4	5.14	0.00	5.14
201			6-1	0.57	0.00	0.57
202			6/2A	0.34	0.00	0.34
203			6-3	1.11	0.00	1.11
204			6-4	3.64	0.00	3.64
205			7	0.44	0.00	0.44
206			8	0.00	2.06	2.06
207			10	9.35	0.00	9.35
208			12	0.00	2.39	2.39
209			14	0.00	1.90	1.90
210			17-B1	6.76	0.00	6.76
211			17-B2	3.68	0.00	3.68
212			17-B3	2.40	0.00	2.40
213			17-B4	4.82	0.00	4.82
214			17-C	2.73	0.00	2.73
215			18	15.63	0.00	15.63
216			20	14.02	0.00	14.02
217			21	0.00	2.60	2.60
218			25	10.40	0.00	10.40

219			26/4	0.82	0.00	0.82
220			29	0.00	9.74	9.74
221			30/4	0.52	0.00	0.52
222			32	0.00	3.28	3.28
223			377/4	0.07	0.00	0.07
224			380/2	0.08	0.00	0.08
225			382/2	0.85	0.00	0.85
226			387/2	1.30	0.00	1.30
	Total :			**1059.34**	**70.47**	**1129.81**
227	UPPALAPADU	ORVAKAL	1	157.26	0.18	157.44
228			437	274.66	7.25	281.91
229			462/A	268.29	44.00	312.29
230			466	1.75	0.00	1.75
231			483	0.45	3.00	3.45
232			494/1	0.80	0.00	0.80
233			505	0.00	0.86	0.86
234			516/6	0.35	0.00	0.35
	Total :			**703.56**	**55.29**	**758.85**
Grand Total :				**5140.64**	**2074.23**	**7214.87**

Handed over by

4/7/17

Tahsildar,
Orvakal Mandal

TAHSILDAR
ORVAKAL Mandal
Kurnool (Dist.) (A

Taken over by

Zonal Manager
APIIC Ltd :: Kurnool

Zonal Manager,
APIIC Ltd., Kurnool.

Attachment 6

F.No. 22-76/2014-IA-III
Government of India
Ministry of Environment, Forests and Climate Change
Impact Assessment Division
.....

Indira Paryavaran Bhawan,
Jor Bagh Raod, Aliganj
New Delhi-110 003

Dated the 7th October, 2014

OFFICE MEMORANDUM

Subject: Status of land acquisition w.r.t. project site while considering the case for environment clearance under EIA Notification, 2006-regarding

It has been brought to the notice of this Ministry that in the absence of any guidelines, different EACs/SEACs adopt different criteria about the extent to which the land w.r.t. the project site should be acquired before the consideration of the case for environment clearance (EC). Some of the Ministries in the Government of India and some industrial associations have represented that full acquisition of land for the project site should not be insisted upon before consideration of the case for EC and instead initiation of land acquisition process should be sufficient for the consideration of such cases. The argument being that land acquisition process can go on in parallel and that consideration of EC need not await full land acquisition.

2. The matter has been examined in the Ministry. The EC granted for a project or activity under the EIA Notification 2006, as amended, is site specific. While full acquisition of land may not be a pre-requisite for the consideration of the case for EC, there should be some credible document to show the status of land acquisition w.r.t project site when the case is brought before the concerned EAC/SEAC for appraisal. It has been accordingly decided that the following documents relating to acquisition of land w.r.t. the project site may be considered as adequate by EACs/SEACs at the time of appraisal of the case for EC:

(i) In case the land w.r.t. the project site is proposed to be acquired through Government intervention, a copy of preliminary notification issued by the concerned State Government regarding acquisition of land as per the provisions of Land Acquisition, Rehabilitation and Resettlement , Act, 2013.

...2/-

(ii) In case the land is being acquired through private negotiations with the land owners, credible document showing the intent of the land owners to sell the land for the proposed project.

3. It may, however, be noted that the EC granted for a project on the basis of aforesaid documents shall become invalid in case the actual land for the project site turns out to be different from the land considered at the time of appraisal of project and mentioned in the EC.

4. This issues with the approval of the competent authority.

07/10/2014

(Dr. Satish C. Garkoti)
Scientist 'F'

Copy to:

1. All the officers of IA Division
2. Chairperson/ Member Secretaries of all the SEIAAs/SEACs
3. Chairman of all the Expert Appraisal Committees
4. Chairman, CPCB
5. Chairpersons/ Member Secretaries of all SPCBs/ UTPCCs

Copy for information:

1. PS to MOS(Independent Charge)
2. PPS to Secretary(EF&CC)
3. PPS to AS(SS)
4. PS to JS(AT)
5. Website, MoEF&CC
6. Guard File

Attachment 7

Allocation of CER budget – based on public hearing issues

S. no	Activities	Details	Frequency/timelines	Yearly budget allocation (Rs in lakhs)					Total amount (Rs in lakhs)
				1st Year	2nd Year	3rd Year	4th Year	5th Year	
1	Individual/Community based animal fodder development initiative	Financial support for Cultivation of fodder for the consumption of domestic milch animals. Cultivation of Azolla and silage to ensure availability of green fodder throughout the year.	Individual and community level initiative for the entire 5 years	14	14	14	14	14	70
2	Cattle breed improvement measures	To provide Artificial Insemination, organizing veterinary camps and other minor services for efficient Livestock (dairy cattle) management, conservation, breed improvement	Once in every quarter	12	12	12	12	12	60
3	Strengthening dairy development in the local villages	Awareness creation, formation of CBOs in the project area focused on Dairy. Strengthening milk value chain by connecting with local dairies. Infrastructure development for creation of chilling centers and village level milk collection centers.	Once in a quarter/need based	5	5	5	5	10	30

4	Rain water harvesting and soil conservation measures	Construction of rain water harvesting pits, check-dams, especially in downstream and other needy project area villages	Half yearly	16	16	16	16	16	80
5	Vocational education training program and skill development training programs	Identified Youth in all affected villages will be trained on job oriented courses to find suitable employment in the nearby industries. Similarly women in the project area will be trained in the Income Generation Activities (IGAs).	Quarterly one batch in the project area villages	14	14	14	14	14	70
6	General Health checkups	Health checkup for communities in the nearby villages and distribution of medicines to the needy	Once in every month in every village in the core zone and needy villages in the other zones	10	12	12	12	14	60
7	Infrastructure development in project area villages	Modernization of roads in the project area villages, development of cross drains and improving sanitation in local villages	Need based	30	30	30	30	30	150
8	Installation of solar lights	Solar street lights will be installed in the project area villages	Need based	10	12	14	16	18	70
9	Plantation drives	Avenue plantation, plantation in schools and community buildings in the project area	Once in six months in the project area	11	11	11	11	11	55

10	Provision of drinking water supply	Installation of hand pumps & community reverse osmosis based water filter units in the project area villages	10 No. of Hand pumps in the project area villages and 10 community based RO plants based on the need of villages	18	18	18	18	18	90
11	Sanitation and solid waste management	A total of 15 community toilets will be constructed for the community use in the needy villages. Similarly, awareness programs will be conducted in the project area villages on managing solid waste.	15 villages will be targeted in the project area. The SBM-Rural funding of Rs. 65,000/- for each community toilets will be also mobilized. The awareness on solid waste management will be conducted by specialized NGOs.	7	9	11	13	15	55
Total (Rs. in lakhs)				147	153	157	161	172	790
Total (Rs. in crores)				**1.49**	**1.53**	**1.57**	**1.61**	**1.72**	**7.90**

Attachment 8

GOVERNMENT OF ANDHRA PRADESH
WATER RESOURCES DEPARTMENT
***

From
Sri G.Chitti Babu, B.Tech.,
Chief Engineer & DWRO,
Water Resources Department,
Kurnool.

To
The Principal Secretary to Govt.
Water Resources Department,
7th Floor, J-Block,
A.P.Secretariat, Hyderabad.

Lr.No.CE(P)/KNL/DEE.1/AEE.3/IWS/ 154 Govt Dt:01.05.2016

Sir,

Sub: W.R. Department - APIIC Ltd - Industrial Water - providing exclusively water supply to the proposed Industrial Cluster in the state of A.P., Kurnool District - Preparation of DPRs - Finalisation of sources and allocation of water - Regarding.

Ref: 1.T.O.Lr.No.28 ENC dt.25-02-2016.
2.APIIC, CE Lr.No. CE/APIIC/WD/GEN/2014-15 dt.22-04-2016.
3.Govt. Memo No. 13954/Reforms/A2/2015-2 dt.23-04-2016.
4.Govt. Memo No. 13954/Reforms/A2/2015-8 dt.26-04-2016.
5.ENC's Lr.No.ENC(I)/AP/EE/DEE1/AEE2/IWS/APIIC dt.17-05-2016.
6.S.E.,IC, Kurnool Lr.No.67 CE dt.17-05-2016.

*****

With reference to the correspondence cited, it is to submit the Chief Engineer, APIIC has submitted Techno-Economic feasible report (TEFR) for providing dedicated water supply for the proposed Industrial Hub at Orvakal Kurnool District seeking comments / feed back to proceed further on preparation of DPR by the consultants M/s Aarvee Associates, Hyderabad.

In this context, it is to submit that:

Regarding allocation of water:

There is an assured allocation water of 19 TMC for the SRBC Irrigation Project and as per the State Industrial policy 10% of water has to be spared for Industrial use from both existing and upcoming projects.

As such, Out of the 19 TMC of SRBC 1.90 TMC can be allocated for Industrial use. From this 1.50 TMC of water can be spared to Orvakal Industrial Cluster after deducting 0.4 TMC of water to the Kolimigundla Cluser proposed Mettupalli reservoir near Owk from the same source.

II. Construction of Pump House at Muchumarri and intake arrangements

The Aarvee Associates prepared an estimate for (i) Pipe lines (ii) Elec Mechanical Items (iii) Reservoirs (iv) SS Tanks (v) Surge Protection systems wit capital out lay of Rs.617 Crores. The construction of the Pump house at Muchum and intake arrangements were not taken into account by the consultants. So estimate for Rs. 15.65 Crores is submitted to the APIIC to see that the sam considered while preparing DPR for the project under the control of Chief Engin (P), Anantapuramu.

In view of the above, it is to submit that allocation of water from exist system will technically meet the requirement of APIIC and there is no objection drawl of Industrial water from the source through pumping station located Muchumarri.

Hence, I request that permission may please be granted for allocatio 1.50 TMC of water for Orvakal Industrial Cluster from Srisailam foreshor Muchumarri.

This is submitted for favour of information and necessary action

Yours faithfully,
Sd/-G.Chitti Babu,
30-05-2016
Chief Engineer & DWRO,
WRD: Kurnool.

Copy submitted to the Engineer-in-Chief (I), Water Resources Departm Jalasoudha Buildings, Errum Manzil, Hyderabad for favour of information necessary action.

Copy submitted to the District Collector and District Magistrate, Kurnool for of information.
Copy to the Chief Engineer, APIIC Ltd, Hyderabad along with estimate for the house and intake arrangements for taking necessary action.
Copy to the Superintending Engineer, Irrigation Circle, Kurnool for information.
Copy to the Superintending Engineer HNSS Circle No.1, Kurnool for informatio follow up action.

Sd/-G.Chitti Babu,
30-05-2016
Chief Engineer & DWR
WRD: Kurnool.

Steels / orakalla
994999 3006

//T.C.F.//

S/c
Deputy Chief Engineer

F:IWS:19-9-2014 Lr.all IWS.doc

Attachment 9

Air quality prediction modeling

Impact on ambient air quality

The major source of PM, SO_2 and NO_x emissions are DG sets and boilers used by the member industrial units. However, these industries will provide required control measures to minimize air emissions, with adopting sufficient stack height for proper disperse of the emissions into the atmosphere.

The meteorological data is given in **Table 1.** Stack emission details and predictions are given in **Table 2** and isopleths are shown in **Figures 1** to **3**. Predicted GLC and future predicted baseline values are given in **Table 3.**

Table 1 24-Hour mean meteorological data for winter season (Dec 2018 to Feb 2019)

Hour	Temperature (^{0}C)	Relative Humidity (%)	Wind Direction	Avg. Wind speed(m/s)	Stability Class
1	21.2	84	90	2.42	6
2	18.9	86	110	2.15	6
3	16.5	87	90	2.33	6
4	13.8	88	90	2.67	6
5	12.9	89	90	2.43	6
6	14.5	87	135	1.88	6
7	17.8	84	90	1.55	5
8	21.4	80	90	1.85	4
9	26.8	78	90	2.43	4
10	31.4	72	90	2.76	3
11	34.2	67	90	2.67	2
12	36.8	58	90	2.86	1
13	37.2	54	90	2.93	1
14	36.9	57	90	2.56	1
15	35.3	59	135	1.89	1
16	32.1	63	45	1.65	2
17	30.2	66	90	1.74	3
18	28.9	70	90	2.54	4
19	27.8	72	90	1.92	5
20	26.2	74	90	1.83	6
21	25.6	75	90	1.99	6
22	25.2	78	45	2.56	6
23	24.3	80	135	2.22	6
24	23.4	82	90	2.13	6

Table 2 Stack and emission details of proposed DG sets & boilers

(A) Details of emissions from proposed DG sets

Stack	Type of fuel	Quantity of fuel (l/hr)	Height (m)	Diameter (m)	Exit gas temperature (°C)	Exit gas velocity (m/s)	PM	SO_2	NO_X
							g/s		
250 kVA	HSD	54	7	0.2	410	16	0.011	0.009	0.22
500 kVA	HSD	104	10	0.2	400	18	0.022	0.020	0.44
750 kVA	HSD	156	10	0.3	380	22	0.033	0.025	0.66

Note: 0-10 Ha = 08 plots No of DG sets 250 kVA = 08 Nos.
10-20 Ha = 25 plots No of DG sets 500 kVA = 25 Nos.
20- 40 Ha = 13 plots No of DG sets 750 kVA = 13 Nos.
>40 Ha = 02 plots No of DG sets 2 x 750 kVA = 04 Nos.

Source: Emissions Regulations: Part IV: COINDS/26/1986-87

DG set Stack height (H) = h+0.2 √Kva.

H= Total height of the Stack, h= height of the building (m) where DG set is installed,

kVA Generator capacity, height of the building assumed 3 m

Sulphur content 350 mg/kg As per BS-3 HSD Standards

NO_x - limit 4 g/kWh & PM - 0.2 g/kWh as per Gazette of India – G.S.R .771 Environmental (Protection) 3rd Amended Rules dated 11th December 2013.

(B) Details of Emissions from Proposed Stacks – boilers

Stack	Type of fuel	Coal Consumption (TPD)	Height (m)	Diameter (m)	Exit gas temperature (°C)	Exit gas velocity (m/s)	PM (g/s)	SO_2 (g/s)	NO_X* (g/s)
1 TPH	Coal	2.5	30	0.3	120	12	0.046	0.29	0.19
2 TPH	Coal	5.0	30	0.3	130	14	0.093	0.58	0.38
3 TPH	Coal	7.5	30	0.3	140	16	0.138	0.87	0.57
5 TPH	Coal	12.5	30	0.3	140	18	0.230	1.45	0.95

Note: 0-10 Ha = 08 plots No of 1 TPH Boilers = 08 Nos.
10-20 Ha = 25 plots No of 2 TPH Boilers = 25 Nos.
20-40 Ha = 13 plots No of 3 TPH Boilers = 13 Nos.
>40 Ha = 02 plots No of 5 TPH Boilers = 02 Nos.

Source: EPA notification GSR 176 (E), April 2, 1996

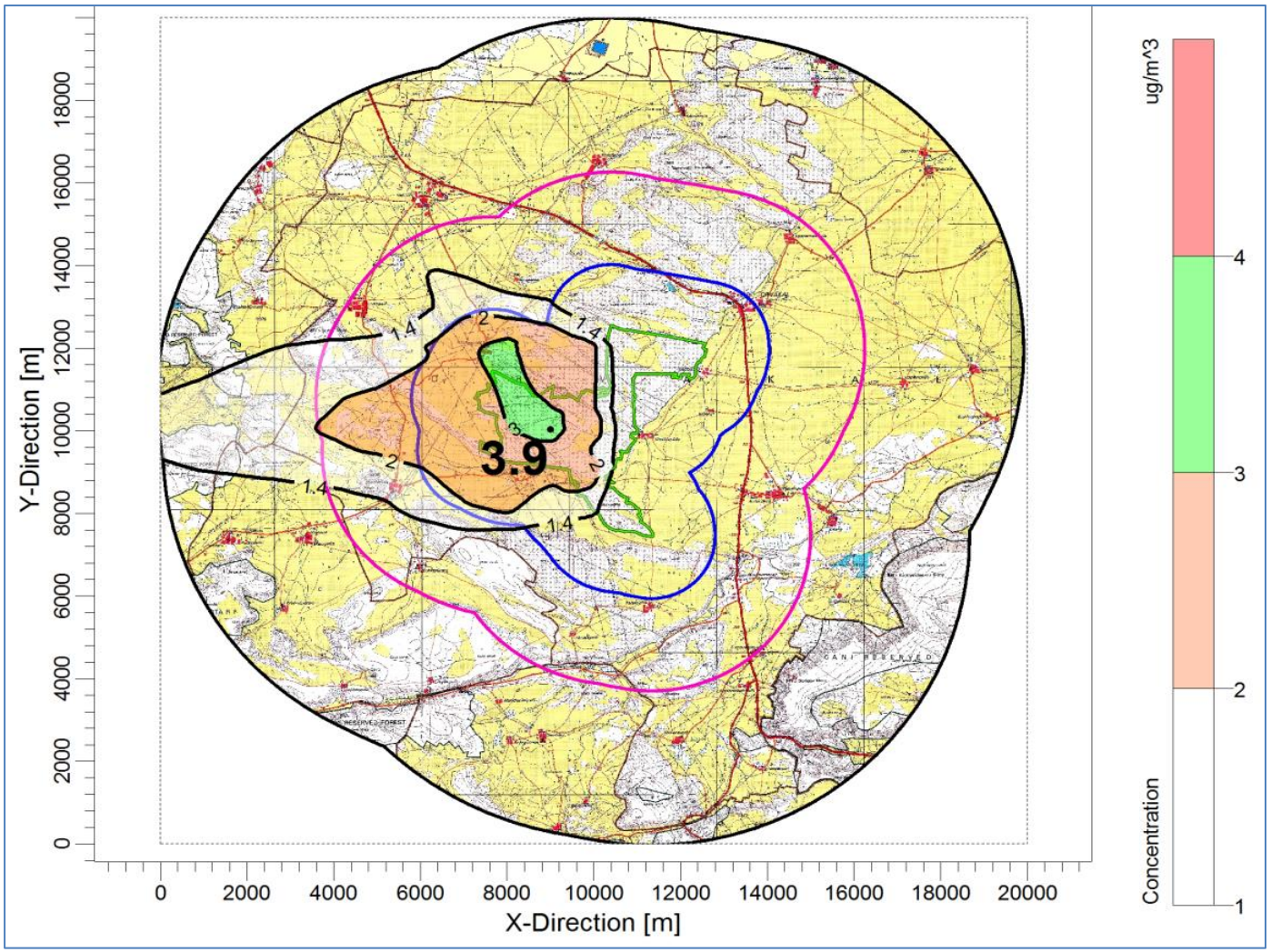
Stack height (H)= 14 $Q^{0.3}$, H- total stack height (m), Q- SO_2 emission rate in kg/hr

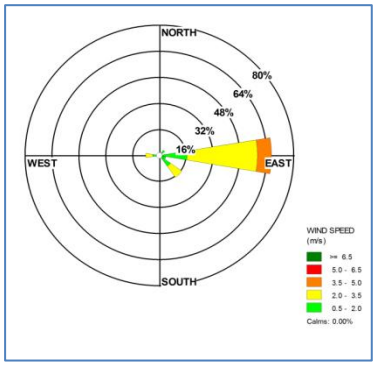
In no case the stack height shall be less than 11 m

As per Indian coal specifications : Ash 40%; Sulphur 0.5 %

*NO_x considered as 260 g/GJ - pollution prevention and abatement hand book (World Bank group – industry sector guidelines)

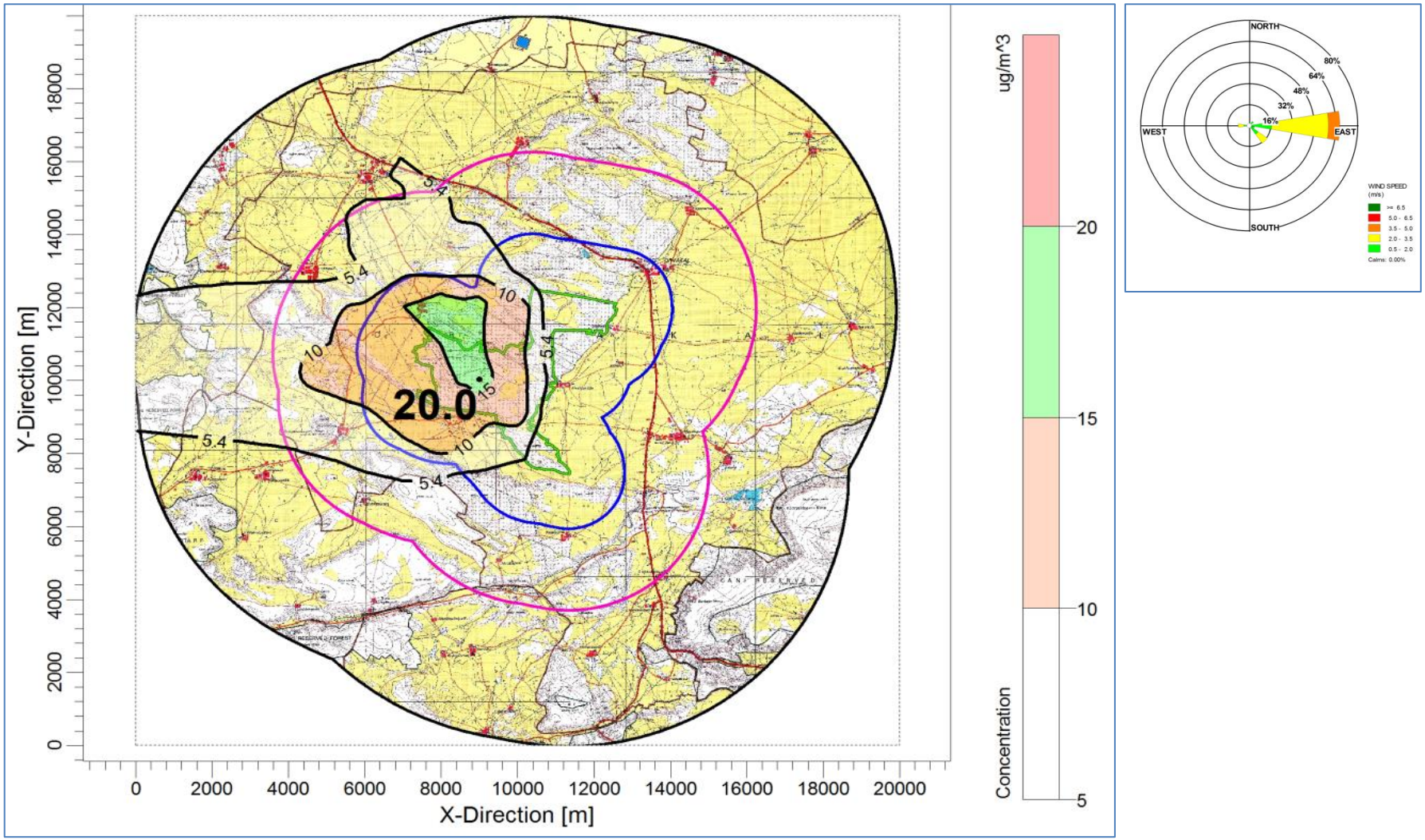
Figure 1 Predicted 24-hourly Average GLCs of PM (µg/m³)





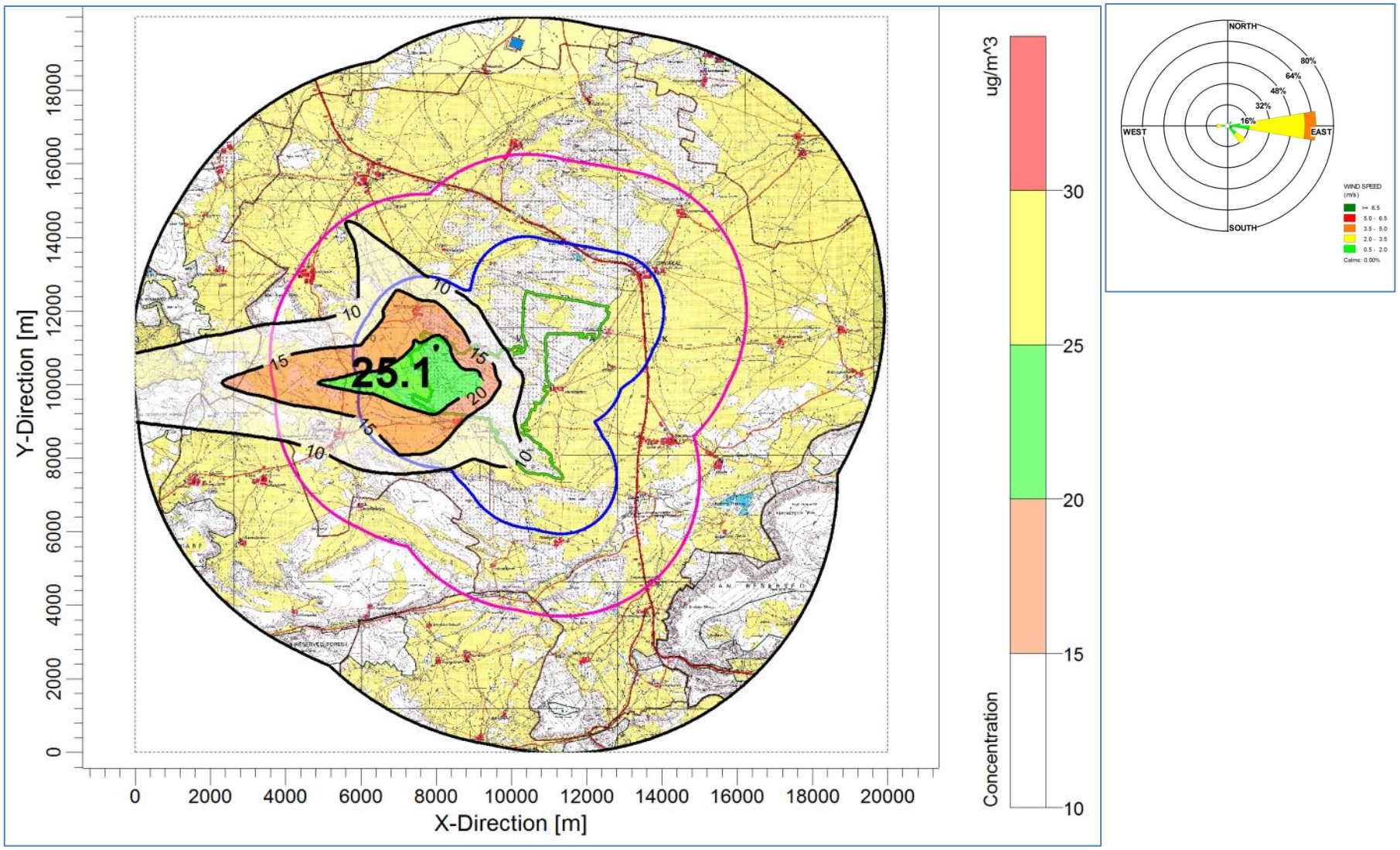
Maximum concentration of PM – 3.9 µg/m³ @ within the site in west direction

Figure 2 Predicted 24-hourly Average GLCs of SO_2 (µg/m^3)



Maximum concentration of SO_2 – 20 µg/m^3 @ within the site in west direction

Figure 3 Predicted 24-hourly Average GLCs of NO_x (µg/m³)



Maximum concentration of NO_x – 25.1 µg/m³ @ within the site in west direction

Table 3 Post project scenario

Particulars	Particulate matter (PM)	Sulphur dioxide (SO_2)	Oxides of nitrogen (NO_x)
Baseline scenario (max)	56.5	16.6	24.5
Predicted GLC (max)*	3.9	20.0	25.1
Overall scenario (worst case)	**60.4**	**36.6**	**49.6**
NAAQ standards 2009 (24 hourly)	**100**	**80**	**80**
Note: The distance and direction of predicted GLC was within the site in West direction *Predicted concentrations at peak levels from all industries in the proposed industrial park			

Mitigation measures

The major air pollutants generated from the proposed industrial park are particulate matter (PM), sulphur dioxide (SO_2) & oxides of nitrogen (NO_x) from DG sets and boilers stack emissions. To control PM, SO_2 and NO_x emissions, sufficient stack height will be proposed according to MoEFCC guidelines and proper air pollution control equipment such as Cyclone /multi-cyclones / bag filters / water scrubbers will be provided as per the requirement and so on will be installed at each industry level.

Attachment 10

Environmental public hearing views, suggestions & objections raised by the public and responses from management (APIIC)

Name & Address	Views/ Queries raised by public during PH	Response/solution given by APIIC
Sri. S. Prabhakar Reddy, Ex-Sarpanch, Meedivemula Village	1) Livestock feed area will be lost due to the proposed project 2) Industries promise for employment, but does not give employment as promised 3) Lands are on APIIC name in website and not on lands owners, name hence not able to get bank loans, benefits from government	1) Suitable land will be allotted outside the project boundary by the Revenue department for cattle grazing. 2) Priority in employment will be given to land losers as per their eligibility and also 75% employment will be given to the local people in industries as per the AP government law. 3) APIIC has acquired only non-cultivable assigned lands for this project. After taking possession from Collector & Tahsildar, then only the land records were changed to APllC. However, this will be cross checked with Tahsildar, in case if any land without taking possession is in the name of APIIC by mistake, then the APIIC name will be removed from online revenue records.
Sri. S. Lakshmikanth Reddy S/o Ex sarpanch, Guttapadu Village	1) JRIL/APIIC is not allowing for taking stones from the project site for constructing rainwater harvesting pits in their village. 2) Pollution from operating industries will make us to leave from our villages.	1) JRIL is not the part of this project, JRIL has obtained separate EC from MoEFCC. No primary steel industries are proposed in this project. As per government rules there is no permission to take gravel from any land, so they kept security to stop taking gravel but not stones. If people keep taking gravel, during rainy season water will get stored in gravel pits and accidents occur like children/animals falling into pits. Tahsildar will be taking care in providing stones for construction purposes.

		2) All necessary pollution controlling measures will be taken up by APIIC. No chemical industries will be established within this project and only less-polluting industries (Other than 17 categories of highly polluting industries identified by CPCB) like hardware, engineering, aerospace, gems & jewelers, etc. will be established. The industrial park will be developed only after obtaining all necessary approvals from the concerned department and also the individual industries shall prepare DPR and take necessary approvals from the concerned authorities and only after which, the industries will be established. A budget of around Rs. 160 Crores is allocated towards Environmental Management Plan (EMP). The EMP includes water pollution control, green belt development, air pollution control, solid waste management, rainwater management, pits / storage pits, etc. In addition individual units will allot separate budget towards EMP as per their requirement.
Sri. Venu Gopal Reddy, Palakolanu Village	1) Industries promise for employment, but does not give employment as promised. 2) Not allowing their cattle/animals to at least pass through the area under them. 3) Pollution from operating industries will make us to leave from our villages	1) Priority in employment will be given to land losers as per their eligibility and also 75% employment will be given to the local people in industries as per the AP government law. 2) The Internal roads and connecting roads developed for the proposed project are free to be used including local villagers for their regular needs

		3) All necessary pollution controlling measures will be taken up by APIIC. No chemical industries will be established within this project and only non-polluting industries like hardware, engineering, aerospace, gems & jewelers, etc. will be established. A budget of around Rs. 160 Crores is allocated towards Environmental Management Plan (EMP). The EMP includes water pollution control, green belt development, air pollution control, solid waste management, rainwater management, pits / storage pits, etc. In addition individual units will allot separate budget towards EMP as per their requirement.
Sri. Maddileti, Guttapadu Village	1) People who have patta lands are not allowed to do cultivation and many have requested the concern officials for issuing D patta to their lands, but they have not considered	1) APIIC carefully inspected the lands and acquired assigned lands, which are non-cultivable, but not 'patta' lands. Compensation paid to the land acquired from the farmers as per Land Acquisition Act 2013.
Sri. Narayana, Meedivemula Village	1) He requested that Rs. 160 crores which is allotted to Industrial Park as EMP cost, to be given to the farmers for farming, irrigation and water supply. 2) He requested that the water for proposed project be given to them for irrigation, instead of providing to industry.	1) The budget of Rs 160 Crores is for development of pollution control measures in the industrial park, cannot be given for any other purposes. 2) Water allotted is for use of various industries proposed in this project, hence this cannot be given for farming purpose.
Sri. Dastagiri, Uppalapadu Village	1) He informed that all pattas of farmers land were not available online.	1) APIIC carefully inspected the lands and acquired assigned lands, which are non-cultivable, but not 'patta' lands.

	2) DRDO has not provided any employment to the land owners. DRDO officials not allowing to take soil from site. Requested panel members to arrange a passing way, to take their cattle from DRDO site	Compensation paid to the land acquired from the farmers as per Land Acquisition Act 2013. 2) DRDO is not part of the proposed project.
Sri. Bhaskar, Kalva Village	1) If industries are established, the environment will be polluted, so farmers and cattle will be affected.	1) All necessary pollution controlling measures will be taken up by APIIC. No chemical industries will be established within this project and only less-polluting industries (Other than 17 categories of highly polluting industries identified by CPCB) like hardware, engineering, aerospace, gems & jewelers, etc. will be established. A budget of around Rs. 160 Crores is allocated towards Environmental Management Plan (EMP). The EMP includes water pollution control, green belt development, air pollution control, solid waste management, rainwater management, pits / storage pits, etc. In addition individual units will allot separate budget towards EMP as per their requirement.
Sri. Ravi, Brahmanapalli Village	1) Removed farmers' names in revenue records and kept as APIIC as owner of those lands, due to this farmers are not able to avail Raitu Bharosha (AP Govt. Scheme). 2) Deers are present and roam about 78 acres of land in their village and so there is no land for grazing area for their cattle.	1) APIIC has acquired only non-cultivable assigned lands for this project. After taking possession from Collector & Tahsildar, then only the land records were changed to APllC. However, this will be cross checked with Tahsildar, in case if any land without taking possession is in the name of APIIC by mistake, then the APIIC name will be removed from online revenue records. 2) Suitable land will be allotted outside the project boundary

		by the Revenue department for cattle grazing.
Sri. Pullanna, Guttapadu Village	1) Villagers are not allowed to take even stones from these lands for their other construction activities. 2) Requested panel members to leave about 1.5 km of land along the water stream up to Uppalapadu village from the boundary of Industrial Park.	1) As per government rules there is no permission to take gravel from any land, so they kept security to stop taking gravel but not stones. If people keep taking gravel, during rainy season water will get stored in gravel pits and accidents occur like children/animals falling into pits. Tahsildar will be taking care in providing stones for construction purposes. 2) The streams passing within the project land will not be disturbed, in case if required then they will be diverted but not closed. Also 9 m wide land will be left for development of greenbelt on both sides of water bodies.
Sri. Lotter Basha, Kalva Village	1) Not to remove their happiness by polluting their area through establishing industries.	1) All necessary pollution controlling measures will be taken up by APIIC. No chemical industries will be established within this project and only less-polluting industries (Other than 17 categories of highly polluting industries identified by CPCB) like hardware, engineering, aerospace, gems & jewelers, etc. will be established. A budget of around Rs. 160 Crores is allocated towards Environmental Management Plan (EMP). The EMP includes water pollution control, green belt development, air pollution control, solid waste management, rainwater management, pits / storage pits, etc. In addition individual units will allot separate budget towards EMP as per their requirement.

Sri. G. Konda Venganna, Hussianapuram Village	1) APIIC have also occupied the own lands of farmers without any prior information. Due to this, the farmers are also not able to claim Raitu Bharosa (AP Govt. scheme). 2) He also requested that this investment on industries may please be invested on farmers like to provide the water	1) APIIC has acquired only non-cultivable assigned lands for this project. After taking possession from Collector &Tahsildar, then only the land records were changed to APllC. However, this will be cross checked with Tahsildar, in case if any land without taking possession is in the name of APIIC by mistake, then the APIIC name will be removed from online revenue records. 2) The budget of Rs 160 Crores is for development of pollution control measures in the industrial park, cannot be given for any other purposes.
Sri. Sangireddy Ramakrishna Reddy, Guttapadu Village	1) After taking their lands to establish industries, they will treat as servants. 2) Not allowing for taking stones from the project site 3) Habituated to peaceful environment not to pollute environment.	1) Land acquisition and employment to land losers/locals will be as per the existing government norms 2) As per government rules there is no permission to take gravel from any land, so they kept security to stop taking gravel but not stones. If people keep taking gravel, during rainy season water will get stored in gravel pits and accidents occur like children/animals falling into pits. Tahsildar will be taking care in providing stones for construction purposes. 3) All necessary pollution controlling measures will be taken up by APIIC. No chemical industries will be established within this project and only less-polluting industries (Other than 17 categories of highly polluting industries identified by CPCB) like hardware, engineering, aerospace, gems & jewelers, etc. will be established. A budget of around Rs. 160 Crores is allocated towards Environmental

		Management Plan (EMP). The EMP includes water pollution control, green belt development, air pollution control, solid waste management, rainwater management, pits / storage pits, etc. In addition individual units will allot separate budget towards EMP as per their requirement.
Sri. Jagadheswara Rao, N. Konthalapadu Village	1) Requested to leave land of about 0.5 km from the Sri Sri Ambasahitha Yaganteswara Swamy Temple boundary.	1) The land belonging to the temple will be left as it is and it will not be acquired for the proposed industrial park.
Sri. Venkateswarlu, Meedivernula Village	1) Asked to provide survey numbers for their land. 2) If APIIC takes the land from small farmers who are solely dependent on the land for survival, then they would have to leave the village and go to some other place to survive.	1) Management informed that all the personal issues will be verified and solved by Tahsildar. 2) Management informed that APIIC will acquire only government lands and assigned lands but not wet lands, by following the set rules and regulations strictly, it will be seen that the developmental activities will be only for benefit of local people but not for damaging in any way. APIIC has carefully inspected the lands and acquired only assigned lands, which are non-cultivable, but not patta lands for this project.

Sri. Y. Chennakesava Reddy, NGO, Kadapa Village	1) He asked whether all the required lands for APIIC industrial project have been completely acquired or not, proper compensation has been given to the acquired land owners or not and in case of any litigations in this regard, the details should be clearly mentioned to the public involved in lands of project area. 2) As per present AP Govt. the law to reserve 80% jobs for local in industries is in process, so employment should be given to local people. 3) He informed that the people around 10 km radius from the project boundary will be affected due to the project, so he requested to spend CER/CSR funds to affected people only. 4) Who will establish the CETP, either industries or APIIC. Also he wanted to know if land for establishing CETP has been identified within project area. 5) He requested to establish Agro product industries which will help farmers for exporting tomato, green chilies etc.	1) Maximum amount of land proposed for this project is acquired and necessary compensation paid as per the law. As per the New Land Acquisition Act-2013 the compensation amount will be double and not less than that. 2) During operation period after full development of the proposed project about 25500 jobs will be created from this project. Priority in employment will be given to land losers as per their eligibility and also 75% employment will be given to the local people in industries as per the AP government law. 3) The CER fund of about Rs. 7.9 Crores will be spent provision of drinking water, health camps, vocational educational training program, solar lighting installation, project development of infrastructure, plantation, sanitation and solid waste management, agriculture, rainwater harvesting and soil conservation etc. in nearby villages. In addition individual units will provide CSR funds as per the companies act based on their profits for previous three years. 4) CETP will be proposed by APIIC, and land has been identified in the proposed project and budget is allocated under EMP 5) Other than 17 categories of highly polluting industries identified by CPCB any other industry category industry can establish in the proposed project after taking necessary approvals from concerned authorities.

Sri. Katasani Ram Bhuphal Reddy, Hon`ble MLA, Panyam Assembly Consituency	1) He requested not to give permission for establishing chemical industries which will pollute the environment. 2) He requested to leave some extent of land for grazing and passing of these animals and to leave some land for taking stones for the construction purposes by local people. 3) He requested APIIC to provide compensation to the farmers who lost land for this project and for the people who are cultivating from many years and not having patta land. 4) Natural water streams which are present should not be polluted by the industries and the flow of water stream should not be disturbed and the water should be allowed to be used by the farmers. 5) Employment should be given as per law in AP Govt. i.e. 80% jobs to locals in industries and also employment to the family members, based on their education qualification to be given to those who gave their land for this project. 6) Water source for this project taken from HNSS canal at Muchumarri village, should be drawn through open channels instead of closed pipe line, so that the farmers can utilize the water for cultivating the crops.	1) No chemical industries will be established within this project. 2) Suitable land will be allotted outside the project boundary by the Revenue department for cattle grazing. 3) Compensation will be given to farmers and land owners as per Land Acquisition Act 2013 4) The streams passing within the project land will not be disturbed, in case if required then they will be diverted but not closed. Also 9 m wide land will be left for development of greenbelt on both sides of water bodies. 5) During operation period after full development of the proposed project about 25500 jobs will be created from this project. Priority in employment will be given to land losers as per their eligibility and also 75% employment will be given to the local people in industries as per the AP government law. 6) The water allotted for the proposed project is from the industrial quota from SRBC irrigation project, to conserve the water from evaporation losses and pilferage, closed pipeline will be proposed 7) The land belonging to the temple will be left as it is and it will not be acquired for the proposed industrial park. 8) For proper planning of project such as roads, drainage, storm water drains, etc, development should be taken up for entire project as time, however such wastewater

	7) Leave the land around the Temple of Sri Sri Ambhasahitha Yaganteswara Swamy for making celebrations during festivals. 8) He further informed that the extent of land for this project is about 4000 Acres, asked proponent why they are developing the entire land at a time. He suggested that they should first develop the non-agricultural land and then if required use agricultural land for industrial purpose in the later phase. 9) Requested to provide R&R to those who lost their lands for this project. 10) Provide a passing way to cattle and land for grazing by discussing with DRDO officials.	treatment, water treatment, etc, will be developed in phased manner as per the demand of industries. To attract industrialists from all over the world development of the project with full infrastructure is planned. 9) Most of the land acquired is government land and non-cultivable lands, however some of the cultivable lands which are coming in the middle of the proposed project may be taken for compactness purpose only, necessary compensation is paid as per the exiting land acquisition act. 10) DRDO is not part of the proposed project

Attachment 11

Organizational setup of environmental management at Head Office level

As project proponent APIIC is going to be setting up of an organized structure in Head Office level and Zonal Level. In Head Office organizational setup is as follows to oversee day to day environmental issue and all the EMP staff will be suitably qualified Environmental education back ground persons.

Table 1 Manpower for environmental management cell

S. No	Designation	Minimum qualification	Minimum experience	Minimum no of persons
1	General Manager	Post Graduate Environmental Science/Engg	10	1
2	Dy. General Manager	Post Graduate Environmental Science/Engg	8	1
3	Manager/Environmental Engineer	Graduate (or) Post Graduate - Environmental Science/Engg	3	2
Note: Additional manpower will be taken as and when required.				

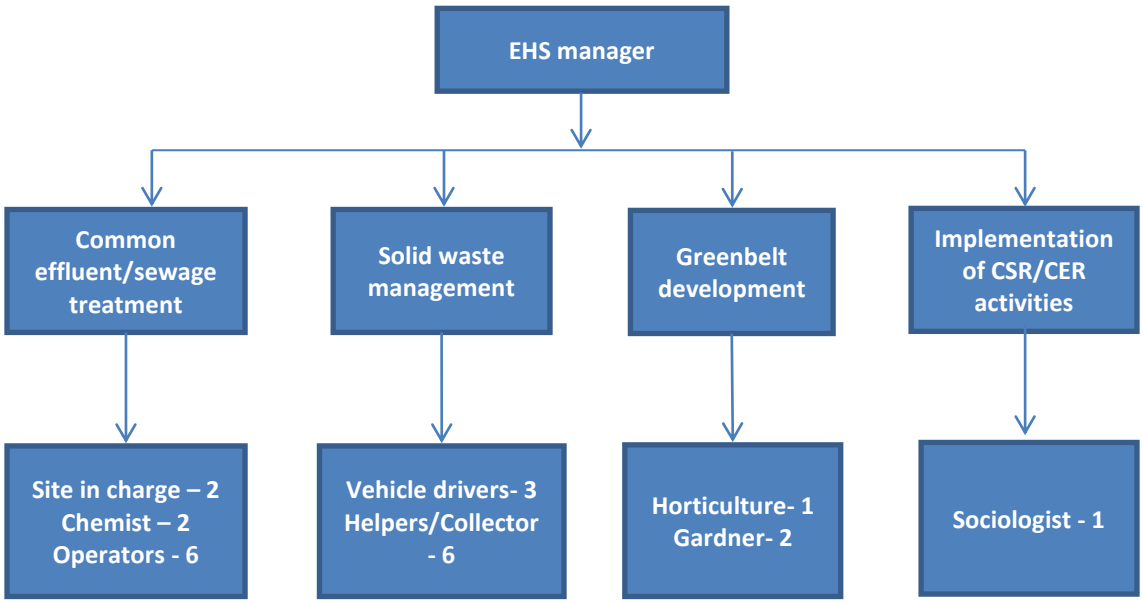
Organizational setup of environmental management at Zonal Level

The project proponent/developer would be responsible in setting up of an organized structure for environmental management at the proposed industrial park. TheEnvironmental Management Cell (EMC) will be headed by an Environmental Health Safety (EHS) Manager. The educational qualifications of staff are given in **Table 2.** The organizational set up for EMC is shown in**Figure 1**.

Table 2 Manpower for environmental management cell

S. No	Designation	Minimum qualification	Minimum experience	Minimum no of persons
1	EHS Manager	Post Graduate Environmental Science/ Engg	5	1
2	Site In-charge	Under Graduate (or) Post Graduate Science/Engg	5	2
3	Horticulturist (full time or part-time)	Graduate - Science	3	1
4	Vehicle Drivers	SSC/ Inter	2	3
5	Gardener	-	1	2
6	Helpers/ Collectors	SSC/ Inter	2	6
7	Sociologist	MA Sociology/BA Sociology	2	1
Note: Additional manpower will be taken as and when required.				

Figure 1 Organizational set - up for environmental management cell



Reporting schedules of the monitoring Data

The EMC shall co-ordinate all monitoring programs at site and the data thus generated shall be regularly furnished to the state regulatory agencies. The frequency of reporting shall be done on the basis of statutory requirements to the local state PCB officials. The environmental audit reports shall be prepared for the entire year of operations and shall be submitted to the regulatory authorities.