BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION No. 857 OF 2018
(M. A. No. 1624 of 2018)

IN THE MATTER OF:

Dr. PENTAPATI PULLA RAO APPLICANT(S)

Versus

UNION OF INDIA & ORS. RESPONDENT(S)

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A Subbarao

Andhra Pradesh Pollution Control Board

A. SUBBA RAO Legal Cell

Place : Vijayawada.
Date : 30.07.2019.

JOINT INSPECTION REPORT OF THE COMMITTEE BASED ON THE DIRECTION OF HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI VIDE ORDER DATED 10-05-2019 IN THE O.A. NO.857 OF 2018 AND ITS M.A. No 1624/2018 IN THE MATTER OF Dr. PENTAPATI PULLA RAO VS UNION OF INDIA AND ORS. HELD ON 24-07-2019 AT POLAVARAM MULTI PURPOSE PROEJCT, ANDHRA PRADESH.

Background:

The Hon'ble National Green Tribunal, Principal Bench, New Delhi issued directions on 01.11.2018 and 14.11.2018 in O.A.No.857/2018 & M.A.No.1624/2018 in the matter of Dr. Pentapati Pulla Rao Vs Union of India and Ors. The Joint Committee submitted their report on 29.12.2018 in compliance with the above order. Further, the Hon'ble NGT has heard the matter on 19.02.2019 and ordered the Joint Committee to re-visit the site and verify the compliance on action taken report and furnish a fresh report to the Hon'ble NGT. Further the Joint committee made a visit on 24-04-2019 and submitted the report. The Honourable NGT vide order dated 10-05-2019 asked to verify the claims of the project proponent and submit the report by 31-07-2019. The committee inspected the site on 24-07-2019 and interacted with the people and also visited the project area.

Order dated 10-05-2019 in O.A.No.857/2018:

The Hon'ble NGT ordered the Committee as follows:

"This Tribunal directed the project proponent to take the necessary remedial steps in the matter. The committee appointed by the Tribunal was required to furnish a verification report. Report has now been furnished vide email dated 03.05.2019 by the Andhra Pradesh State Pollution Control Board giving tabular chart of deficiencies found, action taken by the project proponent and remarks of the Committee. The Committee has found that several steps are still required to be taken and indicated timelines which extend up to 30.06.2019 and required the project proponent to take further specified action. The project proponent may act accordingly and report to the Committee". The committee may furnish further report on or before 31.07.2019".

The project authority based on the directions submitted their progress report to Chairman AP Pollution Control Board vide letter No. CE/PIPHW/DCE2/AEE (T)/O.A.NO.857/F-NGT/278M, Dt.16.07.2019. **(Copy enclosed as Annexure - A)**

Based on the directions of Hon'ble NGT, the organizations were requested to nominate their representatives vide A.P. Pollution Control Board Lr.No.529/APPCB/VSP/ELR/Polavaram/2005, Dt.22.04.2019. Accordingly, following four member Joint Committee visited the Indira Sagar Polavaram Multipurpose Project on 24.07.2019:

1. Dr. M. Madhusudanan, Scientist (E) & (Regional Director, Chennai), Central Pollution Control Board, Regional Directorate, Bengaluru.
2. Dr. C. Palpandi, Scientist "C", MoEF&CC, Regional Office, South Eastern Zone, Chennai.
3. Sri B. Siva Prasad, Joint Chief Environmental Engineer, APPCB, Vijayawada.
4. Sri Mutyala Raju Revu, IAS, Collector and District Magistrate, West Godavari District.

About the project:

The Environmental Clearance (EC) to the proposed project has been accorded vide Lr.No.J-12011/74/2005-IA.I, Dt. 25.10.2005 and subsequently, revised in the year 2009 vide MoEF&CC Lr.No.J-12011/74/2005-IA.I, Dt.09.03.2009. Consent for Establishment (CFE) was accorded by the A.P. Pollution Control Board vide Order No. 529/APPCB/VSP/ELR/Polavaram/2005, Dated 18.10.2005. The total land requirement for the project is 46,060 hectares comprising of 3279 Ha of Forest Land. Forestry Clearance (FC) for the diversion of 3731.07 Ha. (3473 Ha. notified Forest Area plus 258.07 Ha. deemed Forest Land) has been obtained from the MoEF&CC vide letter No.8-123/2005-FC, Dt.28.07.2010. Further, requisite permission / NOC has been obtained from the Standing Committee of National Board for Wildlife (3267 Ha FC Land) vide Lr.No.F.NO.6-3/2002 WL-I(pt), Dt.06.07.2006. Additional land of 203 Acres in Moolalanka of Polavaram Village has been acquired by the State of Andhra Pradesh vide Notification 2016 as per the provisions of the Right to Fair Compensation and Transparency in land acquisition and Re-habitation & Resettlement Act, 2013 and handed over to the project proponent for the purpose of dumping of muck and is being in use. Reportedly another 87 Acres in adjoining area

has also been acquired for the muck disposal purpose. Project Authority has not made available the documents relevant to the permissions obtained from MoEF&CC, GoI for the additional land acquired and they have indicated that since this land is part of the project area, the original EC shall suffice. The Committee also held discussions with Forest Officers and it appears that the Papikonda National Park is located at around 8 Kms. from the Moolalanka dumping site. It is also learnt that Eco-Sensitive Zone around the Papikonda National Park yet to be notified. The project is intended to provide irrigation facilities to 2.91 Lakh hectares in Visakhapatnam and East Godavari Districts under Left Main Canal and West Godavari and Krishna Districts under Right Main Canal. Further, it also comprises of generation of Hydel Power of 960 MW and 80 TMC diversion of Godavari water to River Krishna for stabilizing the existing command and Prakasam Barrage and to provide drinking water facilities to 540 enroute villages together water supply to Visakhapatnam City and to industries enroute. Odisha and Chattisgarh state, 5 TMC ft. and 1.5 TMC ft. of water respectively be lifted from the pond of Polavaram Project. Reportedly total 1,93,350 persons are likely to be affected by this project, out of that 1,75,275 in Andhra Pradesh and 6,319 persons from Odisha and 11,766 persons from Chattisgarh. The project activity commenced in the year 2005-2006. As per the information of project Authority, total expenditure incurred is Rs.15,205.53 Crores and cost of the project as per 2013 -14 price level is Rs. 57,940.86 Crores.

Present status of the project:

As informed by the Project Authority, the project construction work started during 2005-06 and present progress of Polavaram Head Works is 58.45%, Left Main Canal is 69.69%, Right Main Canal is 91.69%. The overall progress so far made in the project is 67.01%. The excavation of works reportedly completed around 86.65%. It is reported that the quantities were revised during January, 2019 and got it approved in May, 2019, hence, certain figures are changed subsequently. It is reported that from June, 2019 onwards the activities are slow down considerably.

Joint Inspection:

The Joint Committee assembled at the project guest house "Sujala Guest House" on 24.07.2019. The Committee had an interaction with the representatives of the applicant (farmers & residents nearby project area) to explain the issues and grievances. Three representatives narrated their issues before the Committee and

also submitted one representation. The Committee also had a preliminary meeting with the project authorities and reviewed the progress on implementation of re-verification repot of the joint committee dated 25.04.2019 **(Copy enclosed as Annexure – B)** and action taken report of Project Authority. Further, the Committee re-verified the action taken report submitted by the project authority along with the representatives of the applicant and project proponent. The Committee made a visit to project area inter alia including Kademma Canal, Dumping sites (D1, D2, D4, D5, D6), BC Colony. However, due to prevailing monsoon in the area, and not approachable by road, the Moolalanka Dump Yard could not be inspected. The Committee inspected and interacted with the BC Colony people for assessing field conditions.

Re-verification report of the Joint Committee dated 24.07.2019:

Sl. No.	Recommendations of the Committee during Polavaram site visit on 11.12.2018	Directions / Observations of the Committee on 25.04.2019	Action Taken Report of project authority dated 16.07.2019	Remarks/observation of the Committee on 24.07.2019
1	Observed disposal of muck without proper height, levelling and gradient.	The representative of the project authority has informed that outward slope / gradient is maintained at 1:1 or 1.5:1 (H:V) depending on the cohesiveness of the property of the soil. It is also informed that total excavation of muck will be completed by June, 2019 and soon after the entire dump area is proposed to be made even and plantation to be taken-up. ***Time line of 30th June 2019***	The Levelling and making proper gradient is in progress. It is programed to complete the total excavation in the project by July, 2019. Necessary steps will be taken to complete entire earthwork excavation as per stipulated programme. Soon after its completion of entire excavation of spill channel, the entire area of dump yard will be made even and plantation will be taken up.	The project authority failed to submit any action taken report every 15 days as suggested by the four member joint committee during 25.04.2019. However, it is reported that the excavation work has been stopped due to monsoon.

		is suggested by the Committee for compliance. Progress to be reported every 15 days by submission of ATR.		
2	No vegetation / greenbelt have been made on the dumps to stabilize and to prevent air pollution.	The project authority has assured to the committee that the plantation work facing BC colony shall be taken up within a week time. A comprehensive plantation programme with 32400 plants at a cost of Rs.2.74 Cr. is also in pipeline which is to be taken up after Election Code of conduct. ***The progress of plantation to be reported within 10 days from 25-04-2019, and further the progress by 30-***	Presently, Avenue Plantation is started with the co-ordination of Forest Department near BC Colony of Polavaram for length of 1200 mtrs., stretch along Kademma Drain. A comprehensive plantation programme at a cost of Rs.2.74 Cr. Is in pipeline which is to be taken up after receipt of orders of Government.	The Committee inspected BC Colony area. No major plantation activity noticed for a length of 1200 mtrs. stretch along Kademma drain. It was informed by Project Authority that they have planted about 400 plants during the period. Photographs of plantation enclosed. However, in the meeting the Project Authority informed that the comprehensive plantation programme at a cost of Rs.2.74 Cr.is in pipeline which is to be taken up after

		06-2019. The ATR to be submitted every 15 days.		receipt of orders of the Government.
3	The Project Authority may re-look at the utilization of 87 Acres acquired adjacent to the existing dumping site (Moolalanka dump site).	During the visit the committee observed that no dumping of muck is being done in 87 acres. The project authority also ensured that no dumping of muck will be done in 87 Ac acquired land till further orders are obtained. ***The ATR of follow up made to be submitted by 30-05-2019.***	At present, there was no dumping activity in the 87 acres of additional area of Mulalanka lands.	The Committee observed that no dumping activity is happening in the 87 Acres of additional area of Moolalanka lands. The Committee opines that the Project Authority shall put up a proposal to the Government for the withdrawal of the acquired land since, as per the revised plan there is no such requirement. The Project Authority is yet to initiate follow up action in this regard.
4	The Project Authority shall immediately prepare an action plan regarding feasibility of utilizing the excavated material within the project area and the	Excavated material is used in the construction of coffer dam, ECRF dam, roads and other embankments woks. Crushed stone material is used for	All the useful excavated material from the Polavaram Project Dam area is used in the construction of Coffer Dams, ECRF Dam, Roads,	The progress and quantity of reutilization of muck as suggested in the previous meeting is not submitted by

	feasibility of using the land already demarcated near the 'O' point.	concrete works. Transport of utilizing excavated material at "0"point is not feasible as transportation of material has to be passed through thickly populated areas of Polavaram Village as per the project authority. ***Progress and quantity of re-utilization of muck to be submitted every month.***	and other embankment work, Crushed stone material obtained from Rock Excavation is used for concrete works. The works of ECRF Dam Gaps 1, 2 and 3 will be taken up in the next season. The progress and quantity of reutilization of muck will be submitted accordingly.	the Project Authority.
5	Project Authority made the commitment and assured before the Committee that henceforth i.e., 11.12.2018 onwards dumping of mucks will not be done near the BC colony area. Copy of commitment is annexed as Annexure - 'C'.	No dumping of muck was observed at BC colony area as committed earlier. ***The progress as suggested in point no 2 may be completed and reported.***	Dumping activity near the BC Colony area has stopped since 11.12.2018. It is further submit that no further dumping will be allowed in this area. Avenue Plantation is also started in this B.C Colony area with the co-ordination of Forest Department.	The Project Authority shall continue to abide by their commitment.

6	The project authority shall regularly carry cut air quality monitoring in line with National Ambient Air Quality Monitoring Programme and submit reports to MOEF & CC/APPCB.	Committee is of the opinion that the network has to be increased. A station may be started at B.C Colony and other adjacent villages. ***The progress appears to be slow. The comprehensive AAQM to be submitted by May 2019. The present makeshift arrangements to continue. ATR 30-06-2019.***	It is to submit that a study of comprehensive monitoring &Assessment of Air & Water Quality. Noise levels is being entrusted to M/s.NEERI, Hyderabad. Proposals to that effect have submitted to Govt. for Rs.84.45 Lakhs per annum. Orders are awaited from Government. Meanwhile, M/s.NEERI, Hyderabad have conducted the AAQM in the project. Copy of AAQ report is enclosed for favour of information.	No comprehensive AAQM has implemented by the project authority. However, M/s. NEERI, Hyderabad was engaged for May 20198 and M/s Envi Tech Pvt Ltd for June 2019 for monitoring AAQM at 5 places including BC Colony. Photographs and analysis reports enclosed (**Copy enclosed as Annexure - C**). The Committee examined the reports submitted and found that PM_{10} and $PM_{2.5}$ exceeded at four places out of five places monitored in May 2019. To get conclusive evidence, a comprehensive AAQM is required.

7	Strengthening of dump sites with proper heights and slopes along with vegetative cover may be planned immediately in consultation with technical experts.	The project authority is planning plantation with the support of the Forest Department near the BC colony. Mock is dumped to a height of 20 m – 25 m with slopes of 1:1 to 1.5:1. Dumping is stopped once the height is reached to the height of 25 m maximum. The authority is planning for development of vegetative cover after conclusion of dump in the above dump yard in consultation with Horticulture Department, Forest Department & Agricultural Department. ***The progress to be submitted every 15 days.***	At present, with the support of Forest Department the area which is near BC Colony is taken up for plantation. A comprehensive plantation programme at a cost of Rs.2.74 Cr.is in pipeline which is to be taken up after receipt of order of Government	Progress as suggested in Point No.2 may be complied.

8	The Committee has verified the restoration of roads after development of cracks as reported in the project approach road during the last monsoon season. The report obtained from Central Design Organization, Vijayawada, AP is annexed as Annexure - 'D'.	Slipping of side embankment was again discussed in the Dam Design Review Panel (DDRP) on 26.03.2019 at SWC, New Delhi. Designs for gabions are being prepared as suggested by the DDRP.	The designs of Temporary protective measures i.e. Gabions are under security. However, the agency has been asked to submit Permanent Protective measure proposals in consultation with IIT Delhi& CSRMS as suggested in 12th DDRP meeting held on 26.03.2019.	As informed, repot from IIT Delhi is still awaited on the permanent protective measures on the sliding of embankments. Opinion of experts may be followed.
9	Adequate dust suppression measures like providing water spraying may be arranged till good vegetative cover attained. Similarly, water spraying may be arranged for wetting the approach "roads/ village roads etc. at the project areas and nearby villages."	Wetting of roads with water with River Godavari water using 26 nos of water tankers.	Dust suppression measures are taken up by means of sprinkling water by water tankers Regularly both on service Roads and as well as on Dump yard haul roads.	It is reported that being the monsoon season, the wetting of roads / village roads are temporarily suspended. About 5 tankers are engaged as a emergency measure in this regard.

Observations of the Committee:

- The Committee while reviewing the progress expressed displeasure in the progress made by the Project Authority in implementation. However, the progress submitted by project authority as on 24.07.2019 is attached.
- The Committee deliberated on the issues of declaration of Eco Sensitive Zone, as Papikonda National Park. The representative of the Forest Department, Sri P.Rama Krishna, IFS, Andhra Pradesh clarified that GoI, MoEF&CC, Wildlife Division, New Delhi directed to re-submit the proposals which was submitted earlier by the GoAP vide letter dated 03.11.2018. **(Copy enclosed as Annexure - D).**
- The issue of Environmental Clearance (EC) related to additional land acquired by the Project Authority as per the provisions of the Right to Fair Compensation and Transparency in Land Acquisition and Re-habilitation & Re-settlement Act, 2013 was also discussed. The Committee again stressed that the project authority shall provide necessary documents showing that the additional land acquired is part of the project area.
- The Committee suggested to Project Authority to file additional affidavit directly to Hon'ble NGT before the due date with further progress.

B. Siva Prasad,
Joint Chief Environmental Engineer,
APPCB, Vijayawada

Dr. M. Madhusudanan, Scientist (E),
& (Regional Director, Chennai),
Central Pollution Control Board,
Regional Directorate, Bengaluru.

C. Palpandi

Dr. C. Palpandi, Scientist "C",
MoEF&CC, Regional Office
(South Eastern Zone), Chennai

R. Mutyalaraju

Mutyala Raju Revu, IAS,
Collector and District Magistrate,
West Godavari

Annex - 'A'

Water Resources Department
Government of Andhra Pradesh

From
Sri B.Sudhakara Babu
Chief Engineer,
PIPHW Unit,
Polavaram.

To
The Member Secretary,
Polavaram Irrigation Project Authority,
Krishna Godavari Bhavan,
HO.No.11-4-648, (1st Floor), AC Guards,
HYDERABAD-500004.

Letter No.CE/PIPHW/DCE2/AEE (T)/O.A.NO.857/F-NGT/ 278M Dt: 16.07.2019.

Sir,

Sub:- Polavaram Irrigation Project- Hon'ble NGT- O.A.No.857 of 2018- Tribunal Order dated 10.05.2019- Compliance Report- Report of 4 member Joint inspection committee – Compliance of the recommendations in the report- furnished- Reg.

Ref:- 1. O.A.No.857 of 2018.

2.Hon'ble NGT Order dated 01.11.2018in O.A.No.857 of 2018

3. APPCB, Vijayawada Lr No. 12/ APPCB/Legal/NGT Delhi/2018 Dt. 26.12.2018.

4. Superintending Engineer, PIPHW Circle, Dwlm Lr.No. SE/PIPHW/ OT-1/AEE-1/CSIS (NGT)/Vol.5/159-M Dt.06.03.2019.

5. Hon'ble NGT Order dated 10.05.2019in O.A.No.857 of 2018

6. Superintending Engineer, PIPHW Circle, Dwlm Lr.No. SE/PIPHW/ OT-1/AEE-8/CSIS (NGT)/Vol.5/419-M Dt.10.07.2019.

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In compliance to the Hon'ble NGT Order 2nd cited in O.A.No.857 of 2018, the 4 member Joint inspection committee visited the Polavaram Irrigation Project site on 11.12.2018 and a copy of recommendations communicated to this office through APPCB in the reference 3rd cited. The Superintending Engineer, PIPHW Circle, Dowlaiswaram submitted the Action taken Report for implementations of the recommendations of the 4 member Joint inspection committee to the Member Secretary, PPA, Hyderabad vide reference 4th cited.

After that, for the second time, the committee again visited the PIP site on 25.04.2019 and suggested some remarks/recommendations. As per the Hon'ble NGT Order 5th cited, the Superintending Engineer, PIPHW Circle, Dowlaiswaram has submitted the further Action taken Report for implementations of the recommendations of the committee.

I herewith submit the copy of the Compliance of the recommendations on the above subject matter for favour of information and taking further necessary action.

Encl: Compliance of the recommendations by four

Member team on NGT O.A.No.857 of 2018

Yours faithfully

Sd/-B.Sudhakara Babu
16.07.2019
Chief Engineer,
PIP HW Unit,
Polavaram.

Copy submitted to the Chairman, AP Pollution Control Board, Vijayawada.

Copy submitted to the Engineer-In-Chief, Polavaram Irrigation Project, Dowlaiswaram.

Sd/-B.Sudhakara Babu
16.07.2019
Chief Engineer,
PIP HW Unit,
Polavaram.

//t.c.f.,//

16/7/19
Superintending Engineer
16/7/19

Action taken Report on Observations of the 4 Member Joint Committee On 25-04-2019

Recommendations of the Committee during Polavaram site visit on 11-12-2018	Remarks/Observations of the 4 Member Joint Committee inspection of Polavaram project On 25-04-2019	Further Action taken report by Water Resources Department
Observed disposal of muck without proper height, leveling and gradient	The representative of the Project authority has informed that outward slope/gradient is maintained at 1:1 or 1.5:1 (H:V) depending on the cohesiveness of the property of the soil. It is also informed that total excavation of muck will be completed by June, 2019 and soon after the entire dump area is proposed to be made even and plantation to be taken-up. Time line of 30th June, 2019 is suggested by the Committee for compliance. Progress to be reported every 15 days by submission of ATR.	The Leveling and making proper gradient is in progress. It is programmed to complete the total excavation in the project by July 2019. Necessary steps will be taken to complete entire earthwork excavation as per stipulated programme. Soon after its completion of entire excavation of spill channel, the entire area of dump yard will be made even and plantation will be taken up.
No vegetation / greenbelt have been made on the dumps to stabilize and to prevent air pollution	The Project authority has assured to the committee that the plantation work facing BC colony shall be taken up within a week time. A comprehensive plantation programme with 32400 plants at a cost of Rs.2.74 Cr is also in pipeline which is to be taken up after Election Code of conduct. The progress of plantation to be reported within 10 days from 25-04-2019, and further the progress by 30-06-2019. The ATR to be submitted every 15 days.	Presently, Avenue Plantation is started with the co ordination of Forest department near B.C Colony of Polavaram for a length of 1200 mts stretch along Kademma drain. A comprehensive plantation programme at a cost of Rs.2.74 Cr is in pipeline which is to be taken up after receipt of orders of Government.
The Project Authority may re-lock at the utilization of 87 Acres acquired adjacent to the existing dumping site (Moolalanka dump site)	During the visit, the Committee observed that no dumping of muck is being done in 87 acres. The project authority also ensure that no dumping of muck will be done in 87 Ac acquired land till further orders are obtained. The ATR of follow up made to be submitted by 30-05-2019.	At present, there was no dumping activity in the 87 acres of additional area of Mulalanka lands.

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4	The Project Authority shall immediately prepare an action plan regarding feasibility of utilizing the excavated material within the Project area and the feasibility of using the land already demarcated near the "O" point.	Excavation material is used in the construction of coffer dam, ECRF dam, roads and other embankments works. Crushed stone material is used for concrete works. Transport of utilizing excavated material at "0" point is not feasible as transportation of material has to be passed through thickly populated area of Polavaram village as per the Project authority. Progress and quantity of re-utilization of muck to be submitted every month.	All the useful excavated material from the Polavaram Project Dam area is used in the construction of Coffer Dams, ECRF Dam, Roads, and other embankment work, Crushed Stone material obtained from Rock Excavation is used for concrete works. The works of ECRF Dam Gaps 1,2 and 3 will be taken up in the next season. The progress and quantity of reutilization of muck will be submitted accordingly.
5	Project Authority made the commitment and assured before the Committee that henceforth ie., 11-12-2018 onwards dumping of mucks will not be done near the BC colony area. Copy of commitment is annexed as Annexure-"C"	No dumping of muck was observed at BC colony area as committed earlier. The progress as suggested in point No. 2 may be completed and reported.	Dumping activity near the B.C Colony area has stopped since 11-12-2018. It is to further submit that no further dumping will be allowed in this area. Avenue Plantation is also started in this B.C colony area with the co ordination of Forest department.
6	The project authority shall regularly carry out air quality monitoring in line with National Ambient Air Quality Monitoring Programme and submit reports to MOEF & CC/APPCB.	Committee is of the opinion that the network has to be increased. A station may be started at B.C. Colony and other adjacent villages. The progress appears to be slow. The comprehensive AAQM to be submitted by May 2019. The present makeshift arrangements to continue. ATR 30-06-2019.	It is to submit that a study of comprehensive monitoring & Assessment of Air & Water Quality. Noise levels is being entrusted to M/s NEERI, Hyderabad. Proposals to that effect have submitted to Govt., for Rs.84.45 Lakhs per annum. Orders are awaited from government. Meanwhile, M/s NEERI, Hyderabad have conducted the AAQM in the project. Copy of AAQ Report is enclosed for favour of information.

7	Strengthening of dump sites with proper heights and slopes along with vegetative cover may be planned immediately in consultation with technical experts	The project authority is planning plantation with the support of the Forest Department near the BC colony Mock is dumped to a height of 20 m -25 m with slopes of 1:1 to 1.5:1. Dumping is stopped once the height is reached to the height of 25 m maximum. The authority is planning for development of vegetative cover after conclusion of dump in the above dump yard in consultation with Horticulture Department, Forest Department & Agricultural Department. The progress to be submitted every 15 days.	At present with the support of Forest Dept, the area which is near BC colony is taken up for plantation. A comprehensive plantation programme at a cost of Rs.2.74 Cr is in pipeline which is to be taken up after receipt of orders of Government.
8	The Committee has verified the restoration of roads after development of cracks as reported in the project approach road during the last monsoon season. The report obtained from Central Design Organization, Vijayawada, AP is annexed as Annexure – 'D'.	Slipping of side embankment was again discussed in the Dam Design Review Panel (DDRP) on 26.03.2019 at SWC, New Delhi, Designs for gabions are being prepared as suggested by the DDRP.	The designs of Temporary protective measures i.e Gabions are under scrutiny. However, the Agency has been asked to submit Permanent Protective measure proposals in consultation with IIT Delhi & CSRMS as suggested in 12th DDRP meeting held on 26-03-2019.
9	Adequate dust suppression measures like providing water spraying may be arranged till good vegetative cover attained. Similarly, water spraying may be arranged for wetting the approach " roads/village roads etc. at the project areas and nearby villages"	Wetting of roads with water with River Godavari water using 26 nos of water tankers.	Dust suppression measures are taken up by means of Sprinkling water by water tankers Regularly both on service Roads and as well as on Dump yard haul roads.

Executive Engineer
PIPHW Division No.3, Polavaram 21/6/19

10/7/19
Superintending Engineer
P.I.P. H.W. Circle
DOWLAISWARAM - 533 125

CHIEF ENGINEER
Polavaram Irrigation Project
(Head Works)
Water Resources Department
POLAVARAM, A.P.

Assessment of Ambient Air Quality at Polavaram, W.G.Dist., Andhra Pradesh

Sponsor

Sponsor: Water Resources Department, Govt. of Andhra Pradesh
or
Executive Engineer (FAC), P.I.P.H.W. Divn. No. III, Polavaram

NEERI

CSIR-National Environmental Engineering Research Institute
(Council of Scientific and Industrial Research)
Hyderabad Zonal Center (HZC), IICT Campus, Hyderabad

May 31, 2019

1.0 Preamble

The Polavaram Irrigation Project is a multipurpose terminal Project across river Godavari near Polavaram Village about 42 Km on upstream of Godavari Barrage, Dowlaiswaram. The Project envisages Irrigation benefits to an extent of 7.20 Lakh Acres for the up land areas of East Godavari & Visakhapatnam Districts under left main canal (181.50 Km) and West Godavari & Krishna Districts under right main canal (174.00 Km) and generating of 960 MW of Power. In addition to irrigation benefits 80 TMC of water is proposed to be diverted to Krishna River and supply of 23.44 TMC of drinking water to Visakhapatnam.

The construction Polavaram Project is taken up after obtaining all the statutory clearances from the various ministries of Government of India. The environmental concerns during the construction forms the part of the Environmental Impact Assessment report and only after considering all such impact and its mitigation measures, the Ministry of Environment & Forest has granted clearance to the project on dt 25.10.2005.

All the environmental safe guards are being implemented at site while doing the earth work excavation as well as dumping of excavated soils. The dumping yards are common features of any construction project which itself is a standard practice of minimizing pollution. Adequate arrangements i.e wetting of Roads are made to avoid dust pollution.

The status of compliance with the conditions specified in the clearances i.e., Air Quality Monitoring Test Reports, Noise Level and Water Quality Tests Reports have to be submitted to the Ministry of Environment and Forests, Government of India and APPCB, Vijayawada.

In this context, Executive Engineer (FAC), P.I.P.H.W. Divn. No. III, Polavaram approached CSIR-NEERI-Hyderabad Zonal Centre to take up the Environmental Quality Monitoring in and near Polavaram dumping site to know the actual scenario at this location and to suggest any mitigative measures if required.

Based on the technical discussions and site visit by CSIR-NEERI scientists and the information provided by Executive Engineer (FAC), P.I.P.H.W. Divn. No. III, Polavaram, an environmental monitoring and assessment study w.r.to preliminary study on ambient air quality is proposed with the following objectives and scope of work.

2.0 Objectives

- To monitor ambient air quality (AAQ) at appropriate locations surrounding Polavaram dumping site during May 2019.

3.0 Scope of Work

The monitoring of ambient air quality (AAQ) at appropriate locations surrounding Polavaram dumping site was carried out during May 2019. The scope of the work is as given below:

- Identification of monitoring locations for air pollutants sampling based on local meteorology, land cover/topography and other available information/charts.
- Five ambient air quality (AAQ) monitoring stations will be established and 24 h sample collection will be done for the following parameters: Particulate Matter (size less than 10 µm or PM_{10}), Particulate Matter (size less than 2.5 µm or $PM_{2.5}$), Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2), Ozone (O_3), Carbon monoxide (CO), Ammonia (NH_3), Benzene, Particulate metals like lead (Pb), Arsenic (As) and Nickel (Ni) and particulate associated Benzo-alpha-pyrene (BaP), as per National Ambient Air Quality Standards (NAAQS) Criteria by Central Pollution Control Board (CPCB), New Delhi.
- Collection of hourly meteorological data comprising wind speed, wind direction, temperature, relative humidity, cloud cover, solar insolation and rainfall (from secondary data sources or from nearest IMD station).

4.0 Ambient Air Quality Study

4.1 Design of Ambient Air Quality Monitoring Network

The studies on air environment consist of assessment of existing status of ambient air quality and collection of meteorological data to delineate the baseline status of the region. Representative selection of sampling locations is primarily guided by the topography and micro-meteorology of the region. A methodically designed ambient air quality monitoring network covering 5 sampling locations was designed within the 5 km study area with dumping yard as centre.

The ambient air quality status in the study area during May 2019 (summer season) is carried out by selecting 5 locations using network design criteria and monitoring was carried out as per CPCB guidelines. The sampling locations were presented in Table 1. The locations of air quality monitoring in the study area are shown in Fig. 1.

4.2 Micrometeorology

Meteorological data of wind speed, wind direction, temperature and relative humidity were collected from nearest Meteorological Station (Nidadavolu, WG Dist., A.P) from Climatological Tables of India Meteorological Department. The predominant winds are from S, SW, Se and W directions. The wind speed has been observed in the range of 0.5 - 5.0 m/s.. Ambient temperature varied between 26.7 - 38.5^{o}C during May, while the relative humidity was observed in the range of 53-74%.

4.3 Ambient Air Quality Status

Five Ambient Air Quality (AAQ) monitoring stations were established on 24 hrly basis sample collection for Particulate Matter (size less than 10 µm or PM_{10}), Particulate Matter (size less than 2.5 µm or $PM_{2.5}$), Sulphur dioxide (SO_2), Oxides of Nitrogen (NO_X), Hydrogen Sulphide (H_2S) and Ammonia (NH_3). Ozone (O_3) and Carbon Monoxide (CO) on 1 hrly basis & Benzene and Volatile Organic Carbons (VOCs) as spot concentrations were monitored. The techniques/methods used for monitoring and analysis of air quality parameters are given in **Table 2**. The data collected was subjected to statistical analysis like minimum, maximum, average and standard deviation. The observed ambient air quality data within the study area is given in **Tables 3.** The parameters were analyzed following standard methods and concentration levels were compared with National Ambient Air Quality Standards (NAAQS) prescribed by Central Pollution Control Board (**Annexure I**). Status of individual parameter is described in the following sections:

4.3.1 Particulate Matter

The 24hourly minimum-maximum values and average PM_{10} and $PM_{2.5}$ concentrations at all the sampling locations are given in **Table 3**. From **Table 3**, it is observed that the average PM_{10} and $PM_{2.5}$ concentrations varied between 110 - 164 µg/m^3 and 52 - 101 µg/m^3 respectively within the study area and found that the average PM_{10} and $PM_{2.5}$ concentrations are exceeding the NAAQS (PM_{10} - 100 µg/m^3; $PM_{2.5}$ - 60 µg/m^3) at all ambient air quality locations, except at Triveni Office and Police Check Post w.r.to $PM_{2.5}$ values. The higher values of particulate matter (PM_{10} and $PM_{2.5}$) in terms of maximum concentrations in the study area may be due to the ongoing dumping by trucks and unpaved roads. Also the higher values of particulate matter may be due to dry atmospheric conditions and moderate to strong winds in the area.

4.3.2 Gaseous Pollutants

Sulfur dioxide and Oxides of Nitrogen

The average concentrations of SO_2 and NO_X are found to be varying within the range of 2 - 4 µg/m^3 and 5 - 6 µg/m^3 respectively within the study area (**Table 3**) and the levels of of SO_2 and NO_x were observed well below NAAQS (80 µg/m^3).

Ammonia

Atmospheric ammonia (NH_3) is a pollutant which is highly soluble in water, its major sink in the atmosphere is by wet deposition. The residence time of ammonia in the lower level of the atmosphere is a few hours, though in the calm environment it may exist for weeks. Ammonia is the major base present in the atmosphere and is therefore important in neutralizing acidic species such as SO_2, H_2SO_4, HNO_3 and HCl. To assess the levels of

ammonia in air, samples were collected by passing air through absorbing media and analyze by wet chemical method. The average concentrations of NH_3 are found to be varying within the range of 27 - 41 µg/m^3 within the study area (**Table 3**) and these values are well within the NAAQS (400 µg/m^3).

Ozone

Ozone (O_3) is a secondary air pollutant formed by photochemical reactions involving NOx and VOCs, mainly hydrocarbons. In the presence of solar radiation, nitrogen dioxide (NO_2) dissociates to form nitric oxide (NO) and an oxygen atom (O). O_3 is then formed by O_2 reacting with the oxygen atom (O). However, when hydrocarbons are present, NO is converted to NO_2, thus leaving little NOx to react with O_3. This reaction leads to a build-up of O_3 in the atmosphere. Sources of NO_2 and VOCs are primarily anthropogenic, generally produced during combustion processes from automobile emissions and industrial activities.

To assess the levels of ozone in air, samples were collected by passing air through absorbing media during day time (1000-1800 h) assuming ozone production occurs in the presence of solar radiation, NOx and VOCs. The samples were analyzed by wet chemical method. The average concentrations of O_3 are found to be varying within the range of 6 - 43 µg/m^3 respectively within the study area (**Table 3**) which were below the NAAQS (1 h avg. 180 µg/m^3).

Carbon Monoxide (CO)

Carbon monoxide is a colorless and odourless gas. It is formed when substances containing carbon are burned with an insufficient supply of air. The combustion of fuels such as petrol, gas, coal and wood generate carbon monoxide. Gas and wood used for cooking and heating in appliances like stoves and barbecues add to such emissions. Apart from it, motor vehicles are also one of the main sources of carbon monoxide pollution in urban and sub-urban environment.

The concentrations of CO measured as 1 hrly averages are found to be ranging from 0.19 to 0.22 mg/m^3 in the study area (**Table 3**) and the values are found to be less than NAAQS (1 hr. avg. 4 mg/m^3).

Benzene

The spot concentrations of Benzene are observed to be below detectable limt (BDL) within the study area and are well within NAAQS (Table 3).

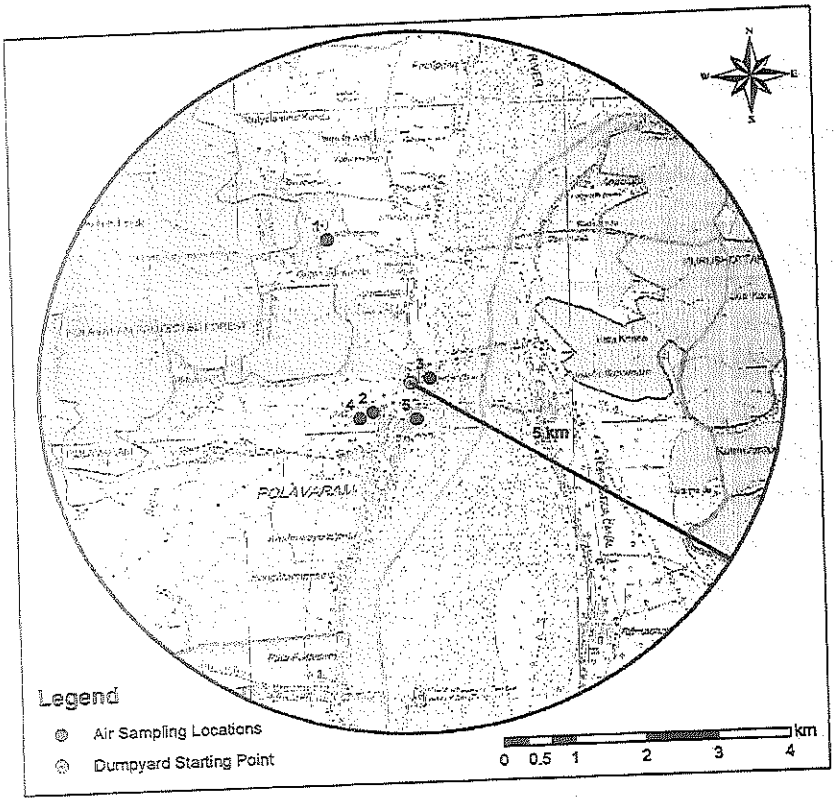

Fig. 1 Air quality monitoring locations within the study area.

Table 1 Details of AAQ Sampling Locations during May 2019

Sr. No	Sampling Location	Latitude	Longitude
1.	Irrigation Quarter	N 17°15' 09.1"	E 81°38' 29.11"
2.	BC Colony	N 17°15' 06.4"	E 81°38' 23.3"
3.	Triveni Office	N 17°16' 29.7"	E 81°31' 10.4"
4.	Police Check Post	N 17°15' 24"	E 81°38' 55.5"
5.	CWC	N 17°15' 05.2"	E 81°38' 49"

Table 2 Techniques Used for Ambient Air Quality Monitoring

Sr. No.	Parameter	Monitoring Technique
1.	Particulate Matter size < 10 microns or PM_{10}	Gravimetric
2.	Particulate Matter size less than 2.5 microns or $PM_{2.5}$	Gravimetric
3.	Sulphur Dioxide (SO_2)	EPA Improved West and Geake Method
4.	Oxides of Nitrogen (NO_X)	Modified Jacobs-Hoechheiser Method
5.	Ammonia (NH_3)	Nesslers Method
6.	Ozone (O_3)	UV Photometric method
7.	Carbon monoxide (CO)	Quest CO monitor
8.	Benzene	Benzene Analyzer

Table 3 Ambient Air Quality during May 2019

S. No.	Location Name	PM_{10}	$PM_{2.5}$	SO_2	NO_X	NH_3	O_3	CO	Benzene
		µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³
		24 hr	24 hr	24 hr	24 hr	24 hr	1 hr	1 hr	Spot
1.	Irrigation Quarter	134±12 (121-143)	101±24 (77-125)	4±4 (2-8)	6±2 (5-8)	30±16 (18-48)	6±2 (4-8)	0.21	BDL
2.	BC Colony	88±15 (74-105)	55±6 (42-63)	4±2 (2-5)	5±1 (5-6)	41±19 (27-54)	32±9 (25-38)	0.20	BDL
3.	Triveni Office	110±44 (47-162)	54±10 (44-68)	3±2 (2-5)	5±1 (5-6)	27±10 (15-37)	24±30 (2-78)	0.22	BDL
4.	Police Check Post	164±17 145-178	52±5 (46-56)	4±4 (2-9)	5±0 (5-5)	30±24 (15-58)	43±17 (23-53)	0.21	BDL
5.	CWC	160±18 (147-173)	61±5 (58-65)	2±0 (2-2)	5±0 (5-5)	31±3 (29-34)	26-8 (21-32)	0.19	BDL
NAAQS		100	60	80	80	400	180	4	5

Note: The 24 hrly average concentrations of particulate matter and gaseous pollutants are reported as Avg. ± S.D (Minimum - Maximum)

BDL - Below Detectable Limit

National Ambient Air Quality Standards – 2009

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual * 24 Hours **	50 80	20 80	-Improved west and Gaeke -Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO_x), $\mu g/m^3$	Annual * 24 Hours **	40 80	30 80	-Modified Jacob & Hochheiser (Na-Arsenite) -Chemiluminescence
3.	Particulate Matter (Size less than 10 µm) or PM_{10} $\mu g/m^3$	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TOEM -Beta attenuation
4.	Particulate Matter (Size less than 2.5 µm) or $PM_{2.5}$ $\mu g/m^3$	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TOEM -Beta attenuation
5.	Ozone (O_3) $\mu g/m^3$	8 hours ** 1 hour**	100 180	100 180	-UV photometric -Chemiluminescence - Chemical method
6.	Lead (Pb) $\mu g/m^3$	Annual * 24 Hours **	0.50 1.00	0.50 1.00	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper -ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m^3	8 hours ** 1 hour *	02 04	02 04	-Non Dispersive Infrared Spectroscopy
8.	Ammonia (NH_3) $\mu g/m^3$	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
9.	Benzene (C_4H_4) $\mu g/m^3$	Annual *	05	05	-Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo Pyrene (BaP) - particulate phase only ng/m^3	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic(As) ng/m^3	Annual *	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel(Ni) ng/m^3	Annual *	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform intervals

** 24 hourly or 8 hourly or 01 hourly monitored values as applicable shall be compiled with 98% of the time in a year. 2% of the time they may exceed the limits but not on two consecutive days of monitoring

Annex - 'B'

JOINT INSPECTION REPORT OF THE COMMITTEE BASED ON THE DIRECTION OF HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI VIDE ORDER DATED 19-02-2019 IN THE O.A. NO.857 OF 2018 AND ITS M.A. No. 1624/2018 IN THE MATTER OF Dr. PENTAPATI PULLA RAO Vs UNION OF INDIA AND ORS. HELD ON 25-04-2019 AT POLAVARAM MULTI PURPOSE PROEJCT, ANDHRA PRADESH.

Background:

The Hon'ble National Green Tribunal, Principal Bench, New Delhi issued directions on 01.11.2018 and 14.11.2018 in O.A.No.857/2018 & M.A.No.1624/2018 in the matter of Dr. Pentapati Pulla Rao Vs Union of India and Ors. The Joint Committee submitted their report on 29.12.2018 in compliance with the above order. Further, the Hon'ble NGT has heard the matter on 19.02.2019 and ordered the Joint Committee to re-visit the site and verify the compliance on action taken report and furnish a fresh report to the Hon'ble NGT.

Order dated 19.02.2019 in O.A.No.857/2018:

The Hon'ble NGT ordered the Committee as follows:

"We are of the view that steps to meet the above observations are necessary to be taken to remedy the deficiencies noticed by the Committee.

Let the project proponent, Polavaram Project Authority, take necessary steps in the matter within one month and submit a compliance report to the Committee, through the nodal agency i.e. the APPCB. The said report may be considered by the Committee and after re-verification, a fresh report be furnished to this Tribunal by e-mail at ngt.filing@gmail.com.

It is made clear that if there any default remains un-remediated by the project proponent, the project proponent may be liable to pay compensation for damage to the environment. On this aspect also, the Committee may take its recommendations".

A.P. Pollution Control Board based on the joint inspection dated 11.12.2018, issued directions to Polavaram Irrigation Project vide Order No.129/ APPCB/ UH-II/ TF/ ELR/2018-1942, Dt.27.02.2019 to comply with the observations. Further, based on NGT order, as per the APPCB letter No.12/APPCB/ Legal/NGT Delhi/2018, Dt.26.12.2018 directed the Polavaram Project Authority to submit the compliance to the action taken report. Accordingly, the Polavaram

Project Authority vide Lr.No.SE/PIPW/OT1/AE-1/CSIS (NGT) /Vol.5/159-M, Dt.06.03.2019 has submitted the action taken report to the Member Secretary, A.P. Pollution Control Board, Vijayawada (**Annexure -A**).

Based on the directions of Hon'ble NGT, the organizations were requested to nominate their representatives vide A.P. Pollution Control Board Lr.No.529/APPCB/VSP/ELR/Polavaram/2005, Dt.22.04.2019. Accordingly, following four member Joint Committee visited the Indira Sagar Polavaram Multipurpose Project on 25.04.2019:

1. Dr. M. Madhusudanan, Scientist (E), (Additional Director), Central Pollution Control Board, Regional Directorate, Bengaluru.
2. Dr. C. Palpandi, Scientist "C", MoEF&CC, Regional Office, South Eastern Zone, Chennai.
3. Sri B. Siva Prasad, Joint Chief Environmental Engineer, APPCB, Vijayawada.
4. Sri Pravin Kumar, IAS., Collector and District Magistrate, West Godavari, Eluru.

About the project:

The Environmental Clearance (EC) to the proposed project has been accorded vide Lr.No.J-12011/74/2005-IA.I, Dt. 25.10.2005 and subsequently, revised in the year 2009 vide MoEF&CC Lr.No.J-12011/74/2005-IA.I, Dt.09.03.2009. Consent for Establishment (CFE) was accorded by the A.P. Pollution Control Board vide Order No. 529/APPCB/VSP/ELR/Polavaram/2005, Dated 18.10.2005. The total land requirement for the project is 46,060 hectares comprising of 3279 Ha of Forest Land. Forestry Clearance (FC) for the diversion of 3731.07 Ha. (3473 Ha. notified Forest Area plus 258.07 Ha. deemed Forest Land) has been obtained from the MoEF&CC vide letter No.8-123/2005-FC, Dt.28.07.2010. Further, requisite permission / NOC has been obtained from the Standing Committee of National Board for Wildlife (3267 Ha FC Land) vide Lr.No.F.NO.6-3/2002 WL-I(pt), Dt.06.07.2006. Additional land of 203 Acres in Moolalanka of Polavaram Village has been acquired by the State of Andhra Pradesh vide Notification 2016 as per the provisions of the Right to Fair Compensation and Transparency in land acquisition and Re-habitation & Resettlement Act, 2013 and handed over to the project proponent for the purpose of dumping of muck and is being in use. Reportedly another 87 Acres in adjoining area has also been acquired for the muck disposal purpose. Project Authority has not made available the documents relevant to the permissions obtained from MoEF&CC, GoI for the additional land acquired and they have indicated that since this land is part of the project area,

the original EC shall suffice. The Committee also held discussions with Forest Officers and it appears that the Papikonda National Park is located at around 8 Kms. from the Moolalanka dumping site. It is also learnt that Eco-Sensitive Zone around the Papikonda National Park yet to be notified. The project is intended to provide irrigation facilities to 2.91 Lakh hectares in Visakhapatnam and East Godavari Districts under Left Main Canal and West Godavari and Krishna Districts under Right Main Canal. Further, it also comprises of generation of Hydel Power of 960 MW and 80 TMC diversion of Godavari water to River Krishna for stabilizing the existing command and Prakasam Barrage and to provide drinking water facilities to 540 enroute villages together water supply to Visakhapatnam City and to industries enroute. Odisha and Chattisgarh state, 5 TMC ft. and 1.5 TMC ft. of water respectively be lifted from the pond of Polavaram Project. Reportedly total 1,93,350 persons are likely to be affected by this project, out of that 1,75,275 in Andhra Pradesh and 6,319 persons from Odisha and 11,766 persons from Chattisgarh. The project activity commenced in the year 2005-2006. As per the information of project Authority, total expenditure incurred is Rs.15,205.53 Crores and cost of the project as per 2013 -14 price level is Rs. 57,940.86 Crores.

Present status of the project:

As informed by the Project Authority, the project construction work started during 2005-06 and present progress of Polavaram Head Works is 61.52%, Left Main Canal is 70.59%, Right Main Canal is 90.99%. The overall progress so far made in the project is 69.40%. The excavation of works reportedly completed around 84.90%.

Joint Inspection ON 25.04.2019:

The Joint Committee assembled at the project guest house "Sujala Guest House" on 25.04.2019. The Committee had an interaction with the representatives of the applicant (farmers & residents nearby project area) to explain the issues and grievances. Three representatives narrated their issues before the Committee. The Committee also had a preliminary meeting with the project authorities and discussed the progress on implementation of action taken report. Further, the Committee re-verified the action taken report submitted by the project authority along with the representatives of the applicant and project proponent. The Committee made a visit to project area inter alia including Kademma Canal, Road cracks developed, Dumping sites (D1, D2, D4, D5, D6), BC Colony, Moolalanka Dump Yard and Yard to be acquired near Moolalanka dump site.

Re-verification report of the Joint Committee dated 25.04.2019:

Sl. No.	Recommendations of the Committee during Polavaram site visit on 11.12.2018	Action taken by the Polavaram Project authority, submitted to APPCB on 11.03.2019 (Annexure A)	Updated compliance status as of 25.04.2019 by the project authority (Annexure- B)	Remarks/observation of the Committee
1.	Observed disposal of muck without proper height, levelling and gradient.	Action has been taken that the excavated material is dumped to a safer height only duly levelling and Gradient.	The extent of dump yard (Moola lanka) is about 203 Ac extended in a length of 3.40 km. So far dumping of muck is completed in a length of 1.20 km to a height of 20 – 25 m considering the nature of the base soil. Dumping is also done in the remaining length of dump yard intermittently and the dumping of soil is in progress. However wherever the area of dump yard is exhausted, the leveling and making proper gradient is in progress. The outward slope of gradient is	The representative of the project authority has informed that outward slope / gradient is maintained at 1:1 or 1.5:1 (H:V) depending on the cohesiveness of the property of the soil. It is also informed that total excavation of muck will be completed by June, 2019 and soon after the entire dump area is proposed to be made even and plantation to be taken-up. *Time line of 30th June 2019 is suggested by the Committee for compliance. Progress to be reported every 15 days by submission of ATR.*

			maintained at 1:1 or 1.5:1 (Horizontal: Vertical) depending on the cohesiveness property of soil. As the leveling and making gradient is concurrently done while dumping and it is continuous process till the dump yard is exhausted. It is programmed to complete the total excavation in the project by end of June, 2019 and soon after this the entire area of dump yard will be made even and planted suitably. **Machinery deployed at dump yard for dumping soil, maintaining slopes and gradient:** Dozer (D80):3 nos Dozer (D50): 1 nos Tractor Dozers: 7 nos Excavators(Ex-200): 10 nos JCB: 2 nos	

2	No vegetation / greenbelt have been made on the dumps to stabilize and to prevent air pollution.	Avenue plantation has been already developed in the Project area in the vicinity. However necessary action is being taken for further avenue plantation development on the dumpsite also to stabilise and to prevent air pollution as suggested.	Wherever the dump yard is full, no further dumping is made. Avenue plantation is started with the co-ordination of Forest department. Presently, near BC Colony of Polavaram (V) a length of 1200 m stretch along kademma drain is tackled with planting vegetation. However, a comprehensive plan of Avenue Plantation with 32, 400 plants with a cost of Rs. 2.74 Cr estimate is envisaged and will be implemented. Due to Elections, the sanction could not be processed in time. Copy of estimate enclosed. Soon after the completion of dumping, full fledged Avenue plantation will be taken up in larger scale. It is programmed to	The project authority has assured to the committee that the plantation work facing BC colony shall be taken up within a week time. A comprehensive plantation programme with 32400 plants at a cost of Rs.2.74 Cr. is also in pipeline which is to be taken up after Election Code of conduct. *The progress of plantation to be reported within 10 days from 25-04-2019, and further the progress by 30-06-2019. The ATR to be submitted every 15 days.*

			complete the total excavation in the project by end-of-June 2019 and soon after this the entire area of dump yard will be made even and planted suitably.	
3.	The Project Authority may re-look at the utilization of 87 Acres acquired adjacent to the existing dumping site (Moolalanka dump site).	The Agency has been addressed to confirm actual requirement of additional land of 83.45 acres of Mulalanka lands towards dumping. After receipt of report from the Construction Agency, the proposal of utilisation of this additional land as suggested by the Joint Inspection Team will be examined.	The directions of the Joint Committee are taken into consideration. Meanwhile, as suggested by the Joint Committee the dumping will not be done in this area till orders are obtained.	During the visit, the Committee observed that no dumping of muck is being done in 87 acres. The project authority also ensured that no dumping of muck will be done in 87 Ac acquired land till further orders are obtained. *The ATR of follow up made to be submitted by 30-05-2019.*

4	The Project Authority shall immediately prepare an action plan regarding feasibility of utilizing the excavated material within the project area and the feasibility of using the land already demarcated near the 'O' point.	It is to submit that most of the excavated rock will be reused in the Construction of project in the form of rock fill material and filters for ECRF Dam and Coffer dams, embankments, protection works & for production of metal to be used in Concrete. So, the dump yards used for rock will be only of temporary & will be vacant after the completion of the project. It is also to submit that significant part of the excavated soils will be used In the construction of the project in the form of material for ECRF Dam & Coffer Dams, embankments, ramps, protection works etc,. The remaining soils, which are of	All the useful excavated material from the Polavaram Project Dam area is used in the construction of Coffer Dams, ECRF Dam, Roads, and other embankment works. Crushed Stone material obtained from Rock Excavation is used for Concrete works. The remaining Soils/ Rock which are not suitable for the works based on Engineering properties are dumped at dump yard. The Earth work quantity involved in the excavation is about 11 Cr cum. For the entire project for completion. The land which is demarcated "O" point is meant for utilising Polavaram Right Main Canal works which is about 10 KM from the work site. The transport to that area will pass through thickly populated	Excavated material is used in the construction of coffer dam, ECRF dam, roads and other embankments woks. Crushed stone material is used for concrete works. Transport of utilizing excavated material at "0"point is not feasible as transportation of material has to be passed through thickly populated areas of Polavaram Village as per the project authority. *Progress and quantity of re-utilization of muck to be submitted every month.*

		alluvial nature will be placed in the lands specially acquired i.e., Mulalanka dumpsite etc.	Polavaram village which involves inconvenience to public.	
5	Project Authority made the commitment and assured before the Committee that henceforth i.e., 11.12.2018 onwards dumping of mucks will not be done near the BC colony area. Copy of commitment is annexed as Annexure - 'C'.	B.C Colony is situated far away from the Mulalanka dump yard. However, it is to submit that there is no activity of dumping near the B.C colony area which is affecting the colony. It is further to submit that no further dumping will be allowed in the above area, as proposed during inspection.	It is to submit that there is no activity of dumping near the B.C colony area since 11.12.2018. It is to further submit that no further dumping will be allowed in the above area.	No dumping of muck was observed at BC colony area as committed earlier. *The progress as suggested in point No. 2 may be completed and reported.*
6	The project authority shall regularly carry cut air quality monitoring in line with National Ambient Air Quality Monitoring Programme and submit reports to MOEF & CC/APPCB.	NEERI Hyderabad has been contacted to monitor the Air Quality. Principal Scientist NEERI, Hyderabad and his Team members have visited the Polavaram Irrigation Project regarding Air Quality Monitoring, Noise level, Water	Air Quality Monitoring was being monitored by conducting tests by Contracting agency (M/s Thriveni Earth Movers Pvt Ltd) regularly since Jan 2019 to March 2019. Now, the Air Quality Monitoring works are being taken up through M/s B S ENVI – TECH Pvt Ltd,	Committee is of the opinion that the network has to be increased. A station may be started at B.C Colony and other adjacent villages. *The progress appears to be slow. The comprehensive AAQM to be*

		Quality Tests and preparation of reports to MOEF and APPCB. The proposals of CSIR-NEERI HZC for carrying Monitoring and Assessment of Environmental measures in and around Polavaram Irrigation Project Head works have been sent for Government Orders. The monitoring of Air quality will be initiated shortly.	Secunderabad (Recognised by MOEF & CC). Copies of Test Reports of Ambient Air Quality monitoring conducted at Moola Lanka Dump Yard, Ramayapeta Rock Dump area, Spill Channel Area and Project Office of Polavaram Project Head Works are enclosed. PM10 is with in the allowable limits at all these locations. Map indicating location of the AAQ monitoring stations is enclosed. Further, it is to submit that a study of Comprehensive monitoring & Assessment of Air & Water quality, Noise levels is being entrusted to M/s NEERI, Hyderabad. Proposals to that effect are being submitted to Govt. for Rs. 84.45 lakhs per annum. Orders are awaited from Government.	*submitted by May 2019. The present makeshift arrangements to continue. ATR 30-06-2019.*

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7	Strengthening of dump sites with proper heights and slopes along with vegetative cover may be planned immediately in consultation with technical experts.	The dumping of the soils is carried out by proper levelling and slopes maintained with due heights. Dozers are used to level and compact the dumped area. The dumps after reaching desired heights in a phased manner are covered with a soil layer to support natural plant growth.	The total length of Moola lanka Dump yard is about 3.40 KM with an area of 203 Acres. The entire area is proposed to be used as place to store solid muck obtained from excavation of Spill channel. It is planned to dump the soil to a allowable height of 20 m – 25 m with stable slopes of 1:1 to 1.5:1 (H:V). The dump yard after reaching the above mentioned height is stopped for further dump and the soils are trimmed & spread for avenue plantation. A separate estimate is prepared for Avenue plantation for Rs 2.74 Cr. Soon after the completion of dump in the above dump yard, it is planned to consult Dept. of Horticulture, A.P Agricultural Dept., and Forest Dept., for development of vegetative cover.	The project authority is planning plantation with the support of the Forest Department near the BC colony. Mock is dumped to a height of 20 m – 25 m with slopes of 1:1 to 1.5:1. Dumping is stopped once the height is reached to the height of 25 m maximum. The authority is planning for development of vegetative cover after conclusion of dump in the above dump yard in consultation with Horticulture Department, Forest Department & Agricultural Department. *The progress to be submitted every 15 days.*

			However, at present with the support of Forest Dept. the area which is near BC colony is taken up for plantation.	
8	The Committee has verified the restoration of roads after development of cracks as reported in the project approach road during the last monsoon season. The report obtained from Central Design Organization, Vijayawada, AP is annexed as Annexure - 'D'.	Dr. R. Ayothiraman, IFT, New Delhi has been asked to carry out the analysis of failure and up heaving of service road and soil dump area of Polavaram Project site. The detailed report is awaited. Necessary protection measures will be taken as per his report. However, at present the damaged road is stabilized temporarily. It is also to bring to the notice that in due course the above approach road also to be excavated totally as it forms part of pilot channel in the project.	The slipping of side embankment along the Spill channel and damaging the service Road by cracks was discussed in the Dam Design Review Panel (A Technical Committee constituted by MOWR, GOI) for suggestions and measures to be taken. During the 12th DDRP meeting held on 26-3-2019 at CWC, New Delhi, the members after detailed discussions have recommended to provide gabions as a temporary measure for protection of the excavated part of the Spill channel. (Item 12.6 of minutes, copy enclosed for kind perusal Annexure-	Slipping of side embankment was again discussed in the Dam Design Review Panel (DDRP) on 26.03.2019 at SWC, New Delhi. Designs for gabions are being prepared as suggested by the DDRP.

			4). The construction agency is addressed to prepare the Designs accordingly for approval by CWC. Designs are under progress.	
9	Adequate dust suppression measures like providing water spraying may be arranged till good vegetative cover attained. Similarly, water spraying may be arranged for wetting the approach "roads/ village roads etc. at the project areas and nearby villages."	Frequency of wetting of roads was increased to avoid fugitive dust emissions during vehicular movement. Adequate arrangements are made to avoid dust pollution.	Dust suppression measures are taken up by means of Sprinkling water by water tankers. Regular sprinkling of water by water tankers is maintained both on service Roads and as well as on Dump yard haul roads. Of total 26 nos of water tankers, 8 nos of 20 KL capacity water tankers are used exclusively for Service & Dump yard Roads. About 640 Kl of water of Godavari River per day is sprayed on roads of dump yards and service roads.	Wetting of roads with water with River Godavari water using 26 nos of water tankers.

- The Committee further recommended that the Polavaram Project Authority shall submit the ATR in detail to Nodal agency, APPCB.
- The environmental compensation issue was also deliberated on by the Committee during the re-verification visit. Taking into consideration of the observations of the Joint Committee and commitments made by the project authority, it is opined that compensation part shall be considered further based on the progress and monitoring results.

B.Siva Prasad,
Joint Chief Environmental Engineer,
APPCB, Vijayawada

Dr. M.Madhusudanan, Scientist (E),
Central Pollution Control Board,
Regional Directorate, Bengaluru.

Dr.C.Palpandi, Scientist "C",
MoEF&CC, Regional Office
(South Eastern Zone), Chennai

Pravin Kumar, IAS,
Collector and District Magistrate,
West Godavari, Eluru.

Annex - 'd'

Report on Preliminary Studies

Assessment of Ambient Air Quality at Polavaram, W.G.Dist., Andhra Pradesh

Sponsor

Sponsor: Water Resources Department, Govt. of Andhra Pradesh
or
Executive Engineer (FAC), P.I.P.H.W. Divn. No. III, Polavaram

CSIR-National Environmental Engineering Research Institute
(Council of Scientific and Industrial Research)
Hyderabad Zonal Center (HZC), IICT Campus, Hyderabad

May 31, 2019

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1.0 Preamble

The Polavaram Irrigation Project is a multipurpose terminal Project across river Godavari near Polavaram Village about 42 Km on upstream of Godavari Barrage, Dowlaiswaram. The Project envisages Irrigation benefits to an extent of 7.20 Lakh Acres for the up land areas of East Godavari & Visakhapatnam Districts under left main canal (181.50 Km) and West Godavari & Krishna Districts under right main canal (174.00 Km) and generating of 960 MW of Power. In addition to irrigation benefits 80 TMC of water is proposed to be diverted to Krishna River and supply of 23.44 TMC of drinking water to Visakhapatnam.

The construction Polavaram Project is taken up after obtaining all the statutory clearances from the various ministries of Government of India. The environmental concerns during the construction forms the part of the Environmental Impact Assessment report and only after considering all such impact and its mitigation measures, the Ministry of Environment & Forest has granted clearance to the project on dt 25.10.2005.

All the environmental safe guards are being implemented at site while doing the earth work excavation as well as dumping of excavated soils. The dumping yards are common features of any construction project which itself is a standard practice of minimizing pollution. Adequate arrangements i.e wetting of Roads are made to avoid dust pollution.

The status of compliance with the conditions specified in the clearances i.e., Air Quality Monitoring Test Reports, Noise Level and Water Quality Tests Reports have to be submitted to the Ministry of Environment and Forests, Government of India and APPCB, Vijayawada.

In this context, Executive Engineer (FAC), P.I.P.H.W. Divn. No. III, Polavaram approached CSIR-NEERI-Hyderabad Zonal Centre to take up the Environmental Quality Monitoring in and near Polavaram dumping site to know the actual scenario at this location and to suggest any mitigative measures if required.

Based on the technical discussions and site visit by CSIR-NEERI scientists and the information provided by Executive Engineer (FAC), P.I.P.H.W. Divn. No. III, Polavaram, an environmental monitoring and assessment study w.r.to preliminary study on ambient air quality is proposed with the following objectives and scope of work.

2.0 Objectives

- To monitor ambient air quality (AAQ) at appropriate locations surrounding Polavaram dumping site during May 2019.

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3.0 Scope of Work

The monitoring of ambient air quality (AAQ) at appropriate locations surrounding Polavaram dumping site was carried out during May 2019. The scope of the work is as given below:

- Identification of monitoring locations for air pollutants sampling based on local meteorology, land cover/topography and other available information/charts.
- Five ambient air quality (AAQ) monitoring stations will be established and 24 h sample collection will be done for the following parameters: Particulate Matter (size less than 10 µm or PM_{10}), Particulate Matter (size less than 2.5 µm or $PM_{2.5}$), Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2), Ozone (O_3), Carbon monoxide (CO), Ammonia (NH_3), Benzene, Particulate metals like lead (Pb), Arsenic (As) and Nickel (Ni) and particulate associated Benzo-alpha-pyrene (BaP), as per National Ambient Air Quality Standards (NAAQS) Criteria by Central Pollution Control Board (CPCB), New Delhi.
- Collection of hourly meteorological data comprising wind speed, wind direction, temperature, relative humidity, cloud cover, solar insolation and rainfall (from secondary data sources or from nearest IMD station).

4.0 Ambient Air Quality Study

4.1 Design of Ambient Air Quality Monitoring Network

The studies on air environment consist of assessment of existing status of ambient air quality and collection of meteorological data to delineate the baseline status of the region. Representative selection of sampling locations is primarily guided by the topography and micro-meteorology of the region. A methodically designed ambient air quality monitoring network covering 5 sampling locations was designed within the 5 km study area with dumping yard as centre.

The ambient air quality status in the study area during May 2019 (summer season) is carried out by selecting 5 locations using network design criteria and monitoring was carried out as per CPCB guidelines. The sampling locations were presented in **Table 1**. The locations of air quality monitoring in the study area are shown in **Fig. 1.**

4.2 Micrometeorology

Meteorological data of wind speed, wind direction, temperature and relative humidity were collected from nearest Meteorological Station (Nidadavolu, WG Dist., A.P) from Climatological Tables of India Meteorological Department. The predominant winds are from S, SW, Se and W directions. The wind speed has been observed in the range of 0.5 - 5.0 m/s.. Ambient temperature varied between 26.7 - 38.5^{o}C during May, while the relative humidity was observed in the range of 53-74%.

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4.3 Ambient Air Quality Status

Five Ambient Air Quality (AAQ) monitoring stations were established on 24 hrly basis sample collection for Particulate Matter (size less than 10 µm or PM_{10}), Particulate Matter (size less than 2.5 µm or $PM_{2.5}$), Sulphur dioxide (SO_2), Oxides of Nitrogen (NO_X), Hydrogen Sulphide (H_2S) and Ammonia (NH_3). Ozone (O_3) and Carbon Monoxide (CO) on 1 hrly basis & Benzene and Volatile Organic Carbons (VOCs) as spot concentrations were monitored. The techniques/methods used for monitoring and analysis of air quality parameters are given in **Table 2**. The data collected was subjected to statistical analysis like minimum, maximum, average and standard deviation. The observed ambient air quality data within the study area is given in **Tables 3.** The parameters were analyzed following standard methods and concentration levels were compared with National Ambient Air Quality Standards (NAAQS) prescribed by Central Pollution Control Board (**Annexure I**). Status of individual parameter is described in the following sections:

4.3.1 Particulate Matter

The 24hourly minimum-maximum values and average PM_{10} and $PM_{2.5}$ concentrations at all the sampling locations are given in **Table 3**. From **Table 3**, it is observed that the average PM_{10} and $PM_{2.5}$ concentrations varied between 110 - 164 µg/m^3 and 52 - 101 µg/m^3 respectively within the study area and found that the average PM_{10} and $PM_{2.5}$ concentrations are exceeding the NAAQS (PM_{10} - 100 µg/m^3; $PM_{2.5}$ - 60 µg/m^3) at all ambient air quality locations, except at Triveni Office and Police Check Post w.r.to $PM_{2.5}$ values. The higher values of particulate matter (PM_{10} and $PM_{2.5}$) in terms of maximum concentrations in the study area may be due to the ongoing dumping by trucks and unpaved roads. Also the higher values of particulate matter may be due to dry atmospheric conditions and moderate to strong winds in the area.

4.3.2 Gaseous Pollutants

Sulfur dioxide and Oxides of Nitrogen

The average concentrations of SO_2 and NO_X are found to be varying within the range of 2 - 4 µg/m^3 and 5 - 6 µg/m^3 respectively within the study area (**Table 3**) and the levels of of SO_2 and NO_x were observed well below NAAQS (80 µg/m^3).

Ammonia

Atmospheric ammonia (NH_3) is a pollutant which is highly soluble in water, its major sink in the atmosphere is by wet deposition. The residence time of ammonia in the lower level of the atmosphere is a few hours, though in the calm environment it may exist for weeks. Ammonia is the major base present in the atmosphere and is therefore important in neutralizing acidic species such as SO_2, H_2SO_4, HNO_3 and HCl. To assess the levels of

ammonia in air, samples were collected by passing air through absorbing media and analyze by wet chemical method. The average concentrations of NH_3 are found to be varying within the range of 27 - 41 μg/m^3 within the study area (**Table 3**) and these values are well within the NAAQS (400 μg/m^3).

Ozone

Ozone (O_3) is a secondary air pollutant formed by photochemical reactions involving NOx and VOCs, mainly hydrocarbons. In the presence of solar radiation, nitrogen dioxide (NO_2) dissociates to form nitric oxide (NO) and an oxygen atom (O). O_3 is then formed by O_2 reacting with the oxygen atom (O). However, when hydrocarbons are present, NO is converted to NO_2, thus leaving little NOx to react with O_3. This reaction leads to a build-up of O_3 in the atmosphere. Sources of NO_2 and VOCs are primarily anthropogenic, generally produced during combustion processes from automobile emissions and industrial activities.

To assess the levels of ozone in air, samples were collected by passing air through absorbing media during day time (1000-1800 h) assuming ozone production occurs in the presence of solar radiation, NOx and VOCs. The samples were analyzed by wet chemical method. The average concentrations of O_3 are found to be varying within the range of 6 - 43 μg/m^3 respectively within the study area (**Table 3**) which were below the NAAQS (1 h avg. 180 μg/m^3).

Carbon Monoxide (CO)

Carbon monoxide is a colorless and odourless gas. It is formed when substances containing carbon are burned with an insufficient supply of air. The combustion of fuels such as petrol, gas, coal and wood generate carbon monoxide. Gas and wood used for cooking and heating in appliances like stoves and barbecues add to such emissions. Apart from it, motor vehicles are also one of the main sources of carbon monoxide pollution in urban and sub-urban environment.

The concentrations of CO measured as 1 hrly averages are found to be ranging from 0.19 to 0.22 mg/m^3 in the study area (**Table 3**) and the values are found to be less than NAAQS (1 hr. avg. 4 mg/m^3).

Benzene

The spot concentrations of Benzene are observed to be below detectable limt (BDL) within the study area and are well within NAAQS (**Table 3**).

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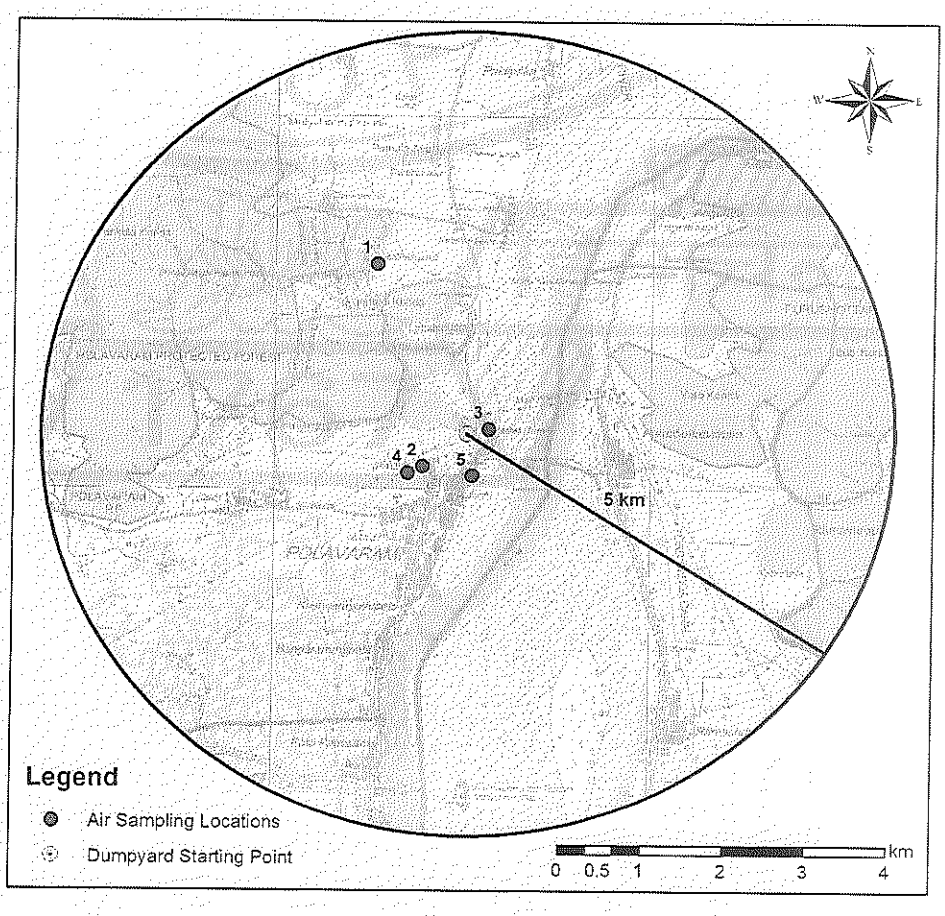

Fig. 1 Air quality monitoring locations within the study area.

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Table 1 Details of AAQ Sampling Locations during May 2019

Sr. No	Sampling Location	Latitude	Longitude
1.	Irrigation Quarter	N 17°15' 09.1"	E 81°38' 29.11"
2.	BC Colony	N 17°15' 06.4"	E 81°38' 23.3"
3.	Triveni Office	N 17°16' 29.7"	E 81°31' 10.4"
4.	Police Check Post	N 17°15' 24"	E 81°38' 55.5"
5.	CWC	N 17°15' 05.2"	E 81°38' 49"

Table 2 Techniques Used for Ambient Air Quality Monitoring

Sr. No.	Parameter	Monitoring Technique
1.	Particulate Matter size < 10 microns or PM_{10}	Gravimetric
2.	Particulate Matter size less than 2.5 microns or $PM_{2.5}$	Gravimetric
3.	Sulphur Dioxide (SO_2)	EPA Improved West and Geake Method
4.	Oxides of Nitrogen (NO_X)	Modified Jacobs-Hoechheiser Method
5.	Ammonia (NH_3)	Nesslers Method
6.	Ozone (O_3)	UV Photometric method
7.	Carbon monoxide (CO)	Quest CO monitor
8.	Benzene	Benzene Analyzer

Table 3 Ambient Air Quality during May 2019

S. No.	Location Name	PM_{10}	$PM_{2.5}$	SO_2	NO_X	NH_3	O_3	CO	Benzene
		µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	mg/m^3	µg/m^3
		24 hr	24 hr	24 hr	24 hr	24 hr	1 hr	1 hr	Spot
1.	Irrigation Quarter	134±12 (121-143)	101±24 (77-125)	4±4 (2-8)	6±2 (5-8)	30±16 (18-48)	6±2 (4-8)	0.21	BDL
2.	BC Colony	88±15 (74-105)	55±6 (42-63)	4±2 (2-5)	5±1 (5-6)	41±19 (27-54)	32±9 (25-38)	0.20	BDL
3.	Triveni Office	110±44 (47-162)	54±10 (44-68)	3±2 (2-5)	5±1 (5-6)	27±10 (15-37)	24±30 (2-78)	0.22	BDL
4.	Police Check Post	164±17 145-178	52±5 (46-56)	4±4 (2-9)	5±0 (5-5)	30±24 (15-58)	43±17 (23-53)	0.21	BDL
5.	CWC	160±18 (147-173)	61±5 (58-65)	2±0 (2-2)	5±0 (5-5)	31±3 (29-34)	26-8 (21-32)	0.19	BDL
NAAQS		**100**	**60**	**80**	**80**	**400**	**180**	**4**	**5**

Note: The 24 hrly average concentrations of particulate matter and gaseous pollutants are reported as **Avg. ± S.D (Minimum - Maximum)**

BDL - Below Detectable Limit

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National Ambient Air Quality Standards – 2009

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1.	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual * 24 Hours **	50 80	20 80	-Improved west and Gaeke -Ultraviolet fluorescence
2.	Nitrogen Dioxide (NO_X), $\mu g/m^3$	Annual * 24 Hours **	40 80	30 80	-Modified Jacob & Hochheiser (Na-Arsenite) -Chemiluminescence
3.	Particulate Matter (Size less than 10 µm) or PM_{10} $\mu g/m^3$	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TOEM -Beta attenuation
4.	Particulate Matter (Size less than 2.5 µm) or $PM_{2.5}$ $\mu g/m^3$	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TOEM -Beta attenuation
5.	Ozone (O_3) $\mu g/m^3$	8 hours ** 1 hour**	100 180	100 180	-UV photometric -Chemiluminescence - Chemical method
6.	Lead (Pb) $\mu g/m^3$	Annual * 24 Hours **	0.50 1.00	0.50 1.00	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper -ED-XRF using Teflon filter
7.	Carbon Monoxide (CO) mg/m^3	8 hours ** 1 hour *	02 04	02 04	-Non Dispersive Infrared Spectroscopy
8.	Ammonia (NH_3) $\mu g/m^3$	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
9.	Benzene (C_4H_4) $\mu g/m^3$	Annual *	05	05	-Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10.	Benzo Pyrene (BaP) - particulate phase only ng/m^3	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
11.	Arsenic(As) ng/m^3	Annual *	06	06	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
12.	Nickel(Ni) ng/m^3	Annual *	20	20	-AAS/ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform intervals

** 24 hourly or 8 hourly or 01 hourly monitored values as applicable shall be compiled with 98% of the time in a year. 2% of the time they may exceed the limits but not on two consecutive days of monitoring

B.S. ENVI - TECH PVT. LTD.

Recognized by MoEF & CC, GoI: Valid upto January, 2022

TEST REPORT

Project	**: Polavaram Project**
Month	**: June-2019**
Location	**: Moolalanka Soil Dump Yard**
Station Code	**: AAQ-01**

AAQ REPORT

DATE	PM_{10} [µg/m³]	$PM_{2.5}$ [µg/m³]	SO_2 [µg/m³]	NO_2 [µg/m³]
03.06.19	72	24	9.1	11.5
04.06.19	83	31	10.1	12.7
10.06.19	64	20	11.0	11.8
11.06.19	76	27	11.5	12.9
17.06.19	69	23	10.2	11.8
18.06.19	78	30	12.2	13.3
Test Method	IS 5182 (Part 23) 2006 (Reaffirmed 2012)	BSET/SOP/AA-02 (CPCB Guidelines)	IS 5182 (Part 2) 2001 (Reaffirmed 2012)	IS 5182 (Part 6) 2006 (Reaffirmed 2012)
NAAQ Standards for Industrial, Residential, Rural & Other Areas (24 hourly standard)	100 [µg/m³]	60 [µg/m³]	80 [µg/m³]	80 [mg/m³]

Note:
- **PM_{10} : Respirable Particulate Matter**
- **$PM_{2.5}$: Fine Particulate Matter**
- **SO_2 : Sulphur Dioxide**
- **NO_2 : Nitrogen Dioxide**

Name of the Instrument Used: Respirable Dust Sampler & Fine Particulate Matter Sampler

For B.S Envi-Tech (P) Ltd.

B.S ENVI TECH PVT LTD SECUNDERABAD

Authorised Signatory

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CIN No. : U74210TG1999PTC032358

TEST REPORT

Project : Polavaram Project
Month : June-2019
Location : Ramayaapet Rock Dump Area
Station Code : AAQ-2

AAQ REPORT

DATE	PM_{10} [µg/m³]	$PM_{2.5}$ [µg/m³]	SO_2 [µg/m³]	NO_2 [µg/m³]
03.06.19	70	22	8.9	10.2
04.06.19	81	25	9.3	10.6
10.06.19	86	26	9.0	10.6
11.06.19	74	22	8.5	10.1
17.06.19	88	27	8.3	9.8
18.06.19	79	24	8.7	10.0
Test Method	IS 5182 (Part 23) 2006 (Reaffirmed 2012)	BSET/SOP/AA-02 (CPCB Guidelines)	IS 5182 (Part 2) 2001 (Reaffirmed 2012)	IS 5182 (Part 6) 2006 (Reaffirmed 2012)
NAAQ Standards for Industrial, Residential, Rural & Other Areas (24 hourly standard)	100 [µg/m³]	60 [µg/m³]	80 [µg/m³]	80 [mg/m³]

Note:
PM_{10} : Respirable Particulate Matter
$PM_{2.5}$: Fine Particulate Matter
SO_2 : Sulphur Dioxide
NO_2 : Nitrogen Dioxide
Name of the Instrument Used: Respirable Dust Sampler & Fine Particulate Matter Sampler

For B.S Envi-Tech (P) Ltd.

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Website : www.bsenvitech.com
CIN No : U74210TG1999PTC032358

Project : **Polavaram Project**
Month : **June-2019**
Location : **Spill Channel Area**
Station Code : **AAQ-3**

AAQ REPORT

DATE	PM_{10} [µg/m³]	$PM_{2.5}$ [µg/m³]	SO_2 [µg/m³]	NO_2 [µg/m³]
05.06.19	75	23	8.5	10.0
06.06.19	71	21	8.8	10.2
12.06.19	79	24	8.9	10.3
13.06.19	77	23	9.2	10.6
19.06.19	69	20	8.3	10.0
20.06.19	82	26	9.5	10.9
Test Method	IS 5182 (Part 23) 2006 (Reaffirmed 2012)	BSET/SOP/AA-02 (CPCB Guidelines)	IS 5182 (Part 2) 2001 (Reaffirmed 2012)	IS 5182 (Part 6) 2006 (Reaffirmed 2012)
NAAQ Standards for Industrial, Residential, Rural & Other Areas (24 hourly standard)	100 [µg/m³]	60 [µg/m³]	80 [µg/m³]	80 [mg/m³]

Note:
PM_{10} : **Respirable Particulate Matter**
$PM_{2.5}$: **Fine Particulate Matter**
SO_2 : **Sulphur Dioxide**
NO_2 : **Nitrogen Dioxide**
Name of the Instrument Used: Respirable Dust Sampler & Fine Particulate Matter Sampler

For B.S Envi-Tech (P) Ltd.

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CIN No. : U74210TG1999PTC032358

TEST REPORT

Project : Polavaram Project
Month : June-2019
Location : Office Area
Station Code : AAQ-4

AAQ REPORT

DATE	PM_{10} [µg/m³]	$PM_{2.5}$ [µg/m³]	SO_2 [µg/m³]	NO_2 [µg/m³]
05.06.19	77	30	10.3	11.6
06.06.19	69	32	10.7	12.0
12.06.19	69	27	10.5	11.8
13.06.19	75	30	11.0	12.3
19.06.19	81	28	10.4	11.7
20.06.19	83	35	11.0	12.2
Test Method	IS 5182 (Part 23) 2006 (Reaffirmed 2012)	BSET/SOP/AA-02 (CPCB Guidelines)	IS 5182 (Part 2) 2001 (Reaffirmed 2012)	IS 5182 (Part 6) 2006 (Reaffirmed 2012)
NAAQ Standards for Industrial, Residential, Rural & Other Areas (24 hourly standard)	100 [µg/m³]	60 [µg/m³]	80 [µg/m³]	80 [mg/m³]

Note:
PM_{10} : Respirable Particulate Matter
$PM_{2.5}$: Fine Particulate Matter
SO_2 : Sulphur Dioxide
NO_2 : Nitrogen Dioxide
Name of the Instrument Used: Respirable Dust Sampler & Fine Particulate Matter Sampler

For B.S Envi-Tech (P) Ltd.

B.S ENVI TECH PVT. LTD. SECUNDERABAD

Authorised Signatory

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Envirotech
RESPIRABLE DUST SAMPLER
Envirotech APM 460BL
P3592
P3592

Annex - D

Government of India
Ministry of Environment, Forests and Climate Change
Wildlife Division

6th Floor, Vayu Wing
Indira Paryavaran Bhawan,
Jor Bagh Road, Aliganj,
New Delhi-110003.

F. No. 10-20/2017-WL
Dated: 16 November 2018

The Chief Wildlife Warden
Government of Andhra Pradesh
Amravati.

Sub: Declaration of Eco-Sensitive Zone around National Parks and Sanctuaries Andhra Pradesh.

Sir,

Reference is invited to the proposals for declaration of Eco-Sensitive Zones around Nation Parks and Sanctuaries in Andhra Pradesh. In this context, it is requested that the following det sought by this Ministry with respect to the following ESZ proposals are still awaited:

S.No.	Name of the Sanctuary	Deficiencies/Requirement
1.	Coringa Sanctuary	vi. Area of the proposed ESZ in sq. km. vii. Matrix of activities (permitted, regulated, prohibited). viii. Soft copy of the above details.
2.	Krishna Sanctuary	v. Co-ordinates of points on the PA boundary of Krishna WLS have not been indicated on the map. vi. Area of the proposed ESZ in sq. km. vii. Soft copy of the above details.
3.	Koundinya Sanctuary	vi. Area of the proposed ESZ in sq. km. vii. Constitution of Monitoring Committee in Koundinya Wildlife Sanctuary is missing. viii. Soft copy of the above details.
4.	Rajiv Gandhi Sanctuary (Nagarjunasagar Srisailam Tiger Reserve)	i. Area of the proposed ESZ in sq. km. ii. Proposed composition of Monitoring Committee.
5.	Kolleru Sanctuary	i. Final proposal after realignment of the boundary. ii. Soft copy of the complete proposal.
6.	Papikinda National Park	i. Resubmit the proposal after interstate boundary made by the state government. ii. Soft copy of the revised proposal.
7.	Gundla Brahmeswaram Sanctuary	i. Revised proposal (including details of remaining buffer area). ii. Soft copy of the revised proposal (draft notificatio and other details in word format and map in jpg format.

It is once again requested that the above details may kindly be forwarded to t URGENTLY. A check list in this regard is enclosed for kind perusal.

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Deputy Inspector General of

Boundary description of Eco-sensitive Zone of Papikonda Nationalpark in West Godawari District.

Station "A" to "B":The boundary line runs from "A" at River Godawari bank on Nationalpark boundary with coordinates Long 81.6099 Lat 17.31297 in Southern direction along the Nationalpark boundary along eastern boundary of Polavaram RF upto Station "B" with coordinates Long 81.62569 Lat 17.28673.

Station "B" to "C" The line runs from Station "B" along the southern boundary of Polavaram RF upto Station "C",where Kunkala RF starts with coordinates Long 81.55307 Lat 17.25925.

Station"C" to "D" The line runs along west and eastern boundary of Kunkala RF upto Station "D" where Kopalli RF starts, with coordinates Long 81.50786 Lat 17.24003.

Station "D" to "E" The line runs along the southern boundary of Kovvada RF upto Station "E" where Kopalli RF starts, with coordinates Long 81.44749 Lat 17.27297.

Station "E" to "F" The line runs along the southern boundary of Kopalli RF upto Station "F" where Nagavaram Mutta Block starts with coordinates Long 81.37667 Lat 17.26706.

Station F" to "G" The line runs along the southern boundary of Nagavaram Mutta Block and touches the 5 kms zone line on the Khammam , West Godawari boundary at Station "G" with coordinates Long 81.29341 Lat 17.32901.

Conservator of Forests,
Rajahmundry Circle.
Rajahmundry

District Collector,
West Godavari, Eluru.

Divisional Forest Officer
Eluru Division, Eluru.

DRAFT NOTIFICATION OF ECO-SENSITIVE ZONE OF PAPIKONDA NATIONAL PARK, WEST GODAVARI DISTRICT.

AND WHEREAS, the Papikonda National Park is located in 3 revenue Districts ie., East Godavari, West Godavari and Khammam and the River Godavari passes through all the Districts along Papi hills in the Eastern ghats. Forty nine (49) villages are falling inside the National Park. Among which 26 villages are going to submerge due to construction of the Indira Sagar (Polavaram) project.

AND WHEREAS, due to submergence of certain areas and as per the instructions of the Central Empowered Committee, additional adjacent areas which are free from habitations have been annexed to the Papikonda Wildlife Sanctuary and declared as **Papikonda National Park** as per subsection (4) of section 35 of Wildlife Protection Act, 1972 vide G.O.Ms.No. 144 EFS &T (For.II) department dt. 4.11.08 with an area of **1012.858** sq km covered by 4 territorial divisions as detailed below.

The Forest Division wise areas included in the National Park are as follows:

Sl.No.	District	Division.	Area in Sq.kms.
1	East Godavari	Kakinada	310.621
2	West Godavari	Eluru	261.828
3	Khammam	Paloncha	163.824
4	Khammam	Bhadrachalam south	276.585
		Total :	**1012.858**

WHEREAS, Papikonda National Park, named after the famous hill range of Papi hills of Eastern ghats is situated in dense forests containing luxuriant vegetation of dry deciduous to semi moist deciduous forests. The area is mostly inaccessible with high slopes, valleys and higher rainfall. It contains valuable and varied flora and fauna including carnivores and herbivores. The area plays a key role with high precipitation and consequent origin of various small streams and rivulets which drain and enrich the perennial River Godavari. The luxuriant forest vegetation, varied fauna, high rain fall and undulating steep hill slopes with a number of hill streams makes the area a typical, ecological, faunal, floral geomorphologic zone worth protecting and preserving.

Previously an area of **590.68 sqkm** was declared as Papikonda Wildlife Sanctuary under Sec. 26A of Wildlife Protection Act, 1972 vide G.O.Ms.No.96 EFS&T (For. III) Dept., Dt: 17-7-1998 and was published in the State Gazette, Part-I, Extraordinary no. 348, Dt: 27-7-1998.

AND WHEREAS, The Government of Andhra Pradesh proposed to construct Indira Sagar Project across the river Godavari near Polavaram. After the construction of the Indira Sagar Project, many of the areas on either side of Godavari river which are hither to free ranging sites for wild animals will be submerged under water.

Accordingly an extent of **148.38 ha.** Reserve Forest area and **1553.00 ha** Non-Forest area from Papikonda Wildlife Sanctuary will be submerged in the proposed Indira Sagar Project.

AND WHERE AS the National Board for Wildlife has taken decision for declaration of Eco-Sensitive Zones around National Parks and Wildlife Sanctuaries. The Government of Andhra Pradesh have issued instructions to identify Eco-Sensitive Zones around the Protected Areas in consultation with the line departments under the chairmanship of concerned District Collectors keeping in view of the safety, security of the wildlife in its natural environment within the National Park and the livelihood opportunities of the tribals and others, and other development activities outside vide G.O.Ms.No. 11747/For-11(2)/2006, EFS&T (For-III) Dept, dt. 13.3.2012. Accordingly a meeting was convened by the Collector & District Magistrate, West Godavari, Eluru. The District level meetings have been conducted on 21.01.2013, and 28.01.2013. Required maps and guidelines for notification procedure have been supplied to the line departments in soft & hard copies and discussed the issues in detail. Certain departments have submitted proposals. The line departments and industrial units have been informed that Quarrying, felling of trees, discharge of effluent, disposal of solid waste are banned and construction activities, Tourism, Ground water usage, use of plastic and sound pollution would be regulated. The proposals have been called for from the line departments in West Godavari District under the Chairmanship of Collector, West Godavari district in respect of Papikonda National park with 0 to 12km zonation, which is flexible and area specific.

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AND WHEREAS it was discussed in detail about the activities which are to be permitted or regulated or prohibited keeping in view of the importance of wildlife as well as the livelihood rights of the locals and it was decided that, some activities will be permitted, some activities will be regulated while some activities will be prohibited as given in the Table No. I.

1. All the parts of the Eco-sensitive zone are mostly, notified Forests, village settlements and agricultural fields.
2. These agricultural lands are patta lands and ROFR titles in general and are legally enjoyed by the occupants.
3. The main agricultural crop is Paddy, Cashew, Rubber and podu cultivation by the adjacent tribal villagers.
4. Livelihood activities of the villagers in and around the Eco- sensitive Zone will not be affected as there are no restrictions for the ongoing activity like NTFP collections in the Forest areas and agricultural practices, other traditional livelihood activities in the Revenue lands and Forest lands.

AND HENCE, a draft notification proposals to approve under sub-section (1) and clauses (v) and (xiv) of sub-section (2) of section 3 of the Environment (Protection)

Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 is now submitted.

AND HENCE all objections and suggestions if any will be received in the process of issue of final notification.

AND HENCE the boundaries of the Papikonda National park all around for which Eco-Sensitive zone has to be declared is as given below. The Notification shall come into force with effect from the date of Publication of this Notification in the Andhra Pradesh Gazette.

2.Boundaries of Eco-Sensitive Zone:-

Station "A" to "B":The boundary line runs from "A" at River Godavari bank on National park boundary with coordinates Long 81.6099 Lat 17.31297 in Southern direction along the National park boundary along eastern boundary of Polavaram RF unto Station "B" with coordinates Long 81.62569 Lat 17.28673.

Station "B" to "C" The line runs from Station "B" along the southern boundary of Polavaram RF upto Station "C", where Kunkala RF starts with coordinates Long 81.55307 Lat 17.25925.

Station"C" to "D" The line runs along west and eastern boundary of Kunkala RF upto Station "D" where Kovvada RF starts, with coordinates Long 81.50786 Lat 17.24003.

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Station "E" to "F" The line runs along the southern boundary of Kopalli RF upto Station "F" where Nagavaram Mutta Block starts with coordinates Long 81.37667 Lat 17.26706.

Station F" to "G" The line runs along the southern boundary of Nagavaram Mutta Block and touches the 5 kms zone line on the Khammam , West Godawari boundary at Station "G" with coordinates Long 81.29341 Lat 17.32901.

The notification shall come into force with effect from the date of publication of this notification approved by the Ministry of Environment and Forests, Government of India.

3. Zonal Master Plan for the Eco-sensitive Zone :-

(1) A Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government within a period of one year from the date of publication of this notification in the Official Gazette and approved by the Ministry of Environment and Forests, Government of India.

(2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Department of Environment, Forest, Tribal Welfare, Tourism, , Irrigation, Roads & Buildings, Panchayat Raj, Revenue, A.P. State Pollution Control Board, Industries, Agriculture and APTRANSCO for integrating environmental and ecological considerations into it.

(3) The Zonal Master Plan shall provide for restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.

(4) The Zonal Master Plan shall demarcate all the existing and proposed village settlements, types and kind of forests, agricultural areas, fertile Lands, green areas, horticultural areas, orchards, lakes and other water bodies, Eco-tourism areas, roads, drinking water facilities etc.

(5) It shall exempt all canals , drainage works, roads and electrical lines.

(6) No change of land use from green uses such as orchards, horticulture area, agricultural area and others like places to non-green uses shall be permitted in the Zonal Master Plan, new formation of roads and bridges infrastructure, construction of public utility or community buildings without the prior approval of the state Government. Conversion of agricultural lands may be permitted to meet the residential needs of the existing local residents together with natural growth of the existing local populations.

(7) The planned Rural infrastructure proposed in the development plans shall be approved by the State Government for the respective controlled areas.

(8) The Zonal Master Plan shall be a reference document for the State Level Monitoring Committee for any decision to be taken by them including consideration for relaxation.

(9) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of traffic.

(10) Pending the preparation of the Zonal Master Plan for Eco-sensitive Zone and approval there of by the Ministry of Environment and Forests, all new constructions shall be allowed only after the proposals are scrutinized and approved by the Monitoring Committee as referred in paragraph 5.

(11) There shall be no considerable reduction in Forest area, Green area and Agricultural area.

(12) The State Government shall prescribe additional measures, if necessary in furtherance of the objectives and for giving effect to the provisions of this notification.

4. Regulated or restrictive activities in the Eco-sensitive Zone :-

The following activities in the Eco-sensitive Zone shall be regulated in the manner provided herein namely :-

(a) Industrial Units

(i) No establishment of new wood based industry within Eco- sensitive Zone

(ii) No establishment of any new polluting or high polluting industry within Eco- sensitive Zone

(b) Construction Activities

(i) No construction of any kind shall be allowed for commercial activity except for Eco-tourism

(ii) The construction of any building more than three stories (twenty five feet) shall not be allowed in the area.

(iii) The laying of new high tension transmission wires shall be regulated.

(c) Quarrying and Mining :-

(i) Mining and Quarrying shall not be allowed .

(d) Trees :-

Felling of trees on forest land shall be subject to the approved management plan by the Central Government or an authority nominated for that purpose.

(e) Water :-

(i) Extraction of ground water shall be permitted only for the bona-fide agricultural and domestic consumption of the occupier of the plots and Rural water supply requirements.

(ii) No sale of ground water shall be permitted except with the prior approval of the State Ground Water Department.

(iii) All steps shall be taken to prevent contamination or pollution of water including from agriculture.

(f) Noise Pollution :-

The Environment Department or, the Government of Andhra Pradesh shall be the authority to drawn up guidelines and regulations for the control of noise in the Eco-sensitive zone.

(g) Discharge of effluents :-

(i) No untreated or industrial effluent shall be permitted to be discharged into any water body within the Eco-sensitive Zone.

(ii) Treated effluent must meet the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(h) Solid Wastes :-

(i) The solid waste disposal shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 issued by the Central Government vide notification number S.O. No. 909 (E) dated the 25th September, 2000 as amended from time to time.

(ii) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components, and act accordingly.

(iii) The biodegradable material may be recycled preferably through composting or vermiculture.

(iv) The inorganic material may be disposed in an experimentally acceptable manner at the site identified outside the Eco-sensitive Zone. No burning or incrimination of solid wastes shall be permitted in the Eco-sensitive zones.

5. Monitoring Committee :-

(i) In exercise the powers conferred by sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby constitutes a committee to be called the Monitoring Committee to monitor the compliance with the provisions of this notification.

(ii) The Monitoring committee referred to in sub-paragraph (1), shall consist of not more than ten members so as to represent the following, namely ;

(a) District Collector, West Godavari District, Eluru - Chairman.
(b) A representative of the Ministry of Environment and Forests, Government of India – Member.
(c) One representative of Non-governmental Organizations working in the field of Environment – Member.
(d) Environmental Engineer, Eluru A.P. State Pollution Control Board – Member.
(e) Project Officer, ITDA, K.R.Puram – Member.
(f) District Wildlife Warden , West Godavari /District Forest Officer (T),Eluru ,West Godavari District – Member secretary.
(g) Divisional Forest Officer, Wildlife Management, Rajahmundry – member.
(h) Superintending Engineer, R&B, Eluru.
(i) Assistant Director, Mines and Geology, Eluru.
(j) Joint Director, Agriculture, West Godavari District, Eluru.
(k) District Tourism Officer, West Godavari District ,Eluru.
(l) General Manager, District Industries Centre, Eluru.

(iii) The powers and functions of the Monitoring committee shall be restricted to the monitoring of the compliance of the provisions of this notification only.

(iv) In case of activities requiring prior permission or environmental clearance, such activities shall be referred to the State Level Environment Impact Assessment Authority constituted vide notification of the Government of India in the Ministry of Environment & Forests number S.O. 1533 (E) dated September 14the, 2006, which shall be the competent Authority for grant of such clearances as per the provisions of the said notification.

(v) The Monitoring Committee may also invite representatives or experts from the concerned Departments or associations to assist in its deliberations depending on the requirements on issue to issue basis.

(vi) The Chairman or Member Secretary, as the case may be of the Monitoring Committee shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 for non-compliance of the provisions of this notification.

(vii) The Monitoring Committee shall submit its annual action taken reports by the 31st March of every year to the Ministry of Environment and Forests.

(viii) The Ministry of Environment & Forests shall give directions, from time to time, to the Monitoring Committee for effective discharge of the functions of the Monitoring Committee.

Yours faithfully,

11/2/13

Divisional Forest Officer,
Eluru Division, Eluru.

Table No. I

Activities which are Permitted / Regulated / Prohibited in the Eco-Sensitive Zone of Papikonda National Park.

Sl. No.	Activity	Permitted	Regulated	Prohibited	Remarks
1.	Ongoing agriculture and horticulture practices by local communities	Yes	--	--	--
2.	Organic farming	Yes	--	--	To be encouraged
3.	Rain Water harvesting	Yes	--	--	To be encouraged
4.	Use of renewable energy sources	Yes	--	--	To be encouraged
5.	Fishing	Yes	--	--	--
6.	Establishment of Hotels and Resorts	--	Yes	--	--
7.	Sign boards & hoardings	--	Yes	--	--
8.	Felling of trees	--	Yes	--	--
9.	Erection of New electrical lines	--	Yes	--	--
10.	Use of explosives for developmental activities	--	Yes	--	--
11.	Movement of vehicular traffic at night time.	Yes	--	--	--
12.	Widening of roads and formation of roads	--	Yes	--	--
13.	Improvement of existing roads	Yes	-	-	-
14.	Use of polythene bags by shopkeepers	--	Yes	--	--
15.	Commercial Mining and quarrying	--	-	yes	--
16.	Setting of sawmills	--	--	Yes	--
17.	Setting of industries causing pollution (Water,Air,Soil,Noise etc)	--	--	Yes	--
18.	Commercial use of Firewood	--	Yes	--	--
19.	Establishment of major hydroelectric projects	--	--	Yes	--
20.	Discharge of effluents and solid waste in natural water bodies or terrestrial area	--	--	Yes	--
21.	Use or production of any hazardous substances	--	--	Yes	--

11/2/13

District Forest Officer,
Eluru Division, Eluru.

Item No.07 Court No.1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 857/2018
(M.A. No. 1624/2018)

Dr. Pentapati Pulla Rao Applicant(s)

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 10.05.2019

CORAM: **HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON**
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant(s): Mr. Sravan Kumar, Advocate

For Respondent(s): Mr. Guntur Prabhakar, Mr. Guntur Pramod Kumar, Advocates for State of Andhra Pradesh
Mr. TVS. Raghvendra Sreyas, Advocate for R-7

ORDER

1. Issue for consideration is the remedial steps against violation of environmental norms in the course of construction of the Indira Sagar Polavaram Multipurpose Project in Andhra Pradesh.

2. In the light of the allegations of the applicant, vide order dated 01.11.2018, this Tribunal constituted a four member Committee comprising representatives of the Central Pollution Control Board, Additional Principal Chief Conservator of Forests, Andhra Pradesh Pollution Control Board and the District

Collector, to furnish a factual report on factual aspects in the matter.

3. Report dated 29.12.2018 was considered by the Tribunal on 19.02.2019. Several deficiencies in the report are as follows:

> *"1. Observed disposal of muck without proper height, levelling and gradient.*
> *2. No vegetation / greenbelt have been made on the dumps to stabilize and to prevent air pollution.*
> *3. The Project Authority may re-look at the utilization of 87 Acres acquired adjacent to the existing dumping site (Moolalanka dump site).*
> *4. The Project Authority shall immediately prepare an action plan regarding feasibility of utilizing the excavated material within the project area and the feasibility of using the land already demarcated near the '0' point.*
> *5. Project Authority made the commitment and assured before the Committee that henceforth i.e. 11.12.2018 onwards dumping of mucks will not be done near the BC colony area. Copy of commitment is annexed as Annexure - 'C'.*
> *6. The project authority shall regularly carry cut air quality monitoring in line with National Ambient Air Quality Monitoring Programme and submit reports to MOEF&CC/APPCB.*
> *7. Strengthening of dumpsites with proper heights and slopes along with vegetative cover may be planned immediately in consultation with technical experts.*
> *8. The Committee has verified the restoration of roads after development of cracks as reported in the project*

approach road during the last monsoon season. The report obtained from Central Design Organization, Vijayawada, AP is annexed as Annexure - 'D'.

9. Adequate dust suppression measures like providing water spraying may be arranged till good vegetative cover attained. Similarly, water spraying may be arranged for wetting the approach 'roads/village roads etc. at the project areas and nearby villages."

4. This Tribunal directed the project proponent to take the necessary remedial steps in the matter. The Committee appointed by the Tribunal was required to furnish a verification report. Report has now been furnished vide email dated 03.05.2019 by the Andhra Pradesh State Pollution Control Board giving tabular chart of deficiencies found, action taken by the project proponent and remarks of the Committee. The Committee has found that several steps are still required to be taken and indicated timelines which extend upto 30.06.2019 and required the project proponent to take further specified actions. The project proponent may act accordingly and report to the Committee.

5. The Committee may furnish further report on or before 31.07.2019.

List for further consideration on 27.08.2019.

Adarsh Kumar Goel, CP

S.P. Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

May 10, 2019
Original Application No. 857/2018
(M.A. No. 1624/2018)
AK