

Chapter-2
Planning and Operationalization of
Projects under Solid Waste
Management (SWM) in Urban Local
Bodies (ULBs)

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Planning and Operationalization of Projects under Solid Waste Management (SWM) in Urban Local Bodies (ULBs)

Municipal Solid Waste Management (MSWM) is essentially a municipal function and it is mandatory for all municipal authorities to provide this service efficiently to keep the cities and towns clean, process the waste and dispose of the residual Municipal Solid Waste (MSW) in an environmentally acceptable manner. Audit noticed in the test checked ULBs that, the Detailed Project Reports (DPRs) were prepared without adherence to guidelines and accurate baseline data. MSWM plans and Contingency plans (CPs) were not prepared. Except for Nagar Nigam Dehradun, ULBs did not establish waste deposition centers for Domestic Hazardous Waste (DHW). Similarly, test checked ULBs, except Nagar Nigam Dehradun did not have information on Construction and Demolition (C&D) waste. The sampled ULBs did not establish infrastructure projects within the prescribed time frame, and many projects are yet to be completed. Only one out of five ULBs carried out bioremediation of capping of old and abandoned dump sites. Despite DPR approval and fund transfers, the test checked ULBs remained pending in initiating project establishment.

Solid waste management projects are infrastructure projects necessary for processing and disposal of collected waste. Nature of projects differ according to the nature of waste generated in an urban local body (ULB). For example, projects to be set up are for Composting, Material Recovery Facility, Waste to Energy, Biomethanation and Refused Derived Fuel etc. MSWM manual, 2016 prescribe conduct of a baseline study to understand the nature of waste, to ensure set up of right kind of projects and to prepare the Detailed Project Report (DPR) by ULB. Further, to ensure timely completion of projects, timelines are prescribed in the SWM Rules 2016 as per **Table-2.1** below:

Table-2.1: Prescribed Timelines for activities to be done as per SWM Rules

Sl. No.	Activity	Time limit
1.	Identification of suitable sites for setting up solid waste processing facilities	01 year
2	<ul style="list-style-type: none">• Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.• Enforcing waste generators to practice segregation of wastes at source.• Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.• Ensure separate storage, collection and transportation of construction and demolition waste.	02 years
3	Setting up solid waste processing facilities by all local bodies.	03 years
4	Bioremediation or capping of old and abandoned dump sites.	05 years

The status of detailed project reports (DPRs) of solid waste management in 102 Urban Local Bodies of Uttarakhand was as per the **Table-2.2** below:

Table-2.2: Status of Detailed Project Reports

Particulars	Total DPRs	Number of ULBs covered
Total DPRs prepared	65	92
DPRs approved	62	89
DPRs at different stage of approval	03	03

Source: Information provided by the department.

DPRs for 10 newly formed ULBs were yet to be prepared.

Audit observed various lacunae in the activities related to SWM Planning and timely completion of Projects in the test checked ULBs as discussed in the following sections.

2.1 Municipal Solid Waste Management (MSWM) and Contingency Plans

2.1.1 MSWM Plan

Solid Waste Management Rules 2016 {Para 15 (a)} and MSWM Manual 2016 (Section 1.4.6) emphasised the need for ULBs to prepare a detailed SWM plan with short term (five years) and long-term (20-25 years) actions. The short-term plan should lead to the achievement of the long-term plan. Each short-term plan should be reviewed every 2-3 years, to ensure higher success of implementing all plan activities. Short-term plan should cover aspects of institutional strengthening, community mobilisation, waste minimisation initiatives, waste collection and transportation, treatment and disposal. The responsibility for preparation and implementation of the plan lies with Municipal Commissioner/Executive Officer of the respective ULB.

Audit noticed that none of the sampled units prepared the Municipal Solid Waste Management Plans. The State Government in its reply stated (December 2023) that it has currently formulated the Solid Waste Management Action Plan 2022-25. The reply itself clarifies that no Solid Waste Management Action Plan was implemented for the audit period.

2.1.2 Contingency Plan

MSWM Manual, 2016 (Section 5.4) stipulated that ULBs should prepare contingency plans for appropriate storage of waste, to tide over situations of non-performance of processing, treatment and disposal facilities. The Municipal Commissioner/Executive Officer of the respective ULBs were responsible for the plan preparation and implementation.

In test checked 13 ULBs, records revealed that none of the ULBs had prepared contingency plans. The impact of not-preparing of contingency plan was reflected in adoption of adhoc approach as illustrated through two case studies below:

Nagar Palika Parishad (NPP) Mussoorie:

Records of NPP Mussoorie revealed that:

- NPP Mussoorie was disposing its MSW in sanitary landfill site at Nagar Nigam (NN) Dehradun till July 2022. Thereafter, NN Dehradun denied receiving and disposing MSW of NPP Mussoorie.

- In the absence of a contingency plan, NPP Mussoorie contracted (November 2022) a firm to dispose of its MSW. However, the details of site where the firm was disposing off the municipal solid waste were not available with the Palika. On enquiry, the NPP Mussoorie stated that the firm was disposing MSW in Ghaziabad and that the firm will provide relevant certificate after six months. The reply confirms that the Palika was unaware about the actual disposal of MSW and relied solely on the firm for such information.
- As per Rule 16 (6) of solid waste management rules 2016, the duties of State Pollution Control Board (SPCB) were to regulate inter-state movement of waste. However, SPCB was not intimated about transferring of MSW from one State to another by the NPP Mussoorie. In Exit conference (September 2023), the Member Secretary, Uttarakhand Pollution Control Board (UKPCB) stated that ULBs had not informed Pollution Control Board (PCB) regarding transfer of waste. However, the matter will be investigated.

Nagar Panchayat Dineshpur:

The Nagar Panchayat Dineshpur faced a challenge in disposing of MSW as it didn't have its own land for the purpose. To address this, it rented four sites for dumping MSW between 2017-18 and 2021-22. However, due to the absence of a contingency plan, the Panchayat had to repeatedly change the rented land in response to public protests. The details of land taken during the period on rent were as per *Appendix-2.1*. The aerial view of dumping of MSW in rented lands is shown in the photographs 2.1 & 2.2 below.

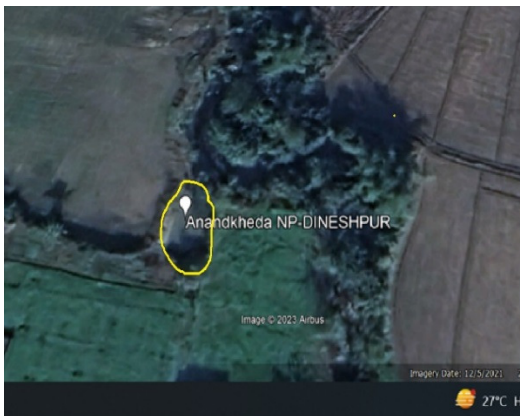


Photo-2.1: Aerial view of dumping of MSW in Anandkheda (03 February 2023)

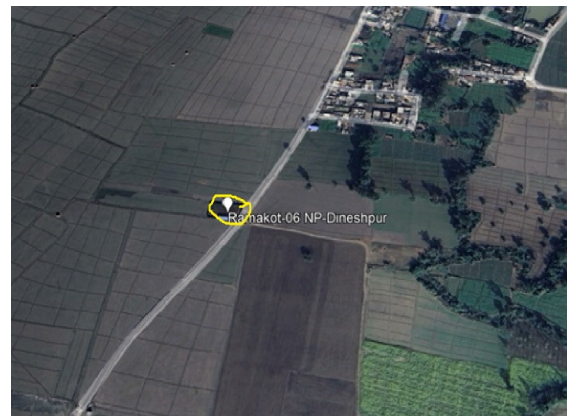


Photo-2.2: Aerial view of dumping of MSW in Ramkot (03 February 2023)

During Exit Conference (September 2023), the Additional secretary assured that instructions will be issued to all the urban local bodies to prepare a contingency plan and the issues of NPP Mussoorie and Nagar Panchayat Dineshpur will be looked into. Further, the State Government emphasized (December 2023), that in situations where land is not readily accessible for solid waste management (SWM) purposes, alternative measures have been implemented. Specifically, 630 NADEP¹ Pits and 73 plastic

¹ NADEP (National Agribusiness Development Programme) composting is a natural process by which biomass wastes, soil wastes and animal wastes are biologically degraded and decomposed into an organic compost.

compactors have been strategically installed or constructed across multiple urban local bodies (ULBs) within the State. These installations serve as decentralized resources facilitating the efficient disposal of both organic waste and plastic waste.

While appreciating recent initiatives by the Government, the Audit re-affirms the need for immediate preparation of Contingency Plan by all ULBs in the State.

2.2 Data regarding generation, collection and disposal of Domestic Hazardous Waste not maintained

Rule 15 (i) of Solid Waste Management Rules 2016 prescribes to establish waste deposition centres for domestic hazardous waste² and to give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal. Such facility shall be established in a city or town in a manner that one centre is set up for the area of twenty square kilometres or part thereof and the timings of receiving domestic hazardous waste at such centres should be notified. It was the responsibility of the Sanitary Inspector/Medical Health Officer (MHO) to maintain data and Municipal Commissioner/Executive Officer were responsible for establishment of deposition centre of the respective ULBs.

None of the test checked ULBs had maintained records/data relating to generation, collection and disposal of domestic hazardous waste. Further, no waste deposition centres were established by the test checked ULBs except Nagar Nigam Dehradun, which established it in 2020-21.

While accepting the facts, the Additional Secretary stated in the Exit Conference (September 2023) that instruction will be issued in this regard and timely review will also be done. The State Government further stated (December 2023) that the establishment of deposition centres for domestic hazardous waste is under process. Instructions have been issued to all the ULBs for collection and disposal of domestic hazardous waste along with bio medical waste.

2.3 Management of Construction & Demolition (C&D) Waste

The Construction & Demolition (C&D) waste normally contains inert material, but some harmful materials could also be present which can be detrimental to its immediate surroundings. C&D waste also leads to air pollution as it may carry dust, particulate matter like PM10, asbestos and other pollutants that may get mixed with air. To prevent air pollution the C&D waste should be kept in containers and its timely removal should be ensured.

Rule (6) of construction and demolition waste management Rules, 2016 describes the duties of local authority (Municipal Commissioner/Executive Officer). The local authority shall issue detailed directions regarding proper management of C&D waste, shall make arrangements and place appropriate containers for collection of waste, shall get the collected waste transported to appropriate sites for processing and disposal, shall

² “Domestic Hazardous Waste” means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level.

keep track of the generation and establish a data base and update once in a year and shall create a sustained system of information, education and communication for C&D through collaboration with expert institutions and civil societies and also disseminate through their own website.

Records of the test checked ULBs revealed that-

- Byelaws were not framed for C&D waste, resulting in absence of the legal authority to enforce penalties or fines by ULBs.
- Appropriate sites were to be identified/demarcated for processing & disposal. However, it was noticed that the site for C&D waste was available only in Nagar Nigam Dehradun. In rest of the 12 test checked ULBs, there were no sites available for C&D waste.
- Data regarding C&D waste generated, collected and disposed was available only in Nagar Nigam Dehradun (from November 2020). No data was available in rest of 12 test checked ULBs.
- A sustained system of information, education and communication for C&D waste through collaboration with expert institutions and civil societies was neither created nor disseminated through their own website.

In the absence of appropriate collection, transportation, processing and disposal of C&D waste in most ULBs, the adverse consequences on environment and human health cannot be ruled out. Further, ULBs even failed to keep track of the generation of C&D waste within their jurisdiction.

The State Government replied (December 2023) that three C&D waste processing plants are being proposed in National Clean Air Program Cities viz. Dehradun, Rishikesh & Kashipur. The facilities established in the said cities can be used by the nearby ULBs. The reply is self-explanatory that these facilities are yet to be installed.

2.4 Framing of Byelaws

Rule 15 (e) of the Solid Waste Management Rules 2016, stipulate to frame byelaws³ incorporating the provisions of these rules within one year from the date of notification of these rules. Timely implementation must be ensured, as one of the duties and responsibilities of local authorities. It was the responsibility of the Municipal Commissioner/Executive Officer of the respective ULB for preparation and Municipal Board for approval of Byelaws.

Records revealed that only five⁴ out of 13 ULBs test checked had framed and notified byelaws. Thus, the failure of ULBs in framing byelaws showed non-compliance with the SWM Rules 2016.

The State Government stated (December 2023) that Byelaws have been prepared in 92 municipal bodies of the State and the process of preparing byelaws in 10 newly formed municipal bodies is in progress.

³ "Byelaws" means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these rules effectively in their jurisdiction.

⁴ NN-Haldwani, NPP-Mussoorie, NPP-Barkot, NPP-Tehri, NP-Augustmuni.

2.5 Shortcomings in the preparation of DPRs

2.5.1 Ineffective Baseline waste analysis

Clause 1.4.3 of Municipal Solid Waste Management Manual (MSWM) 2016, Vol. II states the main objective of a baseline study⁵ is to understand the existing solid waste system as accurately as possible and utilise that information for further planning, implementation and monitoring processes. Local conditions are to be considered while assessing the inadequacy of existing service and planning for the future. The baseline data is the critical aspect of DPRs as type of MSWM systems to deploy depend on composition, quantity and seasonality of waste.

Section 1.4.3.3.1 of Manual on MSWM 2016, stipulated that for the purpose of long-term planning, the average amount of waste disposed by a specific class of generators may be estimated only by averaging data from several samples. These samples were to be collected continuously for a period of seven days at multiple representative locations within the jurisdiction of the ULB, in each of the three main seasons viz. summer, winter and rainy season.

In none of the test checked ULBs, the samples were collected continuously for a period of seven days at multiple representative locations within the jurisdiction of the ULB. Hence, the baseline study conducted for the said purpose was not based on actual waste generated in the ULBs.

2.5.2 Doubtful conduct of Waste Analysis

Waste analysis involves determining the exact composition of a waste product. This process includes conducting several tests to identify determinants such as water content, pH levels, presence of heavy metals and bacterial content. It is essential for each ULB (Urban Local Body) to assess the quantity and composition of waste generated to effectively plan and design municipal solid waste management (MSWM) systems. The quantity and composition of MSW generated in the ULB determine the collection, processing and disposal options that could be adopted. They depend on factors such as the population, demographic details, principal activities in the city or town, income levels and lifestyle of the community.

The examination of the DPRs of four⁶ ULBs for waste analysis revealed the following shortcomings:

- ULBs did not base DPRs on actual waste generated since they did not document or have specific data sheets or supporting records available.
- Weighbridges were unavailable in these ULBs during the period 2017-22, so the collected waste could not have been weighed. Consequently, an inflated assumption of waste generation was made in the preparation of DPRs.

⁵ The study is for assessment of the current situation or status and gap analysis and to analyse system deficiencies with due consideration of local demography, physical location, growth objectives as well as social and environmental conditions.

⁶ NPP-Barkot, NPP-Tehri, NP-Naugaon, NP-Augustmuni.

- DPRs were prepared using data from the Central Pollution Control Board's waste survey in 2004-05 in selected Indian cities and population figures from Census 2001 and hence clearly outdated.

2.5.3 Duplication of critical parameters in DPRs

MSW composition and characteristics vary considerably, not only between ULBs but also within a ULB. The DPRs are to be prepared keeping the local conditions and geography in mind. The Municipal Commissioner/Executive Officer is responsible for preparation and Director UDD is responsible for scrutiny of DPRs.

The schematic layout of the proposed processing cum disposal site of NPP Vikas Nagar (Garhwal region) and that of NPP Khatima were the same. Similarly, environmental conditions of two different cities, namely Naugaon and Barkot were shown as the same in DPRs of said cities. These deficiencies raise doubts over the quality of the DPRs. The poor quality of DPRs in turn has serious implications for the implementation of the SWM projects.

Photo-2.3: The Schematic layouts of the proposed processing cum disposal sites of NPP Vikas Nagar and NPP Khatima are depicted in below:

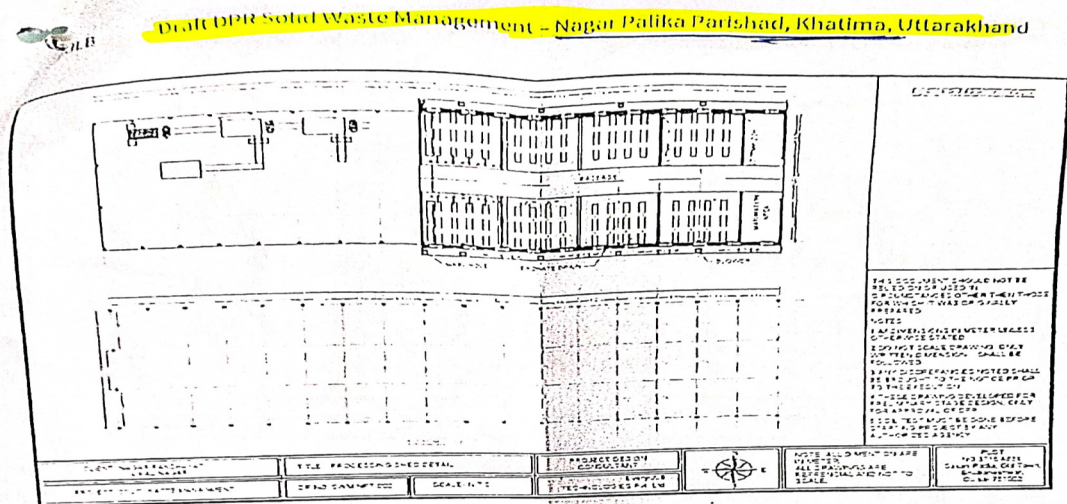


Fig. 5.12 Schematic layout of the proposed processing cum disposal site of NPPP Vikasnagar

EveryULB Draft DPR Solid Waste Management - Nagar Palika Parishad, Vikasnagar, Uttarakhand

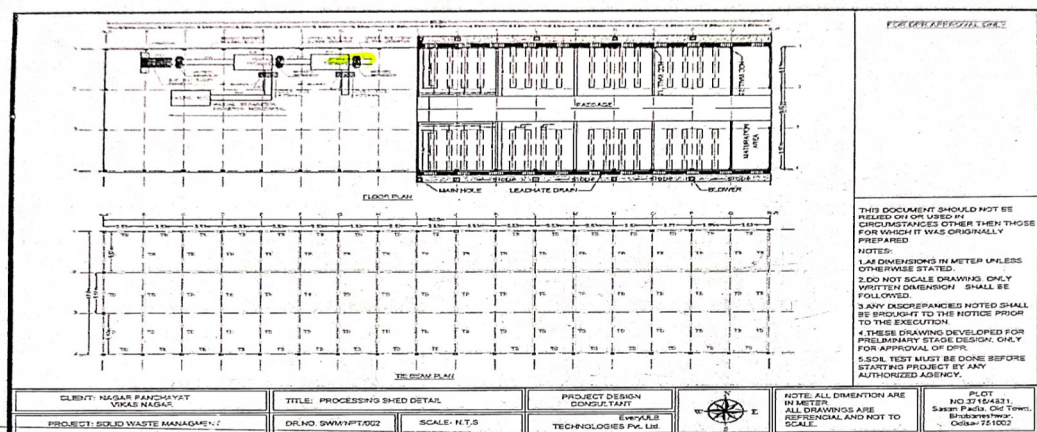


Fig. 5.12 Schematic layout of the proposed processing cum disposal site of NPP Vikasnagar

2.5.4 Photograph of one ULB was used for another ULB (Description of the Environment)

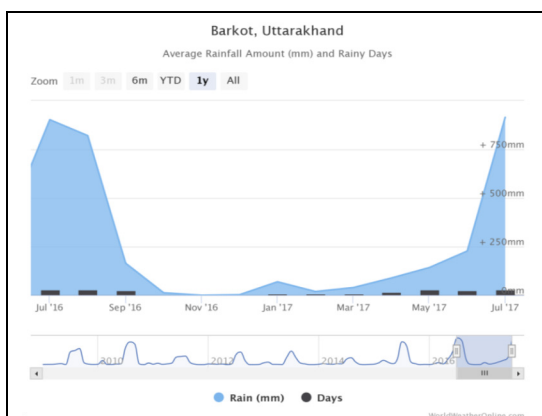


Photo-2.4: Description of Environment photo given in the Draft DPR of Nagar Palika Parishad Barkot

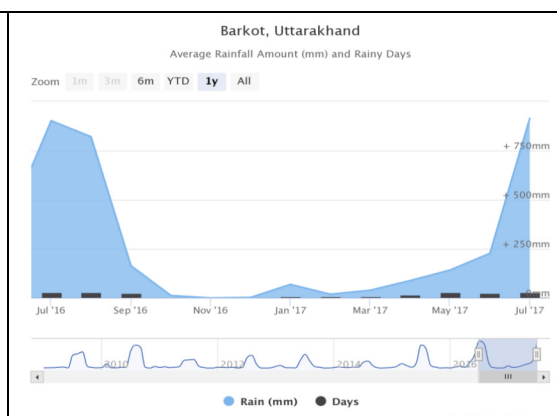


Photo-2.5: The same picture (Photo-2.2) is also given in the Draft DPR of Nagar Panchayat Naugaon

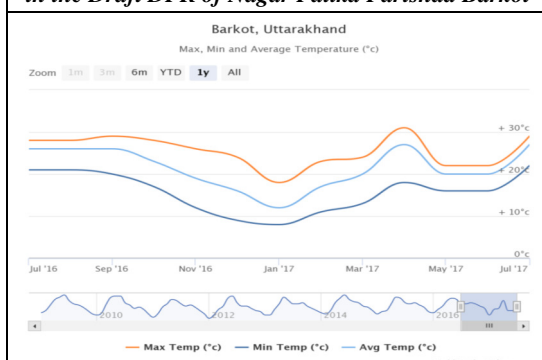


Photo-2.6: Description of Environment chart given in the Draft DPR of Nagar Palika Parishad Barkot

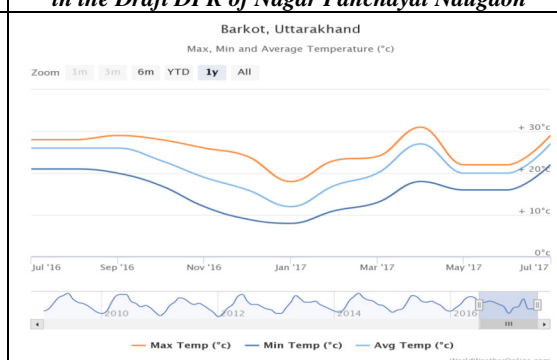


Photo-2.7: The same picture (Photo-2.4) is given in the Draft DPR of Nagar Panchayat Naugaon

The duplication of DPRs indicate that the most important aspect of planning MSWM systems is not undertaken responsibly.

In Exit conference (September 2023), the Additional Secretary assured that the points observed by the audit will be looked into and corrective measures will be taken as per projects requirement. The State Government further stated (December 2023) that Solid Waste generation changes in Uttarakhand in different months and waste generation increase/decreases/fluctuate as per Char dham yatra, kanvar, different Snan etc. Besides, every effort is made by ULBs to procure land for SWM processing and disposal facility. As the forest cover is more than 72 per cent, getting land for SWM purpose is a big challenge. The reply itself confirms that no action plan is either in place or available with the government to mitigate the problems.

2.5.5 Status of Projects against approved DPRs

Status of projects in test checked ULBs revealed that though the DPRs were approved and the funds were transferred to the ULBs, the main work of establishment of projects were yet to be initiated in 11 out of 13 projects. The status of project work of test checked ULBs as of March 2022 was as per the **Appendix-2.2**.

The following points were noticed in the test checked ULBs-

- DPRs were prepared and approved without availability of land in two ULBs at NPP Khatima and NP Augustmuni.

- Work was under progress in four ULBs at Mussoorie, Nainital, Dineshpur and Barkot.
- Processing plant was running but Refused Derived Fuel (RDF) & mixed waste was being dumped at SLF sites in two ULBs at Haridwar and Dehradun.
- Processing plant (MRF centre, compost pits) was established but sanitary landfill yet to be established at NPP Barkot.
- In NP Dineshpur, no action initiated after demise of contractor engaged for the work.

While accepting the facts it was stated by the Additional Secretary in the exit conference (September 2023) that the matter will be examined. The State Government further replied (December 2023) that 62 solid waste management action plans/DPRs have been approved by the Government of India covering 89 municipal bodies of the State, out of which seven solid waste management plants have been completed and in the remaining works are in progress.

2.5.6. Case studies of DPRs of test checked ULBs

(a) Nagar Palika Parishad Nainital

A DPR titled as “A multidimensional remediation and innovative tailoring of materialistic waste (AMRITAM) was prepared jointly by Municipal Board Nainital and Kumaon University with an innovative approach⁷ for the collection, segregation and upcycling of solid waste”. The DPR was approved by the National Mission of Himalayan Studies, Almora (NMHS) which sanctioned (October 2019) a grant of ₹ 3.50 crore to be utilized within a period of three years. The land about 0.884 acres was selected at Narayan Nagar, Nainital for setting up a waste processing plant.

Audit observed the following deficiencies:

- The daily generated waste was 15 tons per day. However, the DPR prepared for processing plant of the capacity of five tons per day. This showed that the DPR was not based on realistic figures.
- Out of total sanctioned amount of ₹ 3.50 crore, an amount of ₹ 3.30 crore (94 *per cent* of total grant) had been incurred by the ULB, but no work has been initiated at the proposed site for setting up the processing plant due to hindrance made by general public. The expenditure was incurred on- procurement of four out of six equipments⁸, consumables, manpower & contingencies etc.

⁷ The key objective of the project was “Waste to Wealth”, where an advance “Universal waste upcycling machine” had to be developed for the effective disposal of the solid waste and be a revenue generator for the municipality. In addition to this, the concept of Micro-bio-composting plants for the bio-degradable waste was thought to enhance the ecology of the project site; thereby also helps to maintain the biodiversity of the project site.

⁸ The equipments (four out of six) procured were installed in the laboratory of the Department of Chemistry, Kumaon University, instead of at the proposed site.

- Further, for remaining two equipment which were to be procured as per sanctioned DPR, the ULB invited tenders for five equipment⁹. It was also noticed that the funds were not available in project head for the new work order.

On this being pointed, the Executive Officer agreed with the facts and stated that since the DPR was prepared by Kumaon University on an experimental basis with the capacity of five TPD, but at the time of construction it will be installed with the capacity of 25-30 TPD, considering the requirement of the NPP Nainital. Further, it was also intimated that to meet the actual demand, a proposal for the remaining amount will be prepared and sent to the Government/ District Magistrate.

The Additional Secretary stated in the exit conference (September 2023) that the matter will be examined.

(b) Nagar Panchayat Agustmuni

Government of Uttarakhand gave financial and administrative approval for setting up of processing plant and waste disposal site development in NP Agustmuni on 17 June 2019 amounting to ₹ 97.53 lakh¹⁰.

Records revealed that the construction work of the waste processing plant was yet to be started due to unavailability of suitable land. Further, the proposal for allotment of land was sent in August 2020 i.e., after more than a year of approval of DPR (June 2019). Thus, the DPR was prepared without availability/acquiring of land which was the basic requirement.

Against sanctioned amount of ₹ 77.38 lakh, an expenditure of ₹ 15.58 lakh was incurred on procurement of vehicle, preparation of DPR and construction of shed¹¹.

The Additional Secretary stated in the exit conference (September 2023) that an enquiry will be set up in this case.

Thus, the department's easy approach towards establishment of projects, failed to ensure appropriate processing and waste reduction in dumping sites.

2.6 Poor achievement against timelines in creation of infrastructure projects

As per rule 22 of SWM Rules 2016, the necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own directly or by engaging agencies within the time frame specified.

The status of Solid Waste Management (SWM) infrastructure given as per **Table-2.3** below:

⁹ These equipment were not included in the sanctioned DPR. Work orders for procurement of above equipment worth ₹ 4.03 crore including running and operating cost of processing plant for a period of three year were issued in December 2021.

¹⁰ Against the sanctioned cost, ₹ 33.15 lakh was to be borne from Swachh Bharat Mission, ₹ 60.81 lakh from 4th State Finance Commission and ₹ 3.57 lakh from Panchayat Nidhi. An amount of ₹ 77.38 lakh (79 per cent) was released to the panchayat up to July 2020.

¹¹ Payments to the tune of ₹ 7.13 lakh for preparation of DPR and construction of shed were irregular as these items were not included in the sanctioned DPR.

Table-2.3: Status of SWM infrastructure

Sl. No.	Activity	Time limit from the date of Notification of SWM Rules 2016	Status in Test checked ULBs			Remarks
			Implem-ented	Not imple-mented	Not appli-Cable	
1	2	3	4	5	6	7
1.	Identification of suitable sites for setting up solid waste processing facilities	01 year	11	02	--	Sites not identified in NP Augustmuni & NPP Khatima
2	Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities.	01 year	05 ¹²	-	08	Common SLF site identified as clusters in five ULBs. In rest of eight ULBs individual site
3	Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.	02 years	11	02	--	Sites not procured in NP Augustmuni & NPP Khatima
4	Enforcing waste generators to practice segregation of bio-degradable, recyclable, combustible, sanitary waste, domestic hazardous and inert solid wastes at source.	02 years	13	--	--	Partially implemented as discussed in para 3.2
5	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	02 years	13	--	--	Partially implemented as transportation was not being done in covered vehicles in all the ULBs as discussed in para 3.4.1
6	Ensure separate storage, collection and transportation of construction and demolition waste.	02 years	01	12	--	Separate storage, collection and transportation of C&D Waste ensured only in NN Dehradun as discussed in para 2.3
7	Setting up solid waste processing facilities by all local bodies having	03 years	04	-	09	➤ NN Dehradun and NN Haridwar have processing facilities (SLF).

¹² Cluster- NN Haldwani, NN Rudrapur (NPP Kichha, NPP Bhawali, NP Lalkuwa, NP Bhimtal non-test checked ULBs), Cluster- NP Dineshpur (NP Gularbhoj non-test checked ULB), Cluster-NPP New Tehri (NPP Chamba non-test checked ULB), Cluster- NP Swargashram Jonk (NN Rishikesh, NPP Doiwala non-test checked ULBs).

Sl. No.	Activity	Time limit from the date of Notification of SWM Rules 2016	Status in Test checked ULBs			
			Implem-ented	Not imple-mented	Not appli-Cable	Remarks
1	2	3	4	5	6	7
	1,00,000 or more population.					➤ SLF construction under process in NN Haldwani and NN Rudrapur
8	Setting up solid waste processing facilities by local bodies and census towns below 1,00,000 populations.	03 years	07 ¹³	02 ¹⁴	04 ¹⁵	➤ Under process in seven ULBs ➤ Land not finalised in two ULBs. ➤ Not applicable in four ULBs as population is more than 1,00,000.
9	Setting up common or stand-alone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules.	03 years	NA	NA	NA	--
10	Setting up common or regional sanitary landfills by all local bodies and census town under 0.5 million population for the disposal of permitted waste under the rules.	03 years	05	-	08	As given in point no. 02
11	Bioremediation or capping of old and abandoned dump sites.	05 years	01 ¹⁶	04 ¹⁷	08	As discussed in para 2.7

Source: Information obtained from test checked ULBs.

As can be seen from the above table:

- The infrastructure was not created in any of the sampled units in the given time frame of SWM 2016.
- In two out of 13 test checked ULBs, identification/procurement of suitable sites for setting up solid waste processing facilities was yet to be done.

¹³ NPP Mussoorie, NPP Nainital, NPP New Tehri, NPP Barkot, NP Dineshpur, NP Swargashram Jonk, NP Naugaon.

¹⁴ NPP Khatima, NP Augustmuni.

¹⁵ NN Dehradun, NN Haridwar, NN Rudrapur and NN Haldwani.

¹⁶ Capping done in NPP Mussoorie.

¹⁷ Bioremediation or capping not done in NN Dehradun, NN Haridwar, NPP Khatima, & NPP Barkot.

- Separate storage, collection and transportation of construction and demolition waste was ensured only in Nagar Nigam Dehradun.
- Bioremediation or capping of old and abandoned dump sites were done only in one out of five ULBs.

Thus, the failure to create the necessary infrastructure resulted in dumping of waste in open areas and effecting the environment and health of the public.

While accepting the facts it was stated by the Additional Secretary in the exit conference (September 2023) that as per SWM Rules 2016 all the activities were to be done within five years i.e., till 2021-22. However, the work is in progress and will be completed by December 2024. Further, the State Government stated (December 2023) that for covering 92 municipal bodies, 65 sites have been selected for construction of waste management projects. As per the progress of solid waste management in the State, a target of December 2024 has been set to complete door-to-door collection, source segregation and processing.

2.7 Bioremediation/Capping of old and abandoned waste dump sites

Rule 15 (zk) of SWM Rules 2016 mentions that in the absence of bio-mining and bioremediation of dumpsite, the local authorities shall scientifically cap dumpsite as per landfill capping norms to prevent further damage to the environment.

Rule 22 (11) provides five years time for bioremediation of old and abandoned dump sites and for starting the process of capping them.

The Municipal Commissioner/Executive Officer was responsible for preparation, Director UDD for scrutiny and State Level Technical Committee/ High Power Committee, Municipal Board was responsible for approval of DPR of the respective ULB.

Records of the test checked ULBs revealed that there were old and abandoned waste dumpsites in four out of 13 ULBs in which bioremediation/capping of old dumpsites was yet to be done, as depicted in the **Table-2.4** below:

Table-2.4: Status of Bioremediation/Capping of old dump sites in test checked ULBs

Sl. No.	Name of the ULB	Old Legacy Waste Dumpsite Location	Quantity of Legacy Waste at Dumpsite (Lakh)	Status of DPR for disposal of Legacy Waste Dumpsites by
1	Nagar Nigam Dehradun	Danda Laukhand, Sahastradhara, Dehradun	6.24	Prepared and sent to Government for approval.
2	Nagar Nigam Haridwar	1. Sarai Dump site 2. Chandi ghat dumpsite,	4.21	Prepared and sent to Government for approval.
3	Nagar Palika Parishad Khatima	Aath taar, Lohia ghat Road, Khatima	0.33	Prepared and sent to Government for approval.
4	Nagar Palika Parishad Barkot	Shastri Nagar, Tiladi Road	0.02	Under preparation at ULB level
Total			10.80	

Source: Information provided by the ULBs.

As can be seen from the above table:

- The quantity of 10.80 lakh metric tons of legacy waste was lying unprocessed.
- Three DPRs were pending for approval at Government level while one DPR is under preparation stage at ULB level.

While accepting the facts it was stated by the Additional Secretary in the exit conference (September 2023) that after audit DPRs of Nagar Nigam Dehradun and Haridwar have been approved and remaining DPRs will also be approved at the earliest. The State Government further replied (December 2023) that the work of bioremediation of legacy waste is in progress. Out of the total legacy waste of 18.82 lakh metric tons in the State, 3.6 lakh metric tons of legacy waste have been disposed of, with the remaining being processed at various levels.

2.8 Recommendations

- *The State Government needs to devise systems to assist ULBs in preparation of Solid Waste Management plans/action plans for effective implementation of waste management and monitor their effective implementation;*
- *The State Government should ensure timely creation of the infrastructure of Solid Waste Management projects to avoid adhoc approaches adopted in the collection, storage, transportation and disposal of the solid waste to save the damaging environment. Responsibility must be fixed at all levels for inordinate delays in preparation, approval and establishment of SWM projects.*