

## **Brief on the “Executive Summary of the Integrated Cooum River Eco-Restoration Plan (November 2014)”**

The Chennai River Restoration Trust (CRRT) is a government owned Trust with the objective of restoring Chennai’s rivers and waterways. Through the Tamil Nadu Urban Infrastructure Financial Services limited, CRRT engaged consultants LKS India Pvt Ltd, to prepare a plan to “revive the Cooum river and reinstate the importance of the river in the urban area among the community” from Parithipattu to the mouth of the river.

The Plan was prepared and submitted by LKS India Pvt Ltd in November 2014 and the executive summary was made available to the public through the CRRT website in mid-2015. The final report remains inaccessible to the public. This is a synopsis of the Plan, based on the Executive Summary.

The **objectives** of the Integrated Cooum River Eco-Restoration Plan (hereinafter referred to as the Plan) are to reduce pollution and protect the river through a sustainable approach, maintain ecological flows of the rivers with the aim of ensuring water quality and sustainable development, improve and maintain flood-carrying capacity of the river, *create a river front development* wherever possible, explore possibility of navigation and other future uses.

An assessment of the current situation was done before proposing actions. Below, is a description of the assessment followed by the corresponding proposed plan.

**Environmental assessment:** The 26 samples tested showed almost nil dissolved oxygen and substantial presence of faecal coliforms, effectively making the river an open sewer. Heavy metals such as lead, zinc and cadmium are also present.

**Sewage and Sanitation:** 118 different outfalls of sewage were identified – mainly storm water drains carrying sewage and outfalls from sewerage network (92 of the 118). The report, quoting from CMWSSB’s website claims that 100% of the old city limits has an underground sewage system, while newly extended areas are severely lacking. At the same time the report says that slums along the river have no sanitation infrastructure, blaming residents for contributing the the pollution. The other reasons identified are: highly populated areas with no sewerage system, severe treatment capacity shortfall in operating sewerage systems, saturation of existing infrastructure (undersized or blocked drains overflowing into storm water drains and the river, improperly functioning sewage pumping stations), and illegal sewage pipes draining into storm water drains.

**Proposed solution:** Installation of 16 kms of interception and diversion pipelines to divert raw sewage from existing network, and 6 modular sewage treatment plants of a total proposed capacity of 14.6 MLD, with the ongoing expansion of the underground sewage network.

**Solid Waste:** There are vacant areas along the river used for dumping waste by municipalities that are neither controlled nor monitored by any agency. The report blames residents of settlements along the Cooum calling their “indiscriminate dumping” an “extended habit” of serious concern that is a high source of pollution, encroachment and source of diseases due to increased presence of disease carrying vectors. 31765 m<sup>3</sup> of garbage and 30,554 m<sup>3</sup> of construction debris is estimated to be deposited along the riverbank. The reasons for this are lack of proper facilities capacity of handling the waste generated, inefficiency in enforcing the law against littering and dumping garbage.

**Proposed solution:** Clean up of solid waste and construction debris along all areas of the river bank, and introducing a layer of soil to provide healthy ground for growth of greenery. As a preventive measure, the river will be fenced off. Waste disposal bins will be installed. A boom system will be installed in 10 places to collect floating element on the river surface.

**Soil Testing:** Soil was tested where plantations are planned, and the soil was found not hazardous. The conclusion drawn is that it can be disposed in dump yards.

**River Channel:** The report says that the river channel has undergone major changes from its natural condition, narrowed due to encroachments in many parts, and causeways in some places. This results in reduced flood carrying capacity causing a back-water effect upstream.

Proposed solution: Desiltation of river bed to improve the flood carrying capacity of the river. Extracted soil will partially be used along the river, while the remaining will be dumped in the dump yards. Other actions are: regularization of the riverbed slope and creation of a baby canal along part of the river, and deepening of the river bed in other parts. The mouth of the river is proposed to be regularly desilted to prevent the formation of sandbars.

**Ecological Flows:** Cooum is a seasonal river with a highly variable flow. The report recognises that to attempt to make the river perennially healthy may not be the best ecological option. The plan attempts to follow the historical flow regime with its marked seasonal pattern. To maintain this a water balance is required between source and use of water. As per a water balance simulation, for the horizon year 2020, there is a 73% water deficit. The report leaves it to PWD and Water Resources Control and Review Council to prioritise the use of water.

**Biodiversity:** The distribution of plant species was observed at seven sites identifying trees, herbs and climbers. For the fauna, a complete survey from Paruthipattu to the mouth was done, and found no fish, some insects, snails, birds, mammals, domestic animals, and limited plankton.

Proposed work: Mangroves and terrestrial trees will be planted. But since the soil along the river is polluted due to “anthropogenic activities” no vegetables or medicinal plants can be grown. Instead “timber yielding plants of commercial value” are proposed to be planted.

**Social Impact Assessment:** The social impact assessment is based on TNSCB’s list of slums along Cooum river banks, the Right of Way line provided by PWD and the Fluvial Corridor as per the Second Master Plan. RAY data was not made available to the consultant preparing the report.

14257 families in 58 slum areas will be affected by the Plan, 49 of these within Chennai and 9 outside Chennai. The matters taken into consideration while determining which slums are to be affected are the Right of Way line, the Fluvial Corridor, need of “urban regeneration”, need of river front improvement, flooding risk, and incompatibility with a “proper urban river front”. The main objective stated is improving the quality of life of those living in informal settlements, but the criteria applied do not take this objective into account, other than flooding risk.

Based on these criteria three options were presented as a combination of these three possibilities:

1. Identifying areas where in situ development is possible i.e. no flooding risk and compatible with the creation of a river front.
2. In situ reconstruction to create new residential areas, in 20 identified vacant areas. These have been ruled out due to CRZ rules, and CMDA’s land use regulations.
3. Eviction and resettlement in TNSCB housing

Option 1: Partial resettlement and in situ development would affect 87% of the families i.e. 12459 families

Option 2: Partial resettlement, in situ development and in situ reconstruction would affect 47% of 6681 families.

Option 3: Complete resettlement affecting 100% families.

All three options were presented to TNSCB, which decided on option 3 “as the tenements are built and ready for occupation” at Ezhil Nagar and Perumbakkam. All project affected families are to be allotted a tenement in the TNSCB resettlement colonies at these two locations.

The budget for resettlement is Rs. 1087.63 crores of a total project budget of Rs. 1934.88 crores. Each person enumerated for resettlement is to be given a shifting allowance of Rs. 5000 and subsistence allowance of Rs. 2500 per month for one year. The notional cost of each tenement has been set at Rs 6.5 lakh and 10% of this is beneficiary contribution that will be borne by CRRT.

**River Front Development:** The plan proposes 11 maintenance ways of 9.6kms, 22 walkways of 24 kms, 17 cycle tracks of 19kms and 24 parks with recreational spaces, children’s playgrounds and food courts. River front vegetation will be improved in some areas and fenced off.

**Phasing Plan:** The entire project work outlined above has been divided into subprojects to be implemented by various line departments. There are 60 short term subprojects, 7 medium term subprojects and 2 long term subprojects.