**Annexure 3b**

## Supplementary Note

## Studies on rejuvenation of River Godavari and integrated action plan for improvement of Environmental status for Nasik region, Maharashtra (PIL 176 of 2012)

Hon'ble High Court had directed NEERI to undertake "Studies on rejuvenation of River Godavari and integrated action plan for improvement of Environmental status for Nasik region, Maharashtra" (PIL 176 of 2012). The Hon'ble High Court suggested that a quick preliminary assessment should be done in a span of about 6 weeks and the report may be submitted with recommendations for immediate measures required to be taken by NMC. This note is prepared in addition to the report submitted on 20 June, 2013 by NEERI.

Initial survey of the study area was carried out by NEERI team and had detailed discussions with relevant authorities. The secondary information available for Nasik city viz. environmental status report (2011), Master plan for sewerage system (2009), City sanitation plan report (2011) and City development plan (2005-06) was obtained from NMC. MPCB and Irrigation dept. has also provided relevant information pertaining to water quality and functioning of Gangapur dam respectively.

Nasik Municipal Corporation has taken up fairly adequate measures in the field of water supply and sanitation. About 90% coverage of sewer lines is completed and a target of 100% is expected to be reached by the end of 2013. The city is divided into six zones and the sewage treatment plants for three zones are fully operational which take care of 70-75% of total sewage generated. Four other plants are in the process of completion in couple of months. The solid waste management is quite effective with about 90% door-to-door collection of domestic solid waste. The municipal solid waste plant at Pathardi is reported to be functioning effectively. All these activities ultimately aim to prevent pollution of river Godavari within Nasik Municipal Corporation.

Based on site visit at different interval and the last one on 03 July 2013, specific short term measures are suggested in the table below:

**Specific Observations and Recommendations for immediate action to be taken towards cleaning of River Godavari**

| Sr. No. | Observations at Hot Spots | Recommendations | Photographs |
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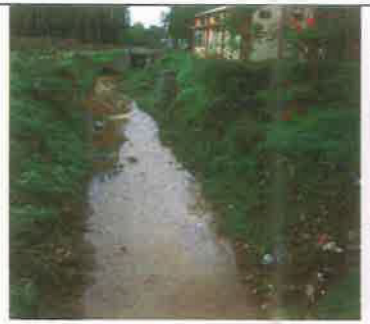
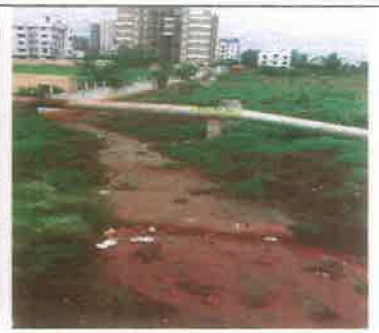
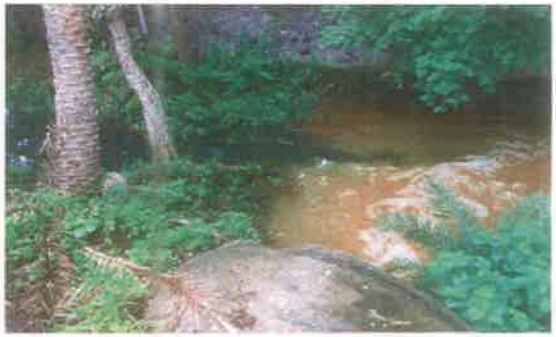
| 1. | **Satpur Industrial Area**<br>• Industrial effluent was meeting the nallas which are meant to carry sewage water<br>• Through such small nallas, Industrial effluent go into the Chikhali nalla which meet Godavari river upstream of Someshwar waterfall<br>• Residential area is adjacent to industrial zone | • The disposal practices adopted contribute toxic industrial pollutants either through nallas or through land application. The effluent disposal practices within MIDC area should be strictly monitored by MPCB.<br>• There is need to create an intercept point along the nalla which carries industrial effluent so that it can be either lifted and treated or treated at the site. |    |

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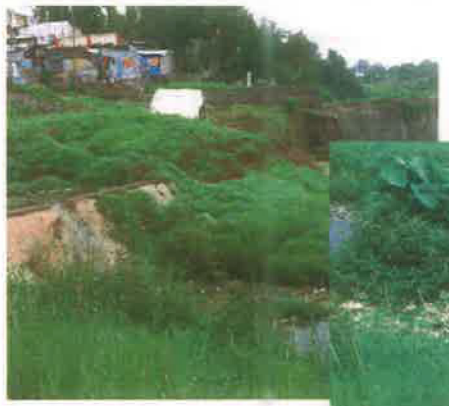
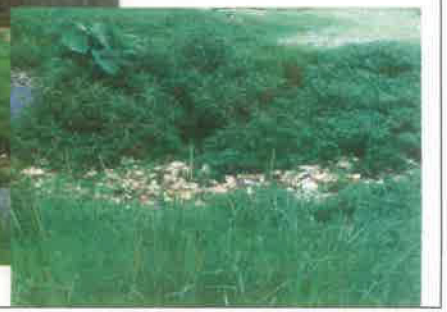
| 2. | **Anandvalli Bridge**<br><br>• Extensive growth of Water Hyacinth around the bridge<br><br>• Open defecation and cloth washing at the bank of the river<br><br>• Sewage water and Solid waste from adjacent slum entering into the river due to overflow above the retaining wall<br><br>• No leakage of sewage water into the storm water drainage pipes. Rain water was flowing through these outlets. | • Water hyacinth should be removed effectively.<br><br>• Action against open defecation and cloth washing should be strengthened through provision of more public toilets with water supply. Cloth washing is due to non-availability of water. In these areas, water supply augmentation and awareness campaign should be undertaken.<br><br>• In the light of forthcoming Kumbh mela, the sanitation facilities for the devotees need to be enhanced. The number of Sulabh Sauchalaya needs to be increased in the areas where open defecation is rampant.<br><br>• The intercepted sewage should be treated in-situ before the retaining wall using natural wetland based "Phytorid technology". |  <br>  <br>  <br>  <br>  |

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| 3. | **Chopda Lawns**<br><br>• Sewage water containing backwash of Barabangla Water Treatment Plant entering the river through nalla near the bridge<br><br>• Construction and solid waste dumped near Chopda bridge by private agencies<br><br>• Removal of water hyacinth was being carried out but the plants were being temporarily moved near the bank which may float back in the river. | • The nalla should be connected to the intercepting sewer line constructed along the river bank.<br><br>• In highly polluted nallas and tributaries with inputs of domestic waste and marginal flows of fresh water adequate dilution is not occurring. Recent technologies like "Phytorid" or "Floating wetland" can be adopted to minimise entry of pollutants in the river. This treatment can be a polishing step even when wastewater treatment facilities are functional.<br><br>• Dumping of Construction and solid waste near Chopda bridge should be restricted as these wastes flow into the river with rain water.<br><br>• Removal of water hyacinth should be carried out effectively. The plant should be cut and removed completely out of the river. |  |

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| 4. | **Ramwadi Bridge/ Siddheshwar Temple**<br>• Extensive growth of water hyacinth<br>• Nirmalya is being thrown from bridge into the river by public<br>• Solid waste dumped along the river bank near the bridge | • Water hyacinth should be removed effectively with weed removal system and taken away from the river banks<br>• Nirmalaya kalash should be placed near the bridges<br>• Formation of community groups is recommended for adoption of river stretches along the river banks for prevention of disposal of waste and maintenance of environmental status of the river. |   |

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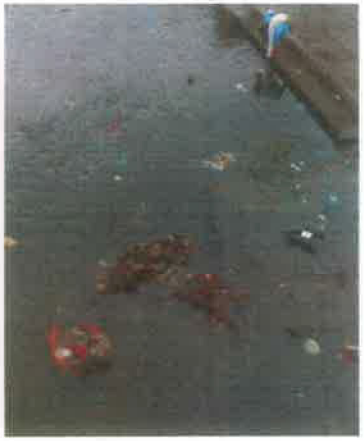
| 5. | **Ramkund/ Gandhi Talav**<br><br>• Disposal of Nirmalaya and mass bathing by devotees in Ramkund<br><br>• Washing of clothes, vessels by public and solid waste accumulation at Ramghat<br><br>• Vegetable market on the bank of river at Ramghat adding vegetable waste into water<br><br>• Solid waste thrown out of the Nirmalya kalash<br><br>• Extensive growth of algal blooms in Gandhi Talav | • Police should strictly restrict disposal of Nirmalaya, Washing of clothes, solid waste disposal in Ramkund and adjacent river stretches<br><br>• Accumulated solid waste should be removed<br><br>• In Gandhi Talav, activities which exposes one's body to the water like swimming, drinking, washing vessels or clothes should be restricted as the algal blooms may be toxic. The water should not be stagnant.<br><br>• Algal blooms should be removed by mechanical means.<br><br>• Awareness campaign should be further strengthened and its effective implementation should be monitored. The awareness programme budget must include a set of workers/volunteers to dissuade people from polluting and damaging activities. |     |

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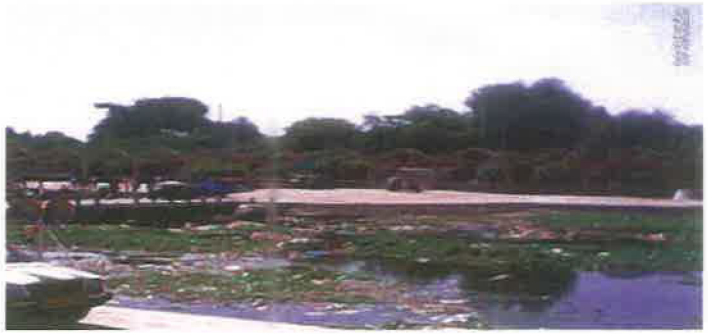
| 6. | **Talkuteshwar Bridge**<br><br>• Solid waste disposal and accumulation near the bridge<br>• Excessive vegetation in the river bed due to stagnation of water | • Accumulated solid waste and vegetation should be removed<br>• Normal ecological flow of water should be maintained which can be delineated through detailed study. |  |

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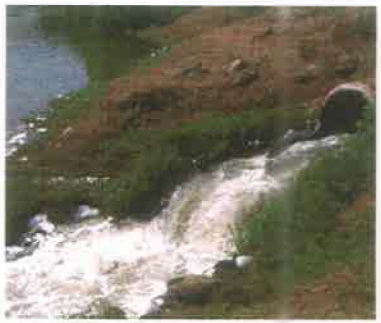
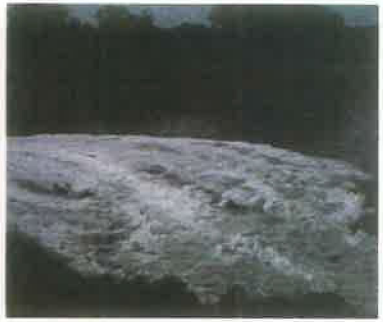
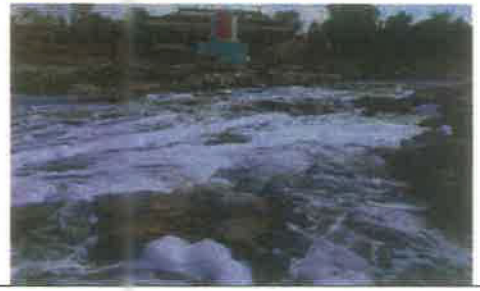
| 7. | **Tapovan and Dasak**<br><br>• Treated sewage water from STP with excessive foam released into the river | Needs further study pertaining to cause of foam formation. |    |

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| 8. | **Sewer lines and STPs**<br>The sewerage system as per the Master plan (2009) has been constructed completely. STPs at Tapovan (52 + 78 MLD), Panchak (7.5+ 21 MLD) and Chehadi (22+ 20 MLD) are functional. 32 MLD STP at Chehadi is under construction. Tapovan STP receives sewage from Old ganeshwadi, New ganeshwadi, Takali, Kapila pumping stn. which adds to be nearly 100 MLD.<br>STPs at Kamathwada, untwadi, Morwadi and Bhujbal farm are not working. Pumping stations of capacity 210 MLD at Agar Takli and 90 MLD Nasardi PS are under construction. The Untwadi PS (28 MLD) has been commissioned but operation has not yet started. Therefore, the sewage from this area goes to Takali PS which is of 20 MLD capacity and the excess sewage goes into the Nasardi river which meets Godavari at Agar takli. | The master plan implementation will bring down the quantities of untreated sewage reaching the river. However, many areas which are not connected and sewage & solid waste flowing into nalla would continue to harm the river quality. It is recommended that gridwise assesment of sewage collection, conveyance and treatment is undertaken so that no gap is left in future where possible untreated wastewater may enter the River Godavari. |

The overall assessment and systemic analysis of overall problems and solution shall be worked out in the next phase which will cover the stretches upstream and downstream of river Godavari.