

REPORT OF JOINT COMMITTEE IN THE MATTER OF O.A. 57 OF 2017 (Heritage Estate Apartment Owners Association) SUBMITTED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE, CHENNAI, AS PER ORDERS DATED 19.08.2020.

1.0 PREAMBLE

In the Original Application No. 57 of 2017 (SZ), filed by Heritage Estate Apartment Owners Association Vs UOI & Ors, the Hon'ble National Green Tribunal (NGT), Chennai issued an Orders on 19.08.2020 with the following directions:

“ 13. However, considering the circumstances, in order to ascertain the possible impact of the work that is being done by the 3rd respondent on environment, we feel it appropriate to appoint a joint committee comprising of 1) Senior officer from Regional Office, Ministry of Environment, Forest and Climate Change (MoEF&CC), Bangalore, 2) Senior officer from State Environment Impact Assessment Authority (SEIAA), Karnataka 3) Senior officer from Office of the Principal Chief Conservator of Forests, Head of Forest Force (HoFF) to be deputed by the Principal Chief Conservator of Forest not below the rank of Chief Conservator of Forest and 4) a Senior Scientist from Central Pollution Control Board, Regional Office , Bangalore to go in to the question as to whether there was any possibility of any environmental degradation likely to be caused on account of the establishment of the 3rd respondent unit in the disputed area and whether there were any violations committed by the 3rd respondent in carrying out the construction activities against the terms and conditions of the environment clearance or the consent to establish granted by the Karnataka State Pollution Control Board, is there any impact on livelihood on account of the activities of the 3rd respondent unit on the Yelahanahalli Lake and Bird Sanctuary and if there is any violation found assess the environment compensation and also suggest the remedial measure for restoration of damage, if any caused.”

Further, vide Order dated 18.09.2020, Hon'ble NGT appointed the Regional Office, Ministry of Environment, Forests and Climate change (MoEF & CC), Bangalore as the nodal agency for co-ordination and for providing all necessary logistics for the committee constituted by this Tribunal as per order dated 19.08.2020 in the above matter.

In compliance of above mentioned order, the Regional Office, Ministry of Environment, Forests and Climate change (MoEF & CC), Bangalore, vide letter No F. No. EP / 12.7 / NGT / 53 / KAR dated: 18/09/2020 has requested the concerned Departments / Authorities to nominate Senior official for the Committee to complete the task as directed by the Hon'ble NGT.

2.0 INSPECTION OF THE JOINT COMMITTEE

On receipt of the nominations, visit to M/s KPCL, Yelahanka was made on 21.10.2020 by the Joint Committee. Following members have attended:

1. Shri Subhash Malkhede, IFS, Additional Principal Chief Conservator of Forest (Wildlife), Dept of Forest, Ecology and Environment, Government of Karnataka
2. Shri Kiran Kumar B S, Scientific Officer, Grade-I, State Environment Impact Assessment Authority, Dept of Forest, Ecology and Environment, Government of Karnataka.
3. Shri Vivek, K, Senior Environmental Engineer/ Scientist D, CPCB. Bangalore
4. Shri E. Thirunavukkarasu, Scientist 'E', Integrated Regional Office, Ministry of Environment, Forest and Climate Change, Bangalore.

The officials of M/s KPCL present during the day of inspection were:

1. Shri C Venugopala, Technical Director,
2. Shri Chinna Somaiah, Chief Engineer (Civil Design)
3. Shri Krishna Murthy s, Chief Engineer (Thermal Design) (additional Charge)
4. Shri C M Divakar, Chief Engineer (Civil)
5. Shri K. Shankarappa, Superintending Engineer (M)
6. Shri Pulakeshi, Executive Engineer (M)

3.0 ABOUT M/S KPCL, YELAHANKA

Karnataka Power Corporation Ltd. (KPCL) is a State owned Public Limited Company and is in the business of generation of electric power. KPCL has a total installed capacity of about 6500 MW consisting of Hydro-Electric Stations, Thermal Power Plants (TPP), Windmills and Solar PV Plants.

KPCL owns & and has been operating a 128 MW DG based power plant located at Yelahanka near Bangalore which runs on fuels such as Diesel/LSHS/LSFO. The plant has not been utilized optimally due to high cost of power generation and non-availability of continuous supply of LSHS fuel. The generation from DG plant had stopped since August, 2013 on high production cost and its pollution potential.

Considering the proximity to the GAIL pipeline network, KPCL planned to implement a natural gas fired combined cycle power plant of 1x 350±20%MW capacity by abandoning the existing DG plant to increase the efficiency and to reduce atmospheric sulphur dioxide & suspended particulate matter emission from the DG plants.

Government of Karnataka vide its order no. EN 28 PPC 2014 dated 27.07.2014 has accorded approval for establishing first block of gas based Combined Cycle Power Plant of 350±20% MW capacity at Yelahanka with RLNG as the fuel. The main plant equipment consists of Gas Turbine Generator (GTG) and auxiliaries, Heat Recovery Steam Generator (HRSG) and auxiliaries including main stack, Steam Turbine Generator (STG) and auxiliaries, and gas forwarding station including gas booster station.

On 20th December 2014, M/s KPCL approached Karnataka State Environment Impact Assessment Authority (SEIAA), Karnataka seeking prior environmental clearance for establishment of a 350±20% MW capacity Gas based Combined Cycle Power Plant. Since the proposed power generation capacity of the project is <500 MW, as per the Environment Impact Assessment (EIA) Notification 2006 and its amendments, the project proponents required prior environmental clearance from the State Environment Impact Assessment Authority (SEIAA). Accordingly, the proposal was considered by State Expert Appraisal Committee (SEAC) and Terms of References (ToR) were issued on 19th January 2015 for conducting EIA studies. Consequently, EIA studies were undertaken through M/s MANTEC Consultants Pvt. Ltd, New Delhi and report was submitted by the proponent on 23rd July 2015. As the project is coming up within a notified industrial area, the SEAC has exempted the public consultation. Based on the SEAC meeting held on 5th-6th August 2015 and SEIAA meeting held on 29th August 2015, environmental clearance was granted to the project proponent for the establishment of a 350±20% MW capacity Gas based Combined Cycle Power Plant vide its letter No. SEIAA 20 IND 2014 dated 01.09.2015 over a plot area of 26.4 ha out of 120 acres of land available within the premises of Yelahanka Diesel Power Plant.

Consent to establish was granted by the KSPCB vide Lr. NO. KSPCB/CFE/CEO/KPCL/2015-16 / H1033 dated 02.11.2015

Water Requirement/ Source: The total raw water requirement of the plant is around 14400 M³/day (approximately 600 M³/h). Bangalore Water Supply and Sewerage Board vide letter No. BWSSB/CE (NI & NW)/TA/323/2014-15 dated 02.02.2015 has permitted 22 MLD tertiary treated water for the project including initial allotment of around 12-15 MLD of tertiary treated water from Jakkur STP which is approximately 6 to 8 km away

from the Plant. Storage tanks of 114000M³ capacity have been provided to store the tertiary treated water drawn from the sewage treatment plant.

Fire Protection System: Fire protection system of the plant consists of hydrant system for different areas of the plant, high velocity water spray protection system for transformers & turbine lube oil tanks, medium velocity water sprays system for cable galleries, portable extinguishers and hand appliances for extinguishing small fires in different areas of the plant, carbon dioxide flooding system for GTG and the local electrical containers / control cubicles room and mobile fire tender. Adequate number of Heat rise detectors and smoke detectors have been provided at strategic locations.

4.0 DISCUSSION WITH PETITIONERS

During the visit of Joint Committee, representative of petitioner's association including Shri. Uttang, Shri Upadhyay, Shri Arunkumar, Shri Siddarth Patil, Shri R.K. Menon, Shri Balasundaram, Mrs Archana and Mrs Aarthi Patiar met the Committee and requested for an opportunity to be heard by the Joint Committee. Though it was not part of the ToRs given by the Hon'ble NGT, the Committee decided to hear them on humanitarian ground. They expressed that often there is loud whistle like noise from the activity and noise from colling tower, was found to be around 90 dB (A). They have alleged that KPCL has deliberately hidden the existence of nearby habitations in the application submitted for obtaining EC. The representative's views are that there is sufficient area available and KPCL might have planned the installation of power plant leaving maximum distance from the existing residences. Further, stated that since the public hearing was exempted, they could not get chance to convey their views, the lighting provided at the site is intense and disruptive to residents at night. Further, there was a fire accident in the plant in October, 2020 which has scared them and there is fear that it may reoccur endangering the lives.

The Committee noted that M/s KPCL, Forest, Ecology and Environment, Government of Karnataka, KSPCB have submitted reply on the above issues before the Hon'ble NGT. As regards the fire accident, the Joint Committee has not gone into details as it is not covered under the ToRs given by the Hon'ble Tribunal and it is also learnt that in O.A No. 229/2020, suo moto cognizance taken by the Hon'ble Tribunal has constituted another Committee to look into the fire incident happened in KCPL and submission of report.

5.0 DELIBERATIONS OF THE COMMITTEE

It was noted during the visit of the Joint Committee that the establishment of the plant has almost been over and trial run has been started few week ago and there was a fire accident in the Gas Turbine Generator area and hence the trial run was stopped. Hon'ble National Green Tribunal in the order dated 19.08.2020 directed the Joint committee to look into the following:

- a) *whether there was any possibility of any environmental degradation likely to be caused on account of the establishment of the 3rd respondent unit in the disputed area*
- b) *whether there were any violations committed by the 3rd respondent in carrying out the construction activities against the terms and conditions of the environment clearance or the consent to establish granted by the Karnataka State Pollution Control Board*
- c) *is there any impact on livelihood on account of the activities of the 3rd respondent unit on the Yelahanka Puttenahalli Lake and Bird Sanctuary and*
- d) *if there is any violation found assess the environment compensation and also suggest the remedial measure for restoration of damage, if any caused.*

In order to deliberate on the above given Terms of References (ToR), the Committee, after inspection of the plant, had discussion with the officials of KPCL and also examined various documents like EIA, EMP, On Site Emergency Plan, various permissions obtained, compliance of EC and Consent orders. Based on the above, each ToR has been deliberated in detail and following are the observations/comments:

5.1 *Whether there was any possibility of any environmental degradation likely to be caused on account of the establishment of the 3rd respondent unit in the disputed area*

The likely pollutions from a power plant are air pollution, noise pollution, water pollution and thermal Pollution.

5.1.1 Air Pollution

A Combined Cycle Power Plant (CCPP), using natural gas, is much more environmentally compatible as compared to coal-based power plant of similar capacity. In the absence of coal handling, ash handling and ash disposal areas, fugitive dust emissions and release of pollutants in stack emissions would be significantly lower. As re-gasified LNG is proposed to be used as the only fuel at this plant, particulate matter emissions will be eliminated.

Further, as Sulphur content in the natural gas is very low (less than 24 ppm, w/w), SO₂ emission from the combustion of fuel will also be negligible. Dry Low NO_x (DLN) Burners, consisting of two-stage premixed combustor are provided to control NO_x emissions below 25 ppm level which is well within the limits of 75 ppm as notified under the E (P) Rules, 1986. A stack height of 60 m [against 45 m suggested by regulatory agencies] has been provided to release the exhaust gases to atmosphere to avoid local dispersion. Continuous On – line stack emission monitoring equipment has been provided for monitoring of exhaust emission which is to be connected to the servers of KSPCB and CPCB for their monitoring.

It is reported that water sprinkling was carried out regularly during construction of the project for the dust suppression. The reports of Ambient Air Quality monitoring carried out through third party laboratories during construction phase were examined and observed that the particulate matter which is the main source of dust pollution was within the permissible limit.

5.1.2 Noise Pollution

The major sources of noise pollution in the power plant are air inlet & exhaust gas streams, steam turbine generator, other rotating equipment, combustion induced noises, flow induced noises, steam safety valves. The inlet air and exhaust gas streams have been provided with silencers for noise reduction. The steam turbine generator is housed in a closed building thereby reducing the transmission of noise to the outside environment. Action has been initiated to install the acoustic enclosure to Gas Booster Compressor (GBC) as part of efforts to bring down the noise levels.

The noise level monitoring carried out by the KPCL through third party during construction period revealed that the noise levels were within the permissible limit. However, actual impact on ambient noise levels during the normal operations of all the heavy equipment will envisage a correct picture on noise generation at the plant boundaries with respect to prescribed limits. **KPCL need to finalise the noise monitoring locations in consultation with the KSPCB, especially noise level shall be monitored along the boundary on northern side where the habitation is located.**

The loud whistle noise often generated from the turbine house and the noise generated from cooling tower need to be examined and appropriate control

measures shall be provided in consultation with KSPCB, if warranted, prior to the commencement of commercial operation of the plant.

As per the EC, "Green belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised. Tree density shall not be less than 2500 per ha with survival rate not less than 70 %. Heavy foliage indigenous tree species such as Mahagoni, Honge, Neem, Akashmallige, Kadamba, Ficus, Ashoka, etc shall be planted. The plantation area shall not be less than 33 % of the total project area."

As per the records, at present green belt development has been carried out in an area of about six acres. On the Northern side where the habitation is existing, the KPCL has carried out plantation in about 50 m width and many places along the boundary it is yet to be carried out. KPCL has reported that an area of approximately 9 acres (approx. 33% of total land area) has been identified for plantation and green belt development in a phased manner. **KPCL shall carryout minimum 50 m width of Green belt consisting of 3 tiers of plantations with tall tree variety along the compound wall to further decrease the impact of sound levels below the specified norms. Priority in green belt development shall be given on the sides where the habitation is located. Since raising tall tree cover will take couple of years, KPCL shall explore installation of suitable additional measures to control the noise level at source including measures to install barriers between the source and the habitation prior to the commencement of operation.**

5.1.3 Water Pollution

The sources of water pollution from the power plant are cooling tower blow down, HRSG blow down, effluent from DM plant/ water treatment (WT) plant. All the blow down water and effluent will be led to the guard pond for pH correction and also dilution if required with water drawn from the tertiary water storage tank - to the standards as stipulated by Pollution Control Board. The water collected in the guard pond will be used for plant cleaning, gardening, firefighting, etc.

The effluents are proposed to be treated through a 5.5 MLD Zero Liquid Discharge Plant comprising of main components like HRSCC (High Rate Solid Contract Clarifier), HRO Plant (High Recovery Reverse osmosis Plant) and Evaporator crystallizer and sludge generated is proposed to be disposed through TSDF Facility. KSPCB has not given any

permission to discharge the treated wastewater outside the premises/ to the Yelahanka Lake. The ZLD plant is under installation and hence a mobile R.O plant for the treatment of effluent has been provided. The treated water from the mobile R.O is reused in the plant, while the rejects are sent to a CETP, as reported.

5.1.4 Thermal Pollution

The combined cycle power plant envisages installation of unfired heat recovery steam generators to utilize the heat content of the exhaust gas from the gas turbines. Heat Recovery Steam Generator (HRSG) has been installed to recover heat from the gas turbine exhaust gas which will reduce the temperature of the exhaust gas to the lowest possible value, thereby reducing the thermal heat discharge into the atmosphere.

5.1.5 Solid Waste

The activity is likely to generate hazardous wastes such as cotton waste, used spent oil etc. and KPCL shall obtain Authorisation from KSPCB for disposal of these hazardous waste.

It is noted that the EIA Report has been prepared by the consultant based on the Terms of References given by the SEAC, Karnataka and all aspects of the area surrounding the project including the biodiversity of Puttenahalli lake has been considered while making the EIA report. The EIA report has suggested EMP for mitigating all likely pollution problems anticipated from the plant and KPCL has installed abatement measures. KPCL shall ensure proper operation of abatement measures as per the EMP. Proper implementation of EMP, DMP and the suggestions given above may mitigate the likely environmental degradation from the operation of the plant.

As per the documents / monitoring reports on air, water and noise submitted by the KPCL, the construction phase has not caused any environmental degradation. However, the high noise level generated intermittently from the trial operation as reported by the petitioner need to be examined and appropriate control measures shall be provided in consultation with KSPCB, if warranted, prior to the commencement of commercial operation of the plant.

5.2 Whether there were any violations committed by the 3rd respondent in carrying out the construction activities against the terms and conditions of the environment clearance or the consent to establish granted by the Karnataka State Pollution Control Board

The Joint Committee examined the compliance status of EC conditions and Consent order and observed that no violations have been committed by the 3rd Respondent. At present green belt developed in an area of six acres and it is planned to carry out in a phased manner in another three acres to reach 33 %. However, the distance between boundary wall to plant is less than 50m, hence, as per the EC, a linear plantation to form a green belt all along the boundary is not possible. The officers of KPCL assured that once the construction is complete, there would be large vacant spaces between a building which shall be planted using shade bearing, flowering tree species. Piezometers are to be installed for monitoring Groundwater prior to the commencement of operation. During the operation phase of the project, KPCL has to carry out regular mock drills on the safety aspect and regular health check-up of the people living in the villages within a radius of 10 km from the plant, as per the EC.

5.3 Is there any impact on livelihood on account of the activities of the 3rd respondent unit on the Yelahana Halli Lake and Bird Sanctuary.

Puttenahalli Lake is a 10-hectare water body which is to the South-West side of the plant and Yelahanka Lake is to the Eastern side of the plant. It is reported in the EIA report that these lakes were once outside the Bangalore city and were breeding centres for darters, painted storks, black-crowned night herons, purple herons, pond herons, egrets, Asian openbill storks, Eurasian spoonbills, spot-billed pelicans, little grebes, little cormorants, spot-billed ducks, purple moorhens and common sandpipers, due to large scale urbanization and release of untreated urban domestic waste, the bird population visiting these lakes has dwindled and now only local species like night herons, purple herons, pond herons, egrets are seen extensively.

The major air pollutant expected from the project will be NO_x emissions. As Dry Low Nox burners are installed to reduce the formation of NO_x, EIA predicts the maximum concentration of NO_x to be 1µg/m³ within 1km from the project site and incremental concentration of NO_x at the Jarakabande Reserve Forest during March-May, 2015 has been computed as 11 µg/m³ thus the long-term incremental ground level concentration of

NO_x in the surrounding environment due to plant operation will be very low. Thus, impact of the emissions on terrestrial ecosystems is likely to be insignificant.

The effluents are proposed to be treated through Zero Liquid Discharge Plant and reused. KSPCB has not given any permission to discharge the treated wastewater outside the premises/ to the Yelahanka Lake. Thus, possibility of causing pollution by the effluent to the lake is eliminated.

As per the recommendation of EIA, **KPCL shall, in consultation with Fisheries Department, release about 50,000 fish lings of “Dodda Gende (Major Carps)” and other local variety every year to Puttenahalli and Yelahanka Lakes to maintain a healthy fish population. And studies shall be conducted regarding the Impact of the Plant on the Fish population in the above lakes once in every two years for a period of 10 years after the commissioning of the Plant. In the event of any adverse effects due to the establishment of the plant, necessary mitigate measures shall be taken.**

It is to be mentioned that a storm-water drain is flowing across their property over the Yelahanka Lake Wet land (between the Puttenahalli Lake and Yelahanka Lake) carrying sewage from Puttenahalli lake downstream towards the Yelahanka Lake in the east. It was gathered that sewage spill from this storm-water drain flooded the property of M/s KPCL in the past and hence the area surrounding nala is not being used optimally. To tackle the situation, KPCL has concretized the drain (Fig. 1, 2 and 3). In addition, it appears that factor like laying of roads along sides of the Yelahanka lake in 2012-13 might have brought about alteration in the supply of required quantity of water to the wetland and lead to debilitating the ecosystem.

It is submitted that the Puttenahalli lake Bird Conservation Reserve has a conservation Reserve Management Committee formed under the provisions of Sec. 36B of the wildlife (Protection) Act 1972. The committee is supposed to suggest measures to Chief Wildlife Warden, Karnataka measures to be taken to preserve wetland as suitable habitat for both residential and migratory birds visiting the Puttenahalli Lake and adjoining landscape. Concretizing drains carrying water from Puttenahalli lake flowing to Yelahanka lake through a wetland was undesirable. However, no new structures, changing of existing wetland by removing or adding to existing flora and fauna should be done without the consultation of Chief Wildlife Warden.



Fig. 1. Land use pattern in 2017.

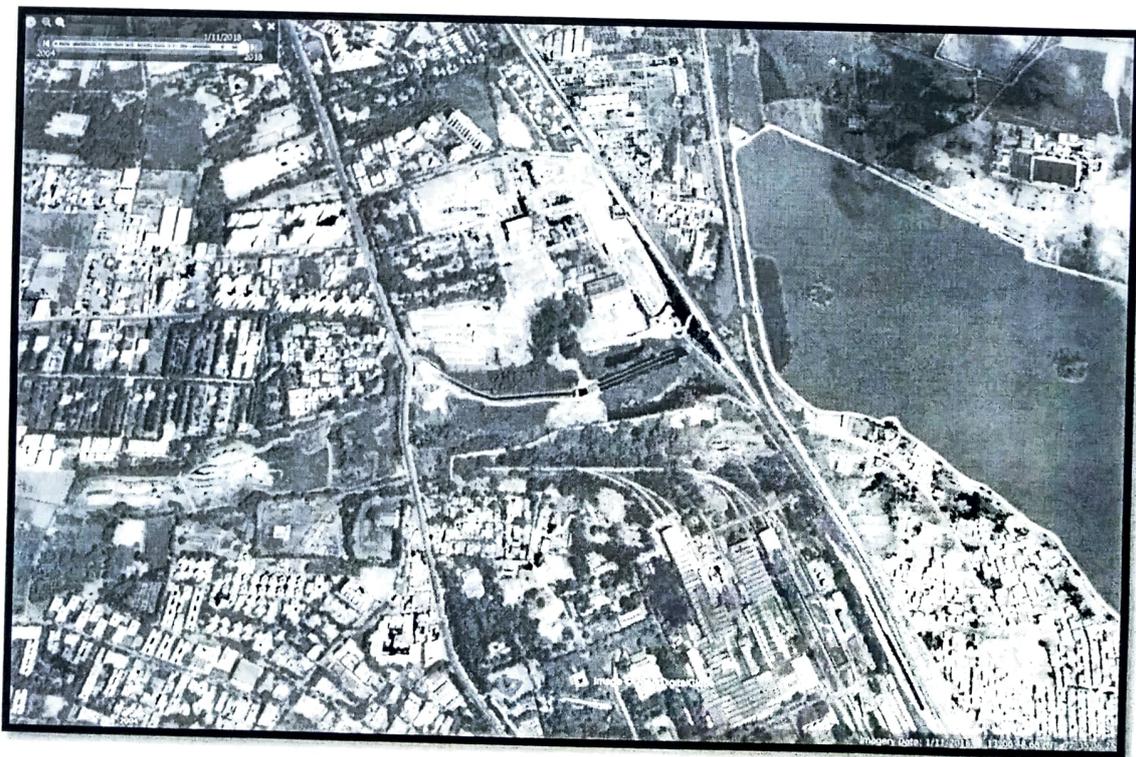


Fig. 2. Land use pattern in 2018. Concretized drainage system can be seen.

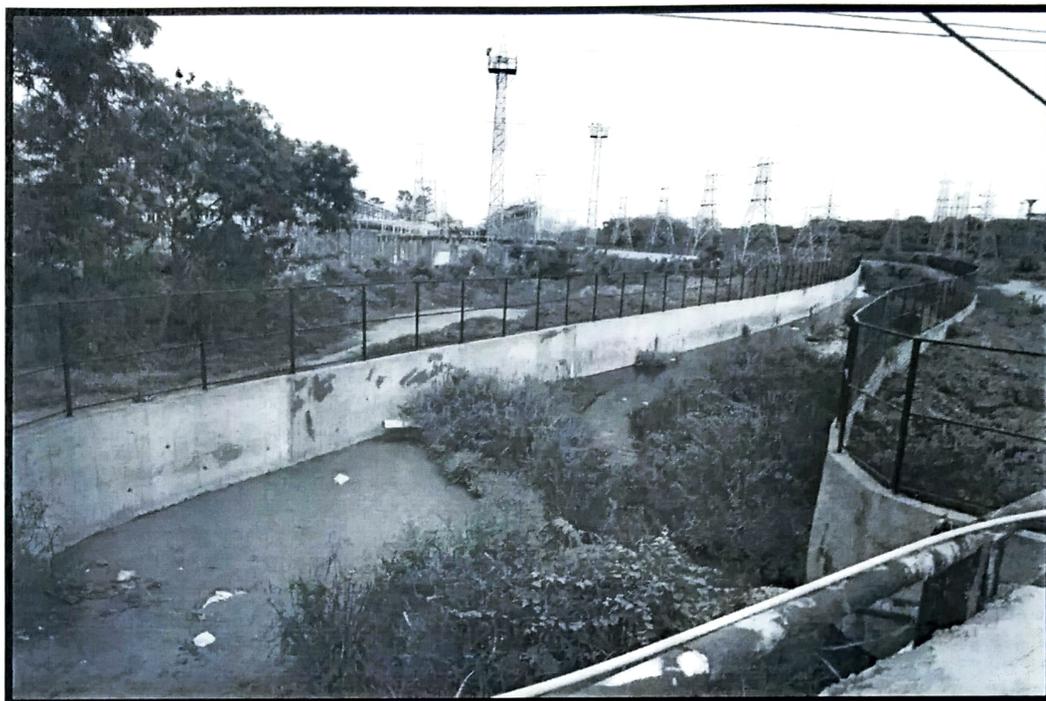


Fig 3. Concretized drain

In-order to protect and conserve the wetland, KPCL shall undertake study on restoration of the wetland and implement restoration measures in consultation with Department of Forest, Ecology and Environment, Government of Karnataka.

5.4 *If there is any violation found assess the environment compensation and also suggest the remedial measure for restoration of damage, if any caused.*

No such violation which invites compensation or remedial measures has been noted by the Joint Committee.

6. OTHER OBSERVATIONS: As regards the safety and onsite emergency preparedness, it is noted that KPCL has carried out On Site Emergency Management Plan and submitted to SEAC/ SEIAA, Karnataka while obtaining EC. The Joint Committee has not gone in detail as it is not covered under the ToRs given by the Hon'ble Tribunal and also it is learnt that Hon'ble Tribunal has constituted another Committee in O.A No. 229/2020 to look into the fire incident happened in KCPL and submission of report.

7.0 CONCLUSION AND RECOMMENDATIONS

After detailed deliberation, the Joint Committee has made the following conclusion and Recommendations:

As per the documents / monitoring reports on air, water and noise submitted by the KPCL, the construction phase has not caused any environmental degradation. However, following are suggested for better Environmental Management.

- **KPCL need to finalise the noise monitoring locations in consultation with the KSPCB, especially noise level shall be monitored along the boundary on northern side where the habitation is located.**
- **The loud whistle noise often generated from the turbine house and the noise generated from cooling towers need to be examined and appropriate control measures shall be provided in consultation with KSPCB, if warranted, prior to the commencement of commercial operation of the plant.**
- **KPCKL shall carryout minimum 50 m width of Green belt consisting of 3 tiers of plantations with tall tree variety along the compound wall at all possible places to further decrease the impact of sound levels below the specified norms. Priority in green belt development shall be given on the sides where the habitation is located. Since raising tall tree cover will take couple of years, KPCL shall explore installation of suitable additional measures to control the noise level at source including measures to install barriers between the source and the habitation prior to the commencement of operation.**
- **In-order to protect and conserve the wetland, KPCL shall undertake study on restoration of the wetland and implement restoration measures in consultation with Department of Forest, Ecology and Environment, Government of Karnataka.**

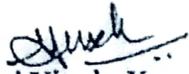
- KPCL shall ensure that the ZLD plant proposed for effluent shall be installed and commissioned prior to the commencement of commercial operation of the plant.
- KPCL shall ensure proper operation of pollution abatement measures as per the Environmental Management Plan (EMP) and safety measures as per On-Site Emergency Plan.



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