

Garhwa

City sanitation plan is the vision document for sanitation in Garhwa for next 30 years and is one of the key document required to qualify for getting the financial support for sanitation related infrastructure development under key Government programmes like Swachh Bharat Mission (SBM), Clean Ganga Mission and other Central Government Programmes.

Baseline Information

- Following updated information for Garhwa collected from different sources (field survey, government department, stakeholder consultations and secondary sources) will serve as a baseline document for development of sanitation infrastructure projects for the town.
 - Demographic information along with population projection for next 30 years provided
 - Scale map of the town including base map of the town ward wise maps and land use maps for the town prepared which can be utilised by town authorities for further planning, development of master plan, zonal plans.
 - Detailed slum profile including notified and non-notified slums collected and validated during field survey; details on sanitation infrastructure available in the slum - Information can be further utilised in preparation of detailed slum development plan or other programmes in similar lines like Housing for All.
 - *Sanitation and pollution related specific issues with respect to human behaviour are identified. Section on River front development provides further details*

Access to toilet

Study and Analysis details

- Existing defecation system in the town has been assessed – ward wise number of individual toilets, public toilets, open defecation area, sludge removal equipments, sludge management and sanitation in slums
- Ward wise location of public toilet and open defecation areas have been mapped which would support the ULB is finalising the location of proposed public and community toilets.
- SWOT analysis , key issues and benchmarking with MOUD standards have been done
- Demand gap assessment for toilet block requirement has been done till the year 2045 which will give clear picture to the ULB for phase wise construction of toilet blocks
- Study of ongoing schemes and program for toilet construction under SBM
- Details on Namma toilets and other innovative options for toilet construction and management identified for ULBs to explore further during tendering and construction stage.

Action Item for ULB

- ULB needs to increase sanitation coverage for individual household from existing 65% to 100% as per the Sanitation action plan (construction of toilets). Refer section 7.7.1.
- Total 3,068 individual toilets need to be constructed under SBM, 241 IHHT have been approved by GNP in 2015-16; Balance 2,827 need to be constructed till 2019. Phase wise construction plan provided in section 7.9.1 of report
- Total 23 community toilets (6 seats per toilet block) need to be constructed in Garhwa till 2019 under SBM, with 62 seats for men and 77 for women. Phase wise construction plan and other details provided in Section 7.9.2.

- Locations for 23 community toilets given in wards having slum areas and open defecation. Ward wise location of proposed community toilet is shown in Map 7-3. ULB needs to get the toilets constructed as per SBM guidelines.
- Currently, there are three public toilet block exist in GNP. Another two toilet block would be meet the demands required till 2025, after which GNP requires four more public toilets to meet the demand till 2045.
- Locations to set up public toilet has been finalised after discussion with ULB. ULB needs to construct the toilet as per the specification provided in SBM guidelines.
- Total cost for toilets block worked out for different levels of sanitation facilities- individual toilet, community toilet and public toilet is Rs 339.0 lakh, Rs 68.0 lakh and Rs 94.0 lakh respectively. Funding for the same can obtained from government under SBM. ULB can also approach big local industries to construct public and community toilet from CSR funds.

Sewerage System

Study and Analysis details

- Study of existing waste water management has been studied – domestic waste water, industrial waste water etc.
- Ward wise waste water disposal system and its impact on River Danro analysed
- Estimation of waste water generation quantity and sludge generation quantity and projections (based on population projection and water supply projections) till 2045 to finalise the capacity of treatment facilities.
- SWOT analysis , key issues and benchmarking with MOUD standards have been done
- Study of existing DPR and its recommendations.
- Based on the existing infrastructure and funding proposals are given on short term and long term basis in the form of on-site and off-site sanitation respectively.
- Decentralised waste water management system for the undulating and congested areas.

Action Item for ULB

- Analysing the local issues, provision of Sanitation facility has been proposed as medium term and long term
 - Septic tank based sanitation for medium term – ULB to increase coverage from 65% to 100 % (also discussed in Section on access to sanitation)
 - ULB to develop a septage management facility to dispose-off the sludge in safe manner – area requirement is 0.4 acre.
 - Sewerage system provided for long term
 - Capacity of STP identified based on waste water projections for next 30 years. ULB to develop plan for construction of 11.5 MLD STP for Garhwa.
 - Site suitability analysed for already selected sewage treatment plant was done along with infrastructure and site development.
 - Alternate option for decentralised treatment facility based on topography and slope analysis provided to reduce pumping cost – Since the ULB is still in the planning stage, they can review the alternate and decide on most suitable option. Three decentralised options of 8 MLD, 2.0 MLD and 1.5 MLD proposed.
 - Location of proposed STP and DEWAT system is shown in map 8-5 and 8-6.
 - Land requirement for different technology option provided for STP

- ULB need to prepare waste water management plan for treatment of effluent generated from the residential as well as commercial area in consideration of the waste water generating sources. This project can be taken up as part of pollution abatement plan of river Danro (a tributary of river North Koel). Funding for the same can be availed from NGRBA Refer section 2.2 from main report for further details.
- Cost estimates for the sewerage works including septage management including suction machines, STP, sewer lines, site development works would be Rs. 393.82 lakh, Rs. 5,997.76 and Rs. 7,357.67 lakh for the phases 2017-2020, 2020-2025 and 2025-2045 respectively.

Solid Waste Management

Study and Analysis details

- Assessment of existing waste collection, disposal and treatment system for domestic, industrial and institutional areas based on field observation, stakeholder consultations (ULB, rag picker, sanitation workers, slum dwellers and residents).
- Quantification of Municipal waste and projection till the year 2045. Calculation of the infrastructure for collection, transportation, treatment and disposal along with area requirement for processing and landfill facility.
- Mapping of existing and proposed waste disposal site
- Site suitability analysis for selection of processing and landfill provided
- Swot analysis, key issues and benchmarking with MOUD standards have been done and waste management system in short term, medium term and long term proposed for Garhwa.

Action Item for ULB

- Area required for development of new landfill site calculated along with location for development of new SWM facility identified. ULB to develop the SWM facility for Garhwa on identified land.
- Technology options for waste treatment are given in section 9.14.1.
- Waste management best practice case studies provided to ULBs to refer for during implementation stage.
- Awareness campaign and capacity building initiatives to be done by ULBs for proper management of waste – funding for the same can be availed from SBM.

River front development

Study and Analysis details

- Study and mapping of existing river front, land use, point and non-point sources of pollution, economic and religious activities.
- Swot analysis, key issues and benchmarking with MOUD standards have been done.
- Design criteria for river front development given in section 10.7.
- Best practices for river front given in section 10.8.
- Identification of proposed activities and infrastructure to be set up along the river.
- Identification of pollution sources for River Danro and ways to mitigate that.

Action Item for ULB

- Development of two small ghats of about 50 - 100 mtr length with platforms and steps leading to the River Danro.

- Provision for fine imposition for waste dumping, industrial effluent in the river by ULB. The legal framework for the same can be discussed with the state.
- ULB need to prepare detail project report for river front development and implementation plan having components like ghat development, toilet complex, changing room etc. as per details provided in section 10.13 of CSP.
- Preliminary cost estimates for river front development are given in table 10.2 of the CSP. Estimated total cost for all the works would be Rs 4,837.11 lakh till the year 2045.

Storm Water Drainage

Study and Analysis details

- Existing baselines status of storm water drainage including water logging areas identified for the town;
- Ward wise drains and their outfall points have been identified and located on map along with details of existing storm water in slum areas.
- SWOT analysis, key issues and benchmarking with MOUD standards have been done
- New proposal to be taken up for improving the storm water drainage situation has been identified and tentative cost has been provided for short term, medium term and long term (Rs 7,147.56 lakhs).

Action Item for ULB

- Develop project report and implementation for storm water drain from water logging areas identified in the report and shown on map 6-2 section 6.10 of chapter 6.
 - Major water logging area in ward number 4, 6, 7, 9, 12, 14 and 14.
- Strengthening of existing storm water drains – total 40 km of existing drain
 - De-silting of existing drains/nallahs to increase the carrying capacity. To make the drain cleaning sustainable a system need to install which can keep the drain water clean and prevent River Danro water getting polluted.
 - All the natural drains flowing through Garhwa need to be converted into constructed drains.
 - ULB needs to prepare detail project report for proposed drains - proposed length 75 km which leads to draining of storm water into natural ponds as well as river Danro as mentioned in section 6.10 of chapter 6.

Ponds and Crematoria

Study and Analysis details

- Detail assessment and mapping of existing crematoria with respect to available infrastructure, physical condition, waste management, drainage management, facilities for visitors etc.
- Site survey and mapping of all the ponds in the town. Listing of activities near the ponds such as cattle wallowing, bathing, washing, open defecation, vehicle cleaning.
- Details of electric crematoria is given in section 11.1.1 of CSP.
- Identification of proposed activities and infrastructure to be set up at the crematoria.
- Identification of drains meeting ponds and strategy to divert them.
- Strategy to boost local tourism near the ponds.

Action Item for ULB

- **Ponds**

- ULB need to improve the condition of all the ponds in phase wise manner. Details of ponds that require improvement is provided in section 11.3 of CSP.
- Restricted activities such as cattle wallowing, bathing, washing, open defecation, vehicle cleaning should be banned by ULB.
- Set up separate pond for Idol immersion activity during the festive period.
- Ponds having open spaces around needs to be developed as local tourism spots in the first phase.
- Alternate source of spot water supply to the people living on the banks of the ponds should be developed to meet the emergent situation during non-supply period of piped water supply in the town.
- Waste water (black water) reaching ponds should be diverted to natural drains on immediate basis.
- **Crematoria**
 - GNP should communicate with power supply department to get dedicated power line for electric crematoria.
 - ULB should provide basic facility in the existing crematoria as mentioned in section 11.1.2 of CSP.
 - Preliminary cost estimates for up-gradation and setting of new electric crematoria along with pond development cost is given in table 11.3 of CSP (Total cost estimates for these facilities till the 2045 would be Rs 2,350.06 lakh).

Other Details Addressed

- **Sources of the funding for the projects identified in CSP have been given in chapter 14 of the CSP.**
- **Assessment of institutional structure at state and local level has been done in chapter 12 of the CSP. Manpower required for sanitation sectors and capacity building of the staff is also discussed.**
- **A brief summary of all the relevant policy, guidelines, programs and schemes is provided in chapter 2 of CSP.**
- **Role of City Sanitation Task Force and strategy for awareness generation are discussed in chapter 13 of CSP.**