

**Technical Evaluation of Detailed Project Report for Proposed
Riverfront Development for River Godavari at Nashik**



Submitted by



CSIR- National Environmental Engineering Research Institute

September 2018

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Floodplain management is a process that aims to achieve the sustainable use of floodplains without impacting the river course. In regards to this, floodplain management guidelines were prepared and submitted in Hon'ble High Court Bombay, by a subcommittee under the chairmanship of Hon'ble Divisional Commissioner (DC) Nashik. The said document was prepared to define the activities that can be undertaken within Red and blue flood line demarcated by irrigation department to avoid further degradation of river ecosystem.

Major activities prohibited in the floodplain region are:

- Extensive vegetation clearing
- Backfilling in the floodplain region
- Concretization of river beds

On the basis of above-mentioned guidelines, following documents submitted by KPMG were assessed

- Detailed Project Report for River cleaning by Nashik Municipal Smart City Development Corporation Limited, Nashik dated July 2018
- Draft Detailed Project Report for Godavari Riverfront Development by Nashik Municipal Smart City Development Corporation Limited, Nashik dated July 2018
- Detailed project report for water control gate at Ahilyabai Holkar bridge (Victoria Bridge) across Godavari river at Nashik by Nashik Municipal Smart City Development Corporation Limited, Nashik dated July 2018
- Detailed Project Report for Underground Drainage System in ABD Area Under Smart City by Nashik Municipal Smart City Development Corporation Limited, Nashik dated July 2018

The present document summarizes the comments/suggestions of NEERI after assessment of the documents submitted by KPMG. Moreover, in the joint meeting held at NEERI, Mumbai on 6th September 2018, it was conveyed by KPMG official that the desilting would result in shifting of blue line towards the river side. However, the shifting of blue line would not be permanent.

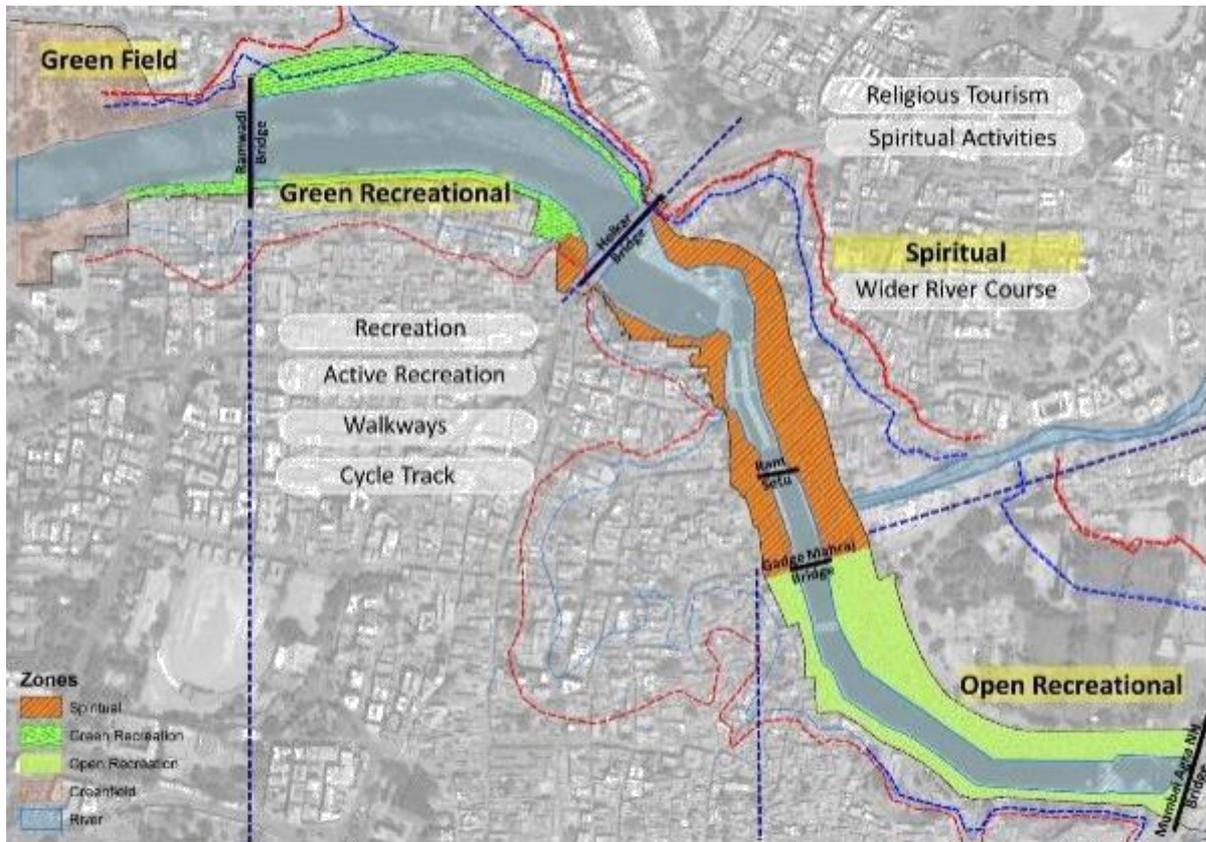


Fig1. Source: Project Goda Beautification DPR

A) Stretch I: Ramwadi bridge to Holkar bridge

a) Proposed activity: River cleaning

The proposed river cleaning activities include desilting and use of trash skimmer for removal of weeds and water hyacinth. However, desilting is not a permanent solution for lowering the water surface level. This is also due to the fact that siltation has not been studied with respect to its extent and problems associated with it.

Siltation: Erosion, movement and deposition of sediment and silt are natural and continuous processes regulating functions of river. Thus, long term solutions need to be adopted to reduce extent of siltation in addition to proposed desilting. Riverbank protection measures/anti erosion works help in reducing erosion and reduce silt load from the river banks. Ways to permanently reduce the silt loading in the incoming flow:

- Contour bunding
- Massive plantation in the upstream river side

Interception of nallahs: Trash skimmer would help in removing weeds and water hyacinth in the river. However, measures need to be taken to prevent their growth by restricting the sewage inflow in the river. "Detailed Project Report for Underground Drainage System in ABD Area Under Smart City" summarizes the proposed nallah diversion activities. The two

nallahs that are flowing in this stretch i.e. Malharkhan nallah and Ramwadi nallahs will be diverted to nearby STPs through existing sewer lines

To assess the current condition of nallahs, NEERI officials on 19th September 2018, visited few nallahs from Asaram Bapu bridge to Ramkund. It was observed that during rainy season, storm water along with sewage, flows through sewer line due to diversion of some of the nallahs to nearby STPs. This excess flow of storm water exceeds the sewage carrying capacity of the sewer line resulting in overflowing manholes. Thus, eventually storm water along with sewage enters the river Godavari. Thus, separate flow lines for carrying storm water and sewage needs to be proposed instead of Combined Sewer System. Thus, proposed diversion activities of Malharkhan nallah and Ramwadi nallah may also lead to similar issues. Hence diversion of Nallah flows in current form is not advisable.



Fig 2. Overflowing of the manhole during rainfall.



Fig 3 Mallhar Khan Nallah



Fig 4 Ramwadi nallah



Fig 5. Ramwadi Nallah Outfall into river Godavari.

Currently, to avoid inflow of sewage from open drains/nallahs it is recommended that, an In-situ system needs to be installed for removal of debris/floating matter.

- a) Repair and maintenance of manholes: There are several manholes near the existing Goda park and will also be a part of proposed Goda Park and Goda walk. The Repair and maintenance of manholes should be included as the incidences of breakage of manholes have been observed earlier.
- b) Hardscaping: As per the report submitted by Subcommittee headed by Hon'ble Divisional Commissioner, Nashik, activities like extensive vegetation clearing and backfilling should be strictly prohibited even if required for jogging tracks, public toilets and other activities permitted in Development Control and Promotional Regulations. In most cases cutting and filling within the same area can be permitted while taking precautions towards erosion control. Hardscaping upto 15% shall be allowed. DPR should clearly mention about the activities of backfilling that would be carried out for construction of proposed structures. It should also clearly mention the extent of hardscaping.
- c) Construction of Sundar Narayan temple ghat: As per the report submitted by Subcommittee headed by Hon'ble Divisional Commissioner, Nashik, activities like extensive vegetation clearing are prohibited in 100 year floodway. However, the scope of work of construction of Sundar Narayan temple ghat includes removal/ replanting of trees. The area with bushes/shrubs can be cleared for the proposed activities. However, Riparian trees should not be cut. Species identification and feasibility of transplantation need to be carried out prior to planning such activities.
- d) Provision for disposal of construction and demolition wastes as well as silt removed from the river with proper measures has not been provided in DPR. Care should be taken that these cleaning activities should not generate additional waste/debris. These activities need to be carried out as per the Construction and Demolition Waste Management rule 2016, by Ministry of Environment, Forest and Climate Change.
- e) Longitudinal as well as cross sections of the river stretch under study need to be included in the DPR. In addition to this, detailed designs of concrete retaining wall should be included in the DPR.

B) Stretch II: Holkar bridge to Gadge Maharaj Bridge

One of the significant proposed activities in this stretch is removal of concrete structures from riverbed in Gandhi Talao and Kunds. This activity would increase the possibility of filling of kunds with natural inflow of water from river bed.



Fig 6. Area from where concrete structures are proposed to be removed

Moreover, this proposed activity is also in lines with guidelines submitted by Subcommittee headed by Hon'ble Divisional commissioner.

- a) Solid waste and Nirmalya collection at Kunds: It has been observed that, solid waste including carry bags and other material are dumped in existing Nirmalya kunds resulting in dumping of Nirmalya in the river. Current proposed design for Nirmalya kunds would help in efficient collection of Nirmalya and thus would restrict disposal of Nirmalya in the river. In addition to proposed Nirmalya kunds, dustbins should also be installed near kunds to avoid dumping of solid waste in Nirmalya Kunds. There should be also provision of transfer stations where collected solid waste can be temporarily unloaded from collection vehicles and will be carried further to solid waste processing and disposal site.
- b) Detailed design of proposed Nirmlaya kunds at Ramkund must be included in DPR.
- c) Displays or messages indicating the significance of river needs to be installed in this stretch encouraging people to keep the river clean.
- d) Proposed ozonation plant at Kund:

As mentioned in Draft Detailed Project Report for Godavari Riverfront Development, the proposed ozonation system is similar to that provided at Kushawart. However, as per the report prepared by NEERI in the month of August 2018 regarding water quality at Kushawart, the water at Kushawart does not meet the of water quality standards for bathing. The detailed analysis of failure of meeting the required water quality standards needs to be done prior to installation of similar system at Ramkund. Moreover, ozonation is an energy intensive and more expensive that other than disinfection processes. More sustainable options such as solar powered ozone generators can be used to reduce the cost of O&M.

C) Stretch III: Gadge maharaj bridge to Talkuteshwar bridge

As the activities planned in this stretch are mainly about beautification and parking facilities on existing concrete surfaces, these activities would not further impact the course of the river.