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## KC Valley project: a botched-up operation



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K C Valley

The Karnataka government's grandiose plan to pump treated sewage water into Kolar and Chikkaballapur lakes to improve the ground water situation has run into rough waters with the Supreme Court staying the Karnataka high court's clearance for the same. The apex court also directed notices to the state government, the Central Ground Water Board, the state Pollution Control Board, Bangalore Water Supply and Sewerage Board and others. Thus, the Rs 1,300 crore Koramangala-Challaghatta Valley Project (KC Valley), as it is called, is in limbo.

Envisaged as a boon to the region, the project had severe shortcomings right from the beginning. Kolar and Chikkaballapur districts are chronically drought-prone areas. Agricultural activities are under severe stress and the water there is not potable due to the very high total dissolved salts (TDS) and fluoride content. Therefore, one would have expected the treated sewage water from lakes in Bengaluru to be a panacea for the problems. However, Bengaluru city sewage poses several impediments. The sewage water is contaminated with toxic heavy metals and has high levels of TDS, biochemical oxygen demand (BOD), chemical oxygen demand (COD).

The KC Valley sewage treatment plant is not equipped to treat heavy metals, organics and surfactants. Several experts had warned that the attempt to supply treated water to the lakes were fraught with the danger of contamination of heavy metals and high nutrients. While the heavy metals in the water render the lake water non-potable, high nutrients can hasten the process of eutrophication of the lakes. Another factor that was not considered is the presence of surfactants indicating the presence of phosphates that hasten eutrophication.

It is obvious that the government should have gone about creating the infrastructure in a scientific manner. However, in the typical brazen manner of governments, the sewage treatment plant was allowed to operate. The result was obvious in the first few trials when heavy frothing was observed in the Lakshmisagar lake. Naturally, the residents of Kolar and surrounding areas were agitated and disturbed. Anjaneya Reddy of Kolar filed a PIL before the high court, challenging the resumption of pumping of the treated water to the lakes.

Furthermore, different NABL labs (National Accreditation Board for Testing and Calibration Laboratories) reported widely varying results of TDS, COD, BOD, ammoniacal nitrogen and total organic carbon (TOC) for the same samples. Usually, water quality parameters are analysed with inter-laboratory and intra-laboratory comparisons to ensure accuracy, reliability and reproducibility. This important factor was totally ignored by the Government of Karnataka and KSPCB. This points to the fact that proper care was not taken during analysis.

Worse, the total heavy metal loading was also not estimated. The presence of unknown chemicals was suspected because the sum of BOD and COD did not agree with TOC values. It may add to the organic loading and have deleterious effects on aquatic flora and fauna.

When the treated sewage water at the Lakshmisagar lake discharge point was analysed under strict laboratory conditions, significant deviations from the acceptable water quality were found. The sample colour was pale green, which seemed to be synthetic origin. The colour could arise from the presence of suspended inorganic matter as well. The chemical analysis indicated that the sewage was not treated properly as it had very high BOD, COD, ammoniacal nitrogen and total phosphate. All these parameters, except TDS, are conducive to the growth of algal matter, which would cause

eutrophication and lakebeds would eventually become impermeable, resulting in the defeat of the envisaged ground water recharge objective.

This brings us to the question: what is the fate of such projects? A Government of India manual on sewage and sewage treatment systems, published in November 2013 by the Central Public Health and Environmental Engineering Organisation (CPHEEO, New Delhi) lays down the process and procedures for sewage treatment systems for Bengaluru city. The manual recommends biological nitrification, denitrification and tertiary treatment for chemical precipitation of phosphorus followed by cascading the treated water over 20 km, including a 65 m fall in a river course. This basic and important component is totally missing in the KC Valley project design and process.

Another reference document, “The policy for urban waste water reuse, Dec 2017”, adopted by the Urban Development Department, Government of Karnataka, was also not adhered to. The significant limitations of the KC Valley project according to this document include: the concept of discharging secondary treated sewage into the existing irrigation tanks is not envisaged; there are no guidelines for sewage/effluent sample collection, analysis, monitoring and validation of the analytics; the mixing of effluent with sewage has not been envisaged; the policy does not take into account the guidelines provided by CPHEEO-GOI; it lacks clarity about the systems and process; and, while waste water reuse finds mention in several policies and programmes, there is an absence of clear framework to support implementation of projects in a manner that aligns stakeholder interests and priorities and is operationally sustainable.

Obviously, more care needs to be taken in future regarding treatment of sewage water and project management. Continuous performance monitoring of such projects warrants assessment from third parties acceptable to all stakeholders, while community education and participation is fundamental to the success of such endeavours.

The need of the hour is to constitute a body to oversee and monitor the performance of waste water reuse projects and formulate a dispute resolution mechanism for the same. We have a responsibility towards mother nature to create minimal pollution and maximise efforts towards pollution control and treatment. Let us take that responsibility seriously!

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