

Terms of Reference

Selection of Firm

Pilot Study and Treatment of Pennaiyar River Catchment and other inlets from Kodiyalam Anicut to Kelavarapalli Reservoir

Background:

Pennaiyar river experiencing all sorts of Industrial effluents and sewage sludges of entire Bangalore city. The river is extensively dammed for irrigation, especially in Tamil Nadu. The Pennaiyar drains an area of 16,019 Sq km out of which nearly 77 percent lies in Tamil Nadu. The river originates in the Nandi Hills in the Chikkaballapur district of Karnataka and flows through Tamil Nadu before entering into the Bay of Bengal. Kelavarapalli dam is built across this river near Hosur. The Krishnagiri dam and Sathanur Dam are also built across this river. Moreover this water flow raises the water table throughout the river basin and feeds numerous reservoirs/tanks. Some of the Bangalore's sewage mixes with this river via Varthur Lake and other channels. Pennaiyar river enters Tamil Nadu near Kodiyalam Anicut at Sokkarasampalli village by carrying the sewage water of some areas of the Bangalore city and the same water without any treatment is stored in Kelavarapalli reservoir and used for various purposes like irrigation, drinking, industrial use, etc.,

Kelavarapalli Reservoir has been constructed in 1993 across the Pennaiyar at about 19 km downstream of Tamil Nadu border of the river. It irrigates about 3240 ha. It is an Earthen Dam. The Capacity of Reservoir is 13.22 Mcum. Its Catchment Area is 2442 sqkm. Its water spread area is 3.50 sqkm. Therefore, the Government of Tamil Nadu has issued an order (G.O (MS.) No. 91 PW (WR.1) Department dated 21.04.2017) for studying of Kelavarapalli Reservoir to find out the solution for issues related to treatment and safe disposal of sewage being let out by the Bangalore City Corporation into the Kelavarapalli Reservoir.

Hence, it is better to understand the key issues prevailing in the Pennaiyar river and suitable treatment method to be adopted to clean the Pennaiyar river ie., at the entry point of Pennaiyar between Kodyalamanicut and Kelavarapalli Reservoir.

Scope of Work:

1. The scope of work includes Pilot Study and Treatment of Pennaiyar River Catchment and other inlets from Kodyalam Anicut to Kelavarapalli Reservoir using Bio Remediation Technique in the drain at right main canal of Kodyalam Anicut to meet the following standards through measurement of Critical Parameters as follows.

Sl. No	Parameter	Maximum allowable limit after treatment
1	BOD	< 25 mg/l
2	COD	<100 mg/l
3	P	< 0.01 mg/l
4	N	< 10 mg/ l
5	All Heavy Metals	< 0.1 mg/l

The firm has to prove the effectiveness of their treatment in the lab conditions first before applying the same in the field. On successful completion of the lab batch test and approval from the client and his consultant, permission to apply the same in the field will be given. The firm shall furnish the methodology and comparison with various other Bio-remediation treatment methods and details about proven previous working experience of similar nature costing not less than 5Lakhs .The work involves assessment of water quality at every 300m intervals and assessment of effectiveness of different levels of treatment utilising the

resources of the firm. The water quality parameters tested to ensure the suitability of treated water for irrigation purposes shall be approved by the Client's Consultant. The firm either should have an established NABL accredited lab or should have the agreement with an established Lab duly accredited by the NABL for analysing the water quality. The Quality of work done will be monitored by the Engineer in - charge and or by the consultant appointed by the client at required interval as decided by the client at the site and by collection of samples randomly.

Duration of Job:

The task has to be completed within 3 months from the date of awarding the work and reported within 60 days in the form of a detailed report stating all the works carried out, dosages of materials used and the test results to the concerned Kelavarapalli section officer of Environmental Cell Sub Division, PWD. Any extension of time would be possible with mutual consent under exigencies that are beyond the control of the firm.

Qualification:

The firm must have relevant professional experience and proven record in treating waste water using cost - effective Bioremediation technique. The Firm must have served atleast 3 projects of similar nature and proven expertise in environmental quality assessment and environmental reporting.

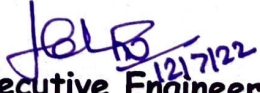
Terms and Conditions:

1. Permission to access the working site will be arranged by the Section officer.
2. Firm shall make its own arrangement for supplying materials at site.
3. The firm should submit a certificate from the competent authority or reputed National Institute to the effect that the materials used for on-site treatment (especially the microbial consortium) would not have any ill effect both on aquatic life and human.

4. Firm shall employ labours in sufficient numbers either directly or through sub-contractors to maintain the daily progress and quality to ensure workmanship to the satisfaction of the Engineer-In-Charge.
5. The firm has to submit organisation chart of their set up for this work.
6. Power, water etc required for treatment shall be arranged by the Firm.
7. Water quality at different locations of treatment should be reported to the Engineer-In-Charge in all working days.
8. The Firm has to carry out the work without affecting the environment.
9. No work is done without the presence of firm's representative at the work spot.
10. The Monitoring mechanism and the number of samples collected for performance analysis would be decided in consultation with the client.
11. The Firm shall carry out toxicological tests before & after the treatment at its own cost.
12. The Firm shall strictly adhere to various labour laws in force.
13. The selected firm would enter into contract with the TNWRD as per the government norms.

Payment:

No advance payment will be made and 75 % of contract value will be paid on completion of treatment work and approval of the results and the report by the client and his consultant on satisfactory performance. On submission of the thirty numbers of final reports as per the contract terms, the balance 25% will be paid after deducting the security deposits as per the norms in force. In case the performance is not satisfactory, no payment will be made for the treatment work.


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