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Reducing Plastic Waste
in the Ganga



Plastic Waste Management Action Plan 2022 Nagar Nigam Haridwar

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Reducing Plastic Waste
in the Ganga

Plastic Waste Management Action Plan 2022

Nagar Nigam Haridwar

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Plastic Waste Management Action Plan 2022 Nagar Nigam Haridwar

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Aviral – Reducing Plastic Waste in the Ganga is a project powered by the Alliance to End Plastic Waste and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH with the objective to reduce plastic waste entering the environment. The project is implemented in partnership with the Haridwar Nagar Nigam in developing approaches for sustainable and replicable plastic waste management solutions and contributing to the flagship program of Swachh Bharat Mission and Namami Gange.

The views and opinions expressed in this publication do not necessarily reflect the positions of participating authors, institutions or official policy positions of the governments involved during the application.

► Executive summary

Plastic plays an important role in our economy and in our daily lives. Plastic is a very heterogeneous and versatile material, however, today's plastic production, its use and its consumption too often harm the environment, as the dominant linear model of make-use-throw has led to unsustainable consumption and production patterns, which result in rapidly rising quantities of plastic waste putting additional pressures on ecosystems.

In 2022, it is estimated that India consumes approximately 22 million MT of plastic with over 40% of the plastic being utilised for single-use packaging¹. Ultimately, most of this plastic ends up in low-lying areas, dumpsites, and water bodies thus contributing significantly to the problem of marine litter. In addition to this, India's plastic consumption is increasingly outpacing the ability of urban waste management infrastructures to ensure a sustainable processing of plastic waste. If current trends continue, India could become the largest plastic waste generator by 2035². With India's rising urban populations and an increasing per-capita waste generation, sustainable solutions to prevent plastic waste leakage are imperative.

Uttarakhand addresses its plastic waste management challenge through the Uttarakhand Plastic Waste Management Action Plan, which was released in 2019 by Urban Development Directorate. The city of Haridwar is one of India's most prominent pilgrimage sites and a major tourist destination and experiences large influxes of tourists every year. The city has recognized the need for immediate action to address the impacts of improper plastic waste management. With this Haridwar Plastic Waste Management Action Plan (PWWAP), the Nagar Nigam Haridwar (NNH) aims to protect the environment and support more sustainable and safer consumption and treatment patterns for plastics. The provision of transparent and logical measures for plastic waste collection, treatment and processing / recycling in line with State and National legislation shall reduce environmental impacts of plastic waste pollution and increase the technical and economic efficiency of Haridwar's plastic waste management system.

This action plan is based on information from a baseline assessment on plastic waste material flows and existing plastic waste management in Haridwar, which was conducted in 2020 as part of the project Aviral – Reducing Plastic Waste in the Ganga³. In addition to this, information was collected in a participatory and consultative exchange with key stakeholders of the city and in line with State and National legislation, such as the Uttarakhand Plastic Waste Management Action Plan, 2019, the Plastic Waste Management Rules, 2016 (PWM Rules, 2016), as amended, 2018 and the Plastic Waste Management (Amendment) Rules, 2021 and 2022. The identified measures are developed against the backdrop of the waste hierarchy concept.

In this Haridwar Plastic Waste Management Action Plan the first four strategies have been identified. The subsequent eight actions and related measures, which are to be implemented over the period of the next five years, focus attention on prevention, segregation and collection as well as treatment.

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- 1- World Business Council for Sustainable Development, 2019. Towards a better way of managing plastic waste in India. Accessed date: Aug 2021. Published date: Nov 2019. Link
 - 2- Lebreton, L., Andrady, A., 2019. Future scenarios of global plastic waste generation and disposal. Palgrave Communications 5, 6.
 - 3- Aviral Ganga - Reduce Plastic Waste in Ganga

Table 1: Summary of Haridwar Plastic Waste Management Action Plan

Strategy	Action	Measure
Strategy 1 for plastic waste prevention (Reduce and Rethink)	Action 1: Implementation of single-use plastics ban	Compulsory reusable crockery and cutlery
		Haridwar's function as a role model
		Plastic carry bag provision and usage
	Action 2: Reduce plastic waste entering the environment	Awareness raising and public participation
		Clean-ups
		Green events
Strategy 2 for plastic waste reuse	Action 3: Support reuse	Cooperation with commercial establishments
		Haridwar Reuse Dialogues
Strategy 3 for plastic waste processing	Action 4: Implementation of source segregation	Reuse IEC material
		Information for waste generators and the commercial sector
	Action 5: Implementation of collection and transportation of segregated waste	Set-up of buy back system in cooperation with commercial sector
		Haridwar Collection and Transportation Plan
		User fee collection
		Capacity Building Plan (CBP)
	Action 6: Support local sorting and processing infrastructure	Integration of informal waste workers in collection processes
		Planning of Sarai ISWM
		Rethinking plastic waste and support to innovation
	Action 7: Support to plastic waste recovery	Clearing up the legacy waste at Sarai ISWM and Sarai dumpsite
		Use of MLP and Low Value Plastic (LVP)
Strategy 4 for scientific plastic waste proposal	Action 8: Support to scientific disposal	Identify a suitable operator for the MRF
		Ensure 5 TPD dry waste as feedstock
		Setup a monitoring team under Sanitation cell to supervise MRF operations

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► Abbreviations

CPCB	Central Pollution Control Board
DoE	Department of Environment
EPR	Extended Producer Responsibility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
HDPE	High-density polyethylene
HH	Household
INR	Indian Rupee
LDPE	Low-density polyethylene
MLP	Multi-layered plastic
MRF	Material Recovery Facility
MoEFCC	Ministry of Environment, Forest and Climate Change
PWM	Plastic Waste Management Rules, 2016
NNH	Nagar Nigam Haridwar
SPCB	State Pollution Control Board
TC	Technical Cooperation
ToR	Terms of reference
UDD	Urban Development Department, Uttarakhand

► Relevant Definitions

Bio-based	A material that is wholly or partly derived from biomass
Biodegradable	A material that with the help of micro-organisms can break down into natural elements (e.g., water, carbon dioxide, biomass)
Chemical recycling	A process that breaks down polymers into individual monomers or other chemical feedstock that are then be used as building blocks to produce polymers again
Combustible waste	Non-biodegradable, non-recyclable, non-reusable, non-hazardous solid waste having minimum calorific value exceeding 1,500 kcal/kg excluding chlorinated materials like plastic, wood and pulp, etc. ⁴
Compostable plastics	Plastic that undergoes degradation by biological processes during composting to yield CO ₂ , water, inorganic compounds and biomass at a rate consistent with other known compostable materials, excluding conventional petro-based plastics, and does not leave visible, distinguishable or toxic residue ⁵
Plastic	A material which contains as an essential ingredient a high polymer such as polyethylene terephthalate, high density polyethylene, vinyl, low density polyethylene, polypropylene polystyrene resins, multi-materials like acrylonitrile butadiene styrene, polyphenylene oxide, polycarbonate, polybutylene terephthalate ⁶
Plastic waste	Any plastic discarded after use or after their intended use is over ⁷
Recycle	A process of transforming segregated plastic waste into a new product or raw material for producing new products
Reuse	Using an object or resource material again for either the same purpose or another purpose without changing the object's structure
Single-Use Plastic	A plastic commodity intended to be used once for the same purpose before being disposed of or recycled ⁸
Virgin plastic	Plastic material which has not been subjected to use earlier and has also not been blended with scrap or waste ⁹

4- Ministry of Environment, Forest and Climate Change (2016), Solid Waste Management Rules, 2016.

5- Ministry of Environment, Forest and Climate Change (2016), Plastic Waste Management Rules, 2016.

6- Ministry of Environment, Forest and Climate Change (2016), Plastic Waste Management Rules, 2016.

7- Ministry of Environment, Forest and Climate Change (2016), Plastic Waste Management Rules, 2016.

8- Ministry of Environment, Forest and Climate Change (2016), Plastic Waste Management Rules, 2021.

9- Ministry of Environment, Forest and Climate Change (2016), Plastic Waste Management Rules, 2016.

1. Introduction

Plastic plays an important role in our economy and in our daily lives. Plastic is a very heterogeneous and versatile material. It is lightweight, durable and malleable and because of these features, polymer plastics have been used in almost all areas of modern civilization since its invention in the mid-19th century. However, the risks and problems associated with plastic are about as many as the possible uses.

Plastic waste, if not managed appropriately, has negative impacts on the environment and human health. Today's plastic production, its use and its consumption too often harm the environment, as the dominant linear model of make-use-throw has led to the unsustainable consumption and production patterns, which contribute to rapidly rising quantities of plastic waste putting additional pressures on ecosystems around the world.

Rethinking established systems and transitioning to a more circular plastics economy requires the involvement and cooperation of all relevant key players. Rethinking established systems becomes even more critical in response to the COVID-19 pandemic, when countries around the globe are working toward green recovery. Managing plastic waste is a global problem: The plastic production rate has risen twentyfold over the past 70 years and is expected to double again over the next two decades. It is expected that by 2025 over 250 million tons of plastic waste will circulate in the oceans. A transition to the plastics of the future requires a systemic change which is based on and enhanced by an enabling environment and policy framework.

In 2022, it is estimated that India consumes approximately 22 million MT of plastic with over 40% of the plastic being utilized for single-use packaging¹⁰. Ultimately, most of this plastic ends up in low-lying areas, dumpsites, and water bodies thus contributing significantly to the problem of marine litter as well, as India's plastic consumption is increasingly outpacing the ability of urban waste management infrastructures to ensure a sustainable processing of plastic waste. If current trends continue, India could become the largest plastic waste generator by 2035¹¹. With India's rising urban populations and an increasing per-capita waste generation, sustainable solutions to prevent plastic waste leakage are imperative. Cities in the Indian state Uttarakhand, which experience large influxes of tourists every year, require immediate action to address the impacts of improper plastic waste management.

In April 2019, the Urban Development Directorate, Uttarakhand (UDD) released the Uttarakhand Plastic Waste Management Action Plan 2019. The action plan aims to guide all Urban Local Bodies (ULBs) towards sustainable plastic waste management as per the Plastic Waste Management Rules, 2016 (PWM Rules, 2016), as amended, 2018, the Solid Waste Management Rules, 2016 and the Plastic Waste Management (Amendment) Rules, 2021 and 2022 respectively. The plan outlines the states approach to working towards a Swachh Uttarakhand in line with the Swachh Bharat Mission by adopting measures to improve the management of plastics throughout its lifecycle – from production and consumption through to disposal, recovery and recycling. The UDD puts a strong emphasis on the principles of 5R, namely reduce, reuse, recycle, recover and rethink.

Under the Uttarakhand Plastic Waste Management Action Plan, 2019, the UDD has adopted several targets. In order to address the overall plastic waste management challenge and the respective targets outlined by the UDD as well as the new regulations under the Plastic Waste Management (Amendment) Rules, 2022, Nagar Nigam Haridwar (NNH) has developed a Haridwar Plastic Waste Management Action Plan (PWMAP).

10- World Business Council for Sustainable Development, 2019. Towards a better way of managing plastic waste in India. Accessed date: Aug 2021. Published date: Nov 2019.

11- Lebreton, L., Andrady, A., 2019. Future scenarios of global plastic waste generation and disposal. Palgrave Communications 5, 6.

With this Haridwar PWMAP, the NNH aims to protect the environment and support more sustainable and safer consumption and treatment patterns for plastics. The provision of transparent and logical measures for plastic waste collection, treatment and processing / recycling in line with State and National legislation shall reduce environmental impacts of plastic waste pollution and increase the technical and economic efficiency of Haridwar's plastic waste management system.

The PWMAP is based on information from a baseline assessment on plastic waste material flows and existing plastic waste management in Haridwar, which was conducted in 2020 as part of the project Aviral – Reducing Plastic Waste in the Ganga¹². In addition to this, information was collected in a participatory and consultative exchange with key stakeholders of the city and in line with State and National legislations, such as the Uttarakhand Plastic Waste Management Action Plan, 2019, the Plastic Waste Management Rules, 2016 (PWM Rules, 2016), as amended in 2018, 2021 and 2022. The identified measures are developed against the backdrop of the waste hierarchy concept.

This Haridwar Plastic Waste Management Action Plan (PWMAP) sets out the 8 Actions and subsequent measures, which focus attention on prevention, segregation and collection as well as treatment. These actions are to:



1. implement India's single-use plastic (SUP) ban,



2. reduce plastic waste entering the environment,



3. support reuse,



4. implement source segregation,

5. implement collection and transportation of segregated waste,

6. support local sorting and processing,

7. support waste recovery and

8. support local disposal facilities.



Application

The Haridwar PWMAP shall apply to every waste generator, local body, manufacturer, importers and producers within municipal limits. Further enforcement/implementation stakeholders include NGOs, private vendors, academia, technical agencies such as GIZ, relevant road construction authorities within municipal limits.

Implementation Timeline

Haridwar's Plastic Waste Management Action Plan, with a 5-year timeline, addresses a wide range of short-term, mid-term and long-term measures, with the aim of preventing plastic waste from entering the environment and reduce existing plastic waste pollution. A mid-term course correction is planned after the first 3 years of implementation in 2025. At the end of the 5 years (2027), the NNH will facilitate an impact evaluation. When the term of a Municipal Commissioner ends, a signed off PWMAP status update will be transferred to the incoming Municipal Commissioner.

¹²- Aviral Ganga - Reduce Plastic Waste in Ganga (aviralganga.in)



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2. Haridwar's Plastic Waste Management Scenario

2.1. Plastic Waste Quantification in Haridwar

In Haridwar, municipal solid waste (MSW) contains 78% organic and the overall plastic share in the total solid waste of Haridwar amounts to approximately 7%. The overall share of plastic waste in the dry waste of the city is about 31% as shown in Figure 1. In household dry waste plastics are 31% and 34% in dry waste from commercial establishments. The composition of the dry waste fraction from households and commercial establishments are presented in Figure 2 and Figure 3 below. The second largest category of both generator types is paper waste. Apart from this, the dry waste compositions of households and commercial establishments do not vary substantially. However, a notable difference is a comparatively high share of textile waste in the household dry waste, comprising of old rags and cloths.

Within the plastic waste, 57% are comprised of LDPE, while waste materials of higher value like PET and HDPE have a share of 5% and 9% respectively. For the urban waste generation, a total daily mass flow of 200 to 250 tons/day is estimated.

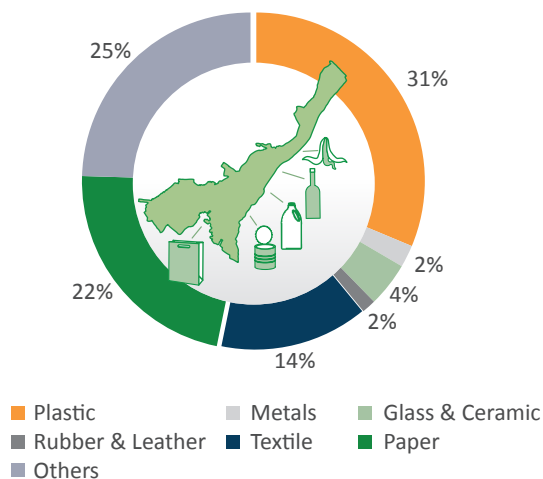


Figure 1: Overall composition of dry waste in Haridwar.

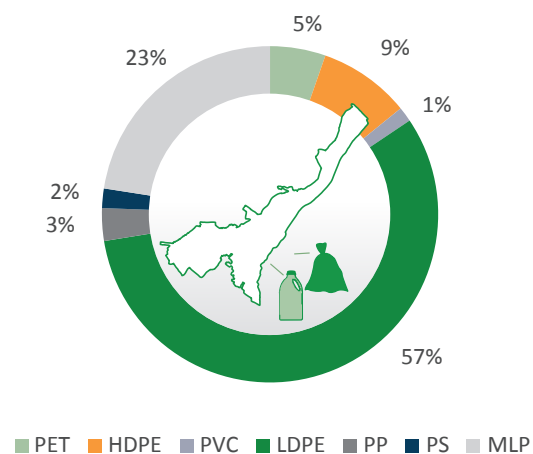


Figure 2: Overall split of plastic waste in Haridwar.

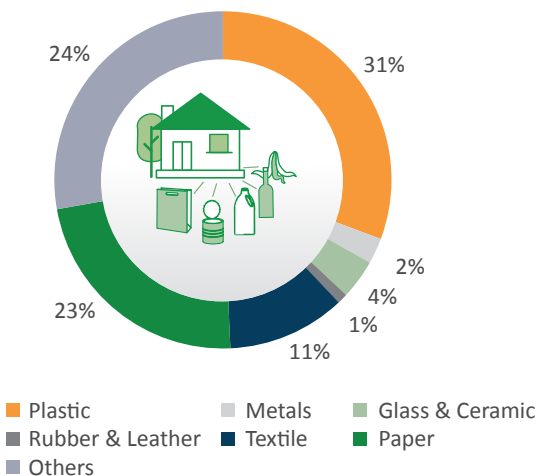


Figure 3: Dry waste composition of household waste of Haridwar.

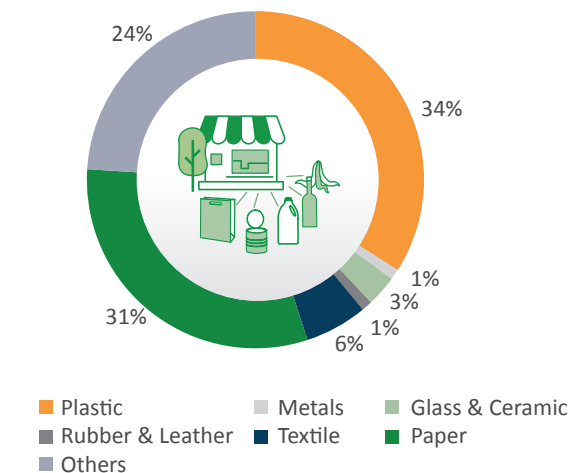


Figure 4: Dry waste composition of commercial waste of Haridwar.

Approx. 19% of all generated plastic waste remain unmanaged and leak into the environment, caused to 69% by uncollected waste and to 28% by leakages during waste collection and transportation. Plastic waste leakage hotspots exist primarily in along the river on the north bank. Besides various decentralised composting facilities, the city disposes their major portion of daily wet waste generation at the Sarai Integrated Waste Management Facility. Informal traders of recyclables in Haridwar trade majorly plastic materials, followed by paper and metal.

Nagar Nigam Haridwar does not have an own recycling infrastructure. Recyclables collected by the informal sector are aggregated and transported to other cities. Only 20% of households reported use of two different bins to segregate their waste into wet and dry waste during Covid pandemic. However, these numbers have subsequently increased in 2022. Waste leakage was majorly found during waste transfer and outside of commercial establishments.

► 2.2. Plastic Waste Management in Haridwar

Waste collection and street sweeping is done by the NNH. Until 2021, M/s KRL Waste Management Services used to perform the waste management duties for NNH. They also operated the Integrated Waste Management Facility (IWMF) at Sarai. From April 2021 onwards, two new agencies viz. M/s Casa Green BKNSSS Pvt. Ltd. and M/s KL Madaan for waste collection took up this task on behalf of the NNH. The operations of IWMF are now handled by M/s Ayushi Hygiene and Care Pvt Ltd. Many households collect waste in two different bins (dry and wet waste), the collection system used to mix both streams together to transport the waste to the IWMF at Sarai due to lack of proper infrastructure. These scenarios have changed as NNH is working towards a better and sustainable waste collection and transportation system. In Project Aviral, a pilot project for implementation of the source segregation is ongoing in Ward number 19, 20,21 and 23 to demonstrate the segregated collection system which can be replicated by NNH at city level.

Currently, the door-to-door collection is majorly carried out with the help of auto tippers, E vehicles (eVs) and tricycle rickshaws. Tricycles, eVs and pushcarts are used in wards with narrow roads and alleys where tippers would not be able to enter. The waste collected through primary collection vehicles go directly to the decentralised transfer stations. These are located at Pantdweep (, (Ward 7), Bhagat Singh Chowk (Ward 16), P-Plan (Ward 41), Kadach (Ward 35), and Bairagi (Ward 30) There are few localities which are not serviceable by these transfer stations. For such areas temporary collection spots are managed by NNH. These are cleared before the city wakes up for business. For collecting waste from street sweeping and drain cleaning, dedicated vehicles are used in coordination with the drain cleaning team.

Additionally, NNH was using community bins which were emptied every day. This created waste leakage points and mini dumpsites which were sore in the eye. NNH removed these large bins and progressed towards a bin free city. The field observations of collection trips revealed that in Haridwar, only approx. 78% of the daily plastic waste is being collected through the formal system.

Location of various solid waste management sites in Haridwar city

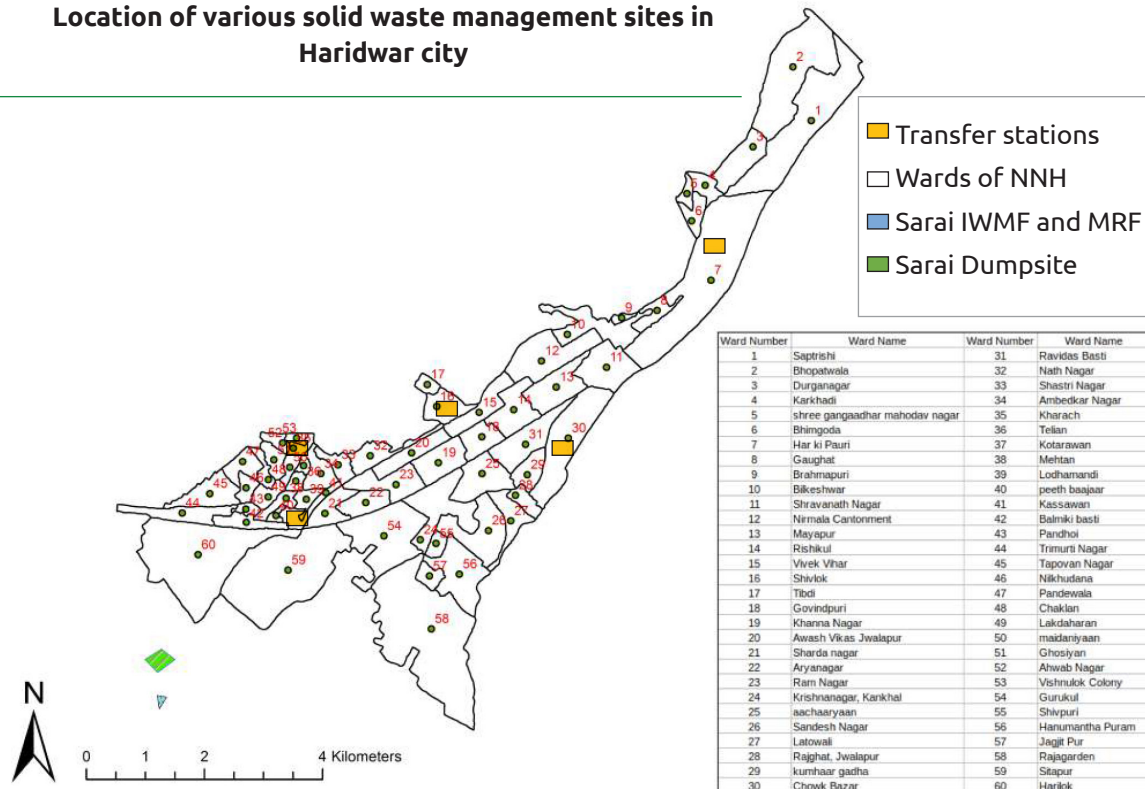


Figure 5: Map showing Sarai Integrated Waste Management Facility, Aviral Material Recovery Facility, Haridwar

Haridwar city did not possess any functional facility for processing, sorting or treatment of dry waste till 2021. All dry waste and most wet waste are collected from household, commercial establishments, institutions, hotels, street sweeping, community bins and drain cleaning and transported to the IWMF at Sarai. Under the GIZ Aviral project, Material Recovery Facility (MRF) of 5TPD is under construction at Sarai. The facility will be able to handle 5TPD of segregated dry waste of the city and will channelise the material for further recycling. The project will handhold and support the operator selected by NNH for operations and maintenance of the MRF till end of December 2022 and thereafter the facility will be handed over to NNH for operations as a part of integrated waste processing facility at Sarai. NNH for operations is building a new Sanitary Landfill (SLF) at the IWMF. The IWMF covers an area of approx. 7 hectares. Almost 25,000 cu.m. of waste was estimated to be present in the IWMF premises. The remediation of which is ongoing. These facilities are presented in Figure 5.

► 2.3. Plastic Waste Projections for Haridwar

Projection of development of waste quantities and compositions during the time period covered by this PWMAP is shown here. The projections show 3,06,431 people residing in Haridwar by the horizon year 2027. In addition to that, 48 % tourist influx is seen during 2020¹³. Considering that even if the tourist influx remains at 48 % and does not increase, the total population which shall need waste management services ramps up to 4,53,518 in the horizon year. As a best case scenario, the generation of waste may also increase by minimum of 50 %, rather more.

Table 2: Population forecast for NNH

S. No.	Name of the ULB	1991	2001	2011	2018	2021*	2027*	2031*
1	Haridwar NPP (till 2017) ¹⁴	1,49,011	1,77,509 (+19%)	2,28,832 (+29%)	251,197 (+10%)			
2	Nagar Nigam Haridwar (2017 onwards) ¹⁵					2,74,320 (+20%)	3,06,431 (+12%)	3,30,104 (+20%)

Data Source: As outlined in footnotes below

13- Aviral, Haridwar baseline study report 2020

14- RCUES, Lucknow

15- GIZ Aviral Project



3. Plastic Waste Policy Framework

► 3.1. Legal Basis at the National Level

Policy	Key Policy Instruments / Recommendations
Plastic Waste Management Amendment Rules, 2021	<ul style="list-style-type: none"> › Phase out 20 SUP items by 2022: The prohibition of the manufacture, import, stocking, distribution, sale, and use of the following items, including polystyrene and expanded polystyrene, will come into force from 1 July 2022. The items include earbuds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene [thermocol] for decoration. It also includes plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, stirrers, wrapping or packing films around sweet boxes, invitation cards, cigarette packets, plastic, or PVC banners of less than 100 microns. › From 30 September 2021, permitted plastic bags will have to have a thickness of 75 microns. Starting 31 December 2022, permitted plastic bags will have to be 120 microns thick. › Mandatory source segregation. › ULBs shall engage agencies or groups working in waste management including waste pickers. › Polluter pays principle. › The municipal authority may work out the modalities of a mechanism based on Extended Producer's Responsibility involving such manufacturers, registered within its jurisdiction and brand owners with registered offices within its jurisdiction either individually or collectively, as feasible or set up such collection systems through its own agencies.





Policy	Key Policy Instruments / Recommendations
Solid Waste Management Rules, 2016	<ul style="list-style-type: none"> › Segregation at source: The waste generator is mandated to source segregate in biodegradable, non-biodegradable (recyclable and combustible) and domestic hazardous wastes. The ULBs shall create awareness on practice segregation. › Collect back scheme for packaging waste: As per the rules, brand owners who sell or market their products in packaging material which are non-biodegradable, should put in place a system to collect back the packaging waste generated due to their production. › User fees collection: Municipal authorities will levy user fees for collection, disposal and processing from bulk generators. As per the rules, the generator will have to pay "User Fee" to the waste collector and a "Spot Fine" for littering and non-segregation, the quantum of which will be decided by the local bodies. › Informal worker integration: Waste pickers shall be involved to prepare a state policy and solid waste management strategy for the state, in which the primary role played by the informal sector of waste pickers, waste collectors and recycling industry in reducing waste shall be acknowledged, and broad guidelines regarding integration of waste pickers or informal waste collectors in the waste management system shall be provided. Waste pickers and waste dealers shall be registered; › Recycling: The ULBs may provide incentives to recycling initiatives of the informal waste recycling sector; › State policy and strategy on solid waste management shall put emphasis on implementation of waste hierarchy concept to ensure minimisation of waste going to landfills. Local authorities shall allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfills; › Zero waste: Efforts shall be made to adopt the zero-waste concept; › Manufacturers of disposable products such as tin, glass, plastics, packaging etc. shall provide necessary financial assistance to local authorities for establishment of waste management system.
Swachh Bharat Mission 2.0	<ul style="list-style-type: none"> › The manual provides guidance to urban local bodies on the planning, design, implementation and monitoring of municipal solid waste management systems. Issues of environmental and financial sustainability of these systems are a critical consideration. › Focus on recycling, development of Material Recovery Facilities, and managing plastic waste, especially SUP. › Awareness campaigns for behavioural change in regard to source segregation and recycling

▶ 3.2. Legal Basis in the State of Uttarakhand

Policy	Policy Instruments / Recommendations
Uttarakhand Plastic Waste Management Action Plan 2019	<ul style="list-style-type: none"> › Identification of plastic waste minimisation measures at source with an emphasis on the principles of 5Rs. › The state is to ban the use of plastic bags or instruct producers on reduce, reuse and recycle of different products. › Mandatory source segregation as per PWM Rules. › Extended Producer Responsibility (EPR): State level authority to monitor the material flow of packaging material from the point of production or entry into the state to the recycling or reuse of those materials. The state is to set up a Producer Responsibility Organisation (PRO) which manages and finances the system by levying fees from the producers, which use packaging material to bring their products to the point of sale. PROs shall be responsible for: <ul style="list-style-type: none"> - Recycling rates are stipulated by the state and declared by the producers are achieved - Disbursement of fees from the producers to the collectors to incentivise the collection of the recyclables which are currently ending up in the landfills. › Collect back system: Producers, importers and brand owners to introduce collect back system for plastic waste of their multi-layered products. › Phase out of non-recyclable multi-layered plastic within 2 years of release of the action plan. › ULB to set up an own collection system during Major Festival Season and Tourism Inflow. › Integration of local waste workers. › Establishment of environment-friendly plastic waste disposal solutions.



Policy	Policy Instruments / Recommendations
Uttarakhand Plastic and Other Non-Biodegradable Garbage (Regulation of Use and Disposal) Act 2013,	<p>No person, by himself or through another, shall knowingly or otherwise, sale, trade, manufacture, import, store, carry, transport, use, supply or distribute the following plastic/thermocool/Styrofoam items in the entire state of Uttarakhand.</p> <ul style="list-style-type: none"> › The authorities or owners of places of religious worship or institutions, multiplex, malls, hotels and restaurants, cafe, mobile food counters or vans, caterers and other such places like marriage or party halls, offices or institutions and the outdoor event shall be responsible for ensuring strict compliance of the aforesaid provisions and they shall provide space for collection of plastic waste within their campus and shall send it to the recyclers, duly registered with Uttarakhand Pollution Control Board. › Manufacturers of Products of Polyethylene Terephthalate (PET/PETE) bottles for bottled drinking water and soft drinks shall take back the Polyethylene Terephthalate (PET/PETE) bottles and plastic waste respectively through the same retail sales network under mutually agreed terms and conditions based on Extended Producer's Responsibility or they have to mandatorily compensate expenses incurred by the local authorities (Urban Local Bodies and Village Panchayats etc.) in collection, transportation and safe disposal of the plastic waste generated due to their products. › All manufacturing units engaged in manufacturing of the items as mentioned under clause I(a)(i) to clause I(a)(iii) shall have to stop manufacturing of such items within six months from the date of issue of this notification.

► 3.3. Legal Basis in the City of Haridwar

Policy	Policy Instruments / Recommendations
Municipal Solid Waste Management Byelaws, 2011, Haridwar	<p>NNH released their solid waste management byelaws in the Uttarakhand Gazette published on 10th December 2011. These byelaws are called Nagar Nigam Haridwar Municipal Solid Waste Management Byelaws, 2011. These byelaws are based on SWM Rules, 2016.</p> <ul style="list-style-type: none"> › Byelaws define user charges and fines specific to the city limits which increase year on year by 10%. Also, there shall be no discount on the user charges. › Segregated waste collection and its frequency has been defined in the byelaws. › Burning of dry waste including plastics is prohibited.



4. Plastic Waste Management Strategies

Haridwar's plastic waste management strategies are based on the principles of **5R: reduce, reuse, recycle, recover, and rethink**. These principles have been laid down in the Solid Waste Management Rules, 2016 as well as in the Uttarakhand Plastic Waste Management Action Plan, 2019 and form the basis of the NNH's strategic orientation on plastic waste.



In close cooperation with all relevant stakeholders, 8 Actions with subsequent measures were defined to reduce the city's plastic waste flow and to steer the plastic waste value chain on a sustainable and efficient path. The NNH fundamentally supports closed loop recycling and the prevention of waste. For this reason, specific measures have already been adopted in recent years, such as clean-up activities, citizen engagement concepts against littering, declaration of litter free Har ki Pauri Ghat and further development of integrated waste processing and disposal facility at Sarai.



Limitations/Challenges

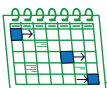
- 1) Due to high tourist inflow and great numbers of religious events, the amount of plastic waste generated by floating population is fluctuating, which requires the NNH to respond flexibly to plastic waste management requirements.
- 2) The creation of awareness and behavioural change among the floating population is a challenge as campaigns need to be tailored accordingly.
- 3) A huge quantum of religious offerings, including clothing, is put into the river. Collection and processing of this becomes very difficult.



Principles

The following principles apply to the city of Haridwar when it comes to the handling of plastics:

- 1) The entry of plastic waste into the environment especially river Ganga must be prevented.
- 2) The NNH is committed to ensure that no single-use plastic (SUP) items, for which there are ecologically better alternatives, are being introduced in the markets.
- 3) Plastics must be collected, processed, and recycled once it is ecologically beneficial and financially viable.



Timelines

The horizon year of this PWMAP is calendar year 2027. Based on the 5-year commitment and vision of NNH, all the actions are categorized into three viz. short-term, medium-term, and long-term. The definitions and timelines are as follows:

- 1) **Short-term** – Short term refers to the activities which are ongoing or envisaged to start by the end of calendar year 2022.
- 2) **Medium-term** – The PWMAP has its midterm review due in May 2025 under the chairmanship of the Municipal Commissioner. All activities that must be achieved before this mid-term review have been categorized as medium-term.
- 3) **Long-term** – All actions that are envisaged to be completed by the end of calendar year 2027 will be considered as long-term. In addition to this any new actions added during the mid-term review will be targeted to be completed by end of 2027. All actions that are recurring which must be sustained till the horizon year are also included in this.

► 4.1. Strategy 1 for Plastic Waste Prevention (Reduce and Rethink)

Plastic waste prevention is a top priority in India's plastic waste management approach, which is reflected in the recently notified Plastic Waste Management (Amendment) Rules, 2022, prohibiting identified single-use plastics items by mid-2022. Waste prevention is also an important element in Uttarakhand's Plastic Waste Management Action Plan, 2019, as the action plan is based on the principles of 5R, reduce, reuse, recycle, recover, and rethink.

► 4.1.1. Action 1: Implementation of single-use plastics ban

In response to Prime Minister Modi's 2021 announcement to phase out SUPs by 2022, which is also reflected in the Plastic Waste Management (Amendment) Rules, 2022, the NNH is making reusable crockery and cutlery compulsory for events and sales outlets in public spaces. With this measure the reduction the use of the identified SUP items can be addressed in a targeted manner. In addition, the ongoing project, Aviral - Reducing Plastic Waste in the Ganga, which focuses on the reduction of plastic waste entering the cities environments of Haridwar and Rishikesh, has contributed to Haridwar spearheading innovative solutions regarding plastic waste reduction and becoming a role model in terms of plastic waste prevention in the area. Demarcation of major tourist areas by NNH in response to national rules, e.g., Har ki Pauri Ghat, as litter free zones and SUP free zone is one of them. An important contribution to the reduction of SUPs can also be made by the commercial sector and the individual consumer when it comes to plastic carry bags. The individual measures are explained below.

Measures 1 to 3 have been defined for this purpose, with a specific focus on waste prevention at public events, on awareness raising campaigns and waste prevention in the commercial sector.

► 4.1.1.1. Compulsory reusable crockery and cutlery

The prohibition of the manufacture, import, stocking, distribution, sale and use of SUP items including e.g., plates, cups, glasses, cutlery and stirrers, as outlined under Rule 4 (2) (b) of the Plastic Waste Management Amendment Rules, 2021, came into force from July 1, 2022. With this, the legislature achieved a great deal of progress. Reusable crockery and cutlery for public events and sales outlets in public spaces will be especially effective in a city like Haridwar, which is one of India's most prominent pilgrimage sites and a major tourist destination. In one year, the average daily tourist influx of 119,346 varies strongly in festive seasons and is generally higher on weekends due to short time tourist visits from the nearby cities of Delhi-NCR. April to September is a high tourist season with *Char Dham Yatra*, *Ganga Dusshera* and various other holy dips falling in these months. As a result, the daily tourist population can amount to up to 48% of the total urban population of Haridwar and has a significant impact on Haridwar's urban infrastructure, especially its waste management system. This measure helps to curb littering in Haridwar.

The guidelines for waste management during public events, adopted by NNH, is a special code developed for the event organisers which promotes compulsory reusable crockery and cutlery during religious and private events. NNH also facilitates the segregation at these events as well as transport of segregated waste to its final destinations.

4.1.1.2. Haridwar's function as a role model

Haridwar shall continue its function as a role model in the area of waste prevention. In order to response to the prohibition of selected SUP items by July 2022, reusable crockery and cutlery are to be used, when dispensing beverages and food in buildings and on property that is owned by the NNH, as well as those used by the NNH. This means that in administrative buildings or in school buildings in Haridwar, it is not permitted to dispense drinks or food in SUP products. In addition to the specific waste prevention, this measure creates awareness among the municipality's employees, which can be further spread.

As a first in the in the state, NNH implemented the replacement of plastic mats, plastic cans and other plastic items at its ghats by more sustainable products. The NNH engaged with its women self help groups to supply jute mats and jute covered glass and steel containers for taking the holy water. The SHGs also make jute bags and cloth bags for use of tourists and citizens. NNH is planning to deploy these SHGs by providing them a stall for sale of their products for a subsidised and affordable price at the Ghats and prominent places.



4.1.1.3. Plastic carry bag provision and usage¹⁶

Plastics of all types are non-biodegradable and significantly harm the delicate natural balance. They often cause reduction in fertility of agricultural fields, cause blockage of urban drains and sewer resulting in overflowing of wastewater. Many a times these are swallowed by cattle, especially cows, and wild animals and ultimately cause their death. The colour pigments present in the plastic have been proven to contaminate food products in their contact. This contamination could be carcinogenic.¹⁷

Plastic products take hundreds of years for degradation and during the degradation they convert into microplastics which choke the soil pores ultimately blocking the rainwater infiltration. During monsoon, these plastic items serve as breeding ground for vector borne diseases like malaria, dengue etc. In hilly areas, such as Uttarakhand, burning of waste is common disposal malpractice. Again, this action releases carcinogenic and toxic substances like dioxins, furans and hydrogen cyanide in the air. Plastic waste and micro plastic cause danger to fresh and marine water biodiversity and also hamper ecosystem services due to spreading of such waste in and around ecosystems, on tourists places, heritage sites, eco-fragile areas like- Bugyals (grasslands), high altitude areas and on agriculture and forest areas. Recently, microplastics have been found in human blood samples as well.¹⁸

Any Violation of provisions in the Act shall attract the penalty as follows:

Table 3: Penalties mentioned in the Act

Violators 	Amount of Penalty 
Manufacturer	Rs 5 Lakh
Transporter	Rs 2 Lakh
Whole sellers/Traders	Rs 1 Lakh
Individual Users	Rs 100

For subsequent violation by the same legal entity shall attract twice the fine mentioned above.

16- Government of Uttarakhand in exercise of the powers conferred by section (I) of section 3 of the Uttarakhand Plastic and Other Non Biodegradable Garbage (Regulation of Use and Disposal) Act 2013

17. Health Hazard Alert - Benzidine, o-Tolidine and o-Dianisidine Based Dyes | NIOSH | CDC

18. Discovery and quantification of plastic particle pollution in human blood - ScienceDirect and Scientists find microplastics in blood for first time - The Hindu

To counter these ill effects of single use plastics, Government of Uttarakhand in exercise of the powers conferred by section (I) of section 3 of the Uttarakhand Plastic and Other Non-Biodegradable Garbage (Regulation of Use and Disposal) Act 2013, the restriction and prohibition on plastic as follows:



1.(a) No person, by himself or through another, shall knowingly or otherwise, sale, trade, manufacture, import, store, carry, transport, use, supply or distribute the following plastic/thermocool/Styrofoam items in the entire state of Uttarakhand.

(i) Polythene carry bags of any shape (with or without handle), thickness, size & colour; and non-woven poly propylene bags Provided above restriction shall not be applicable on bio-compostable plastic bags and polybags more than 50 micron thickness used for handling, collection, transportation of the waste such as bio medical waste, municipal solid waste and hazardous waste.

(ii) Single use disposable cutleries made up of thermocol (polystyrene), polyurethane, Styrofoam and the like; or plastic such as plate, tray, bowl, cup, glass, spoon, fork, straw, knives, stirrer etc. of any size and shape.

(iii) Single use food packaging containers made up of recycled plastics of any size, shape, thickness and colour used to cover, carry, store food/liquid items.



Note: Compostable plastics shall conform to the Indian Standard: IS 17088:2008. The manufacturers or seller of bio-compostable plastic carry bags shall obtain a certificate from the Central Pollution Control Board before marketing or selling.



(b) No person shall knowingly or otherwise, litter any public place with any plastic item allowed under this notification

To be in consensus with the above notification from Government of Uttarakhand it is very important for different stakeholders follow their responsibilities as prescribed in the below table of action.

Table 4: Action 1 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Compulsory reusable crockery and cutlery	NNH	Initiate a joint meeting and release the key decisions and 'Compulsory reusable crockery and cutlery' notification and adoption of the Guidelines for Management of Waste at Public Events in print media as well as NNH website.	Short Term
		To monitor the implementation and levy suitable penalty as per latest notifications	



Measure	Stakeholder	Role & Next Steps	Timeline
Compulsory reusable crockery and cutlery	Civic bodies such as religious places like Shri Ganga Sabha, Maa Mansa Devi Trust, Maa Chandi Devi Trust, temple, dharamsala's, caterers, restaurants & hotels, etc.	Adopt and promote reusable crockery and cutlery' in day-to-day operations and events	Short term
Haridwar's function as a role model	NNH	Declare public areas and offices as 'Litter free' 'SUP free zone' in a phased manner.	Short term
		Set exemplary practices by adopting SUP alternatives in office premises and events	
		Execute the plan for establishment of stalls for women SHGs providing alternative to plastic products used at Ghats and other prominent places of the city.	
	Women SHGs	Provide alternative products to the tourists and citizens such as jute mats instead of plastic mats, Jute covered glass and steel bottles instead of plastic cans etc. in an affordable cost.	
	NNH Office, schools and ghats in NNH boundary	Install display boards for all notified 'Litter free' and 'SUP free zone'	Short term
	All other public areas and offices not mentioned above.	Install display boards for all notified 'Litter free' and 'SUP free zone'	Medium term
Plastic carry bag provision and usage	NNH	Issue notice to the relevant establishments suggesting surrender of the banned plastic without attracting fine for a specified time frame.	Short term
		Bi-weekly fines and challans drives led by Sanitary Inspectors after the stipulated time frame.	
	Hotels and restaurant owners, shopkeepers, roadside vendors, etc.	Adopt and promote reusable cutlery and packaging within their premises.	Medium term
	Individuals	To use and carry cloth/jute bags, steel/ reusable water bottles.	Short term
		Pack food in reusable containers. Use steel/ reusable straws, wood based toothbrush.	Medium term
	Suppliers and sellers of the SUP material	Stock, sale and promote reusable and ecofriendly packaging and bags.	Medium term

▶ 4.1.2. Action 2: Reduce plastic waste entering the environment

Various activities are already being implemented in Haridwar to reduce the entry of plastic into the environment. As per the baseline assessment report, littering is one of the main sources of plastics entering the environment. The mismatch in timing between primary and secondary collection results in a major plastic leakage and a significance nuisance for the urban population. Additionally, commercial establishments, in particular of small and medium size, commonly store their waste without containers at the roadside for pickup by the collection vehicle. Individual measures have not yet had the desired effect, which is why the NNH has developed a five-pillar system, in order to address the issue of littering in a structured manner. The five pillars include awareness-raising, school engagement, clean-ups, green events and the inclusion of the commercial sector.

▶ 4.1.2.1. Awareness raising and public participation

In line with the Uttarakhand Plastic Waste Management Action Plan, 2019, the NNH is mandated to ensure public participation by consistent mass awareness campaigns. So far, the population of Haridwar or individual target groups, such as school children or shopkeepers, have been informed about a variety of aspects related to sustainable plastic waste management, including plastic waste prevention.

- › Clean-up drives
- › Street plays at public places
- › Rewarding citizen with waste champion award
- › Rewarding waste workers with waste champion award
- › Providing uniforms and PPE to all staff engaged in the waste management process
- › Source segregation demonstration at Temples on religious feast events
- › Educational sessions both offline and online on plastic waste management with school students through Aviral school module
- › Daily interaction of Households with a community mobiliser who walks with the waste collecting vehicles
- › City level WhatsApp groups of active citizens with Sanitary Inspectors as admins. These groups also have 'young warriors' i.e., the self-motivated active youth of town.
- › Annual 'Swachh Ward Rankings' under the ambit of Swachh Survekshan
- › Annual selection of 'Brand Ambassador' from citizens
- › Promotion of citizen stories on social media handles of the Municipal Corporation through 'Meri Green Kahani' campaign
- › Development of a dedicated 'Sanitation Cell' with a feedback and complaints hotline and a dedicated IEC team
- › Surprise morning interaction with citizens during waste collection and late night inspections by the Municipal Commissioner/Assistant Municipal Commissioner.

The general awareness-raising campaigns are to be strengthened through the development of an Awareness Campaign Plan for the city of Haridwar, which shall ensure a continuity and coherence in planned awareness activities. In this action plan, awareness raising activities and public participation campaigns targeting plastic prevention and plastic waste littering are to be formulated in a target group-specific way.

The four key target groups of the Awareness Campaign Plan (ACP) are:

1. **Community leaders:** Community leaders have a prominent place among society and their involvement in awareness activities ensures a broad outreach.
2. **Children and teachers:** Organizations such as the National Service Scheme (NSS), Youth Associations, Young Aviral Club will be involved and waste management shall be included as curriculum in schools, as this ensures outreach as well as sustainability and scale-up. One such example has been introduced through the GIZ Ganga Toolbox (Annex I).
3. **Tourist guides:** Their role to generate awareness about segregation and littering among tourists can be crucial.
4. **Ward level committees:** Reactivation of ward level waste management committee including Waste Champions.

In addition to this, the ACP will contain IEC material, including information for the population, tourists and commercial establishments. Few IEC examples, which were developed by the NNH with support by the Aviral project can be found in Annex III. Exemplary identified IEC areas and activities include the following:

- › Consequences of plastic waste littering for river Ganga and cows: While river Ganga and cows are revered, they also end up ingesting plastic due to biodegradable waste being mixed with other waste streams. Therefore, there is a requirement to create awareness on the consequences of throwing food waste in plastic bags in order to protect the cows and other animals such as pigs and dogs in Haridwar. The pollution of the holy river will also reduce by this effort.
- › Other impactful IEC activities include street plays (nukkad nataks) and wall paintings. Visual cleanliness and wall paintings encourage tourists to stop littering.

▶ 4.1.2.2. Clean-Ups

› City cleaning

The city cleaning endeavors to keep the city as clean as possible. Experience shows that there is less litter in clean places than in places that are already contaminated. Accordingly, the cleaning capacity was adapted to the increased volume of waste and large litterbins at transfer points and hotspots have been removed by the NNH. The transfer points are cleaned before the city wakes up and hotspots have been eliminated. In most of the wards the waste directly moves to nearby designated transfer station. These points are under surveillance of the municipal staff and CCTV at some places. The city aims to be a bin-less city by 2023.

Har ki Pauri ghat is one of the prominent tourists point in the municipal corporation area where people take holy dips in the Ganga and attend Ganga Aarti every morning and evening. Looking at the importance of the place, NNH declared it as “litter and SUP free Har ki Pauri”, which was well accepted by the citizens. Training and capacity building of the vendors at the ghat who sell SUP for different activities in ghats have been conducted with visible results. As of now, the NNH has established a network of SHGs to provide sustainable alternatives to SUP and hence sustain the initiative.

› Clean-ups

In response to the Uttarakhand Plastic Waste Management Action Plan, 2019, the NNH organizes thematic drives on cleanliness and litter free city in coordination with all stakeholders and community members. The NNH provides cleaning material, such as grippers and vests etc. to private waste collection volunteer groups and school students and provide them with organizational support if necessary. Apart from staff of NNH, citizens, market associations, Rotary clubs, various NGOs, schools, Nehru Yuva Kendra, NSS, NCC and Aviral project take part in this activity on a regular basis.

Every September, the NNH, in collaboration with door-to-door waste collection service provider, schools and other agencies working in the city on environmental issues, takes part in the World Clean-up Day, on which a wide variety of groups come together to collect waste from the environment. The clean-up drives are reoccurring events in Haridwar. Apart from the World Clean-up Day, the citizens also take part in clean-ups on various other important days, festivals, and holidays.

▷ 4.1.2.3. Green events

The Municipal Corporation has already adopted the Guidelines for Management of Waste at Public Events (Annex II) which were developed under the project Aviral project and will promote following green events:

- › Zero waste events such as zero waste wedding, zero waste religious functions etc. under the guidance of the Sanitary Inspector and Ward Councilor
- › Annual Swachh Innovative Technology Challenge
- › Annual ‘Waste to Art’ exhibition hosted by Municipal Corporation
- › SUP free national holiday celebrations (Independence Day, Republic Day and Gandhi Jayanti) in the municipal limits.

▷ 4.1.2.4. Cooperation with commercial establishments

The NNH proposes to set-up a reoccurring series of dialogues, the Haridwar Litter Dialogue, between the commercial sector, including but not limited to representatives of shops, hotels, restaurants and commercial offices and the NNH in order to discuss, develop and implement measures and innovative approaches against littering.

Table 5: Action 2 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Awareness raising and public participation	NNH	Develop target-specific Awareness Campaign Plan (ACP), including IEC material for the city of Haridwar, focusing on four key target groups, namely community leaders, students and teachers, tourist guides and ward level committees.	Short term (Swachh Survekshan 2023 should be set as target for this ACP so that it reflects in the improved rankings of NNH.)
		Reward and recognition of exemplary work done by municipal staff and other stakeholders such as schools, waste workers, youth groups etc.	
		Establish a Awareness and IEC team as an arm of the Sanitation Cell.	
	NGOs, NYK, NSS, schools, colleges & other govt. & private institutions, etc	Contribute to and adopt the ACP. Act as a working extension of NNH for awareness and IEC activities in the city	Short term (Swachh Survekshan 2023 should be set as target for this ACP so that it reflects in the improved rankings of NNH.)
	Citizens including volunteer group, youth club, waste champions under the leadership of elected representatives in collaboration with spiritual/religious leaders.	Lead and act as proactive awareness teams and spread messaging to ensure positive sustained behavior change	Short term (Swachh Survekshan 2023 should be set as target for this ACP so that it reflects in the improved rankings of NNH.)
	Clean-Ups	NNH	Display a cleanup calendar on NNH website including important dates, festivals and holidays.
Provide infrastructure support to citizen groups organizing cleanup activities			Short term
Citizens including volunteer group, youth club, waste champions, other NGOs, NSS, schools, colleges & other govt. & private institutions etc.		Collaborate with NNH in organizing cleanups on important dates, festivals and holidays.	Medium term





Measure	Stakeholder	Role & Next Steps	Timeline
Green events	NNH	Adopt and publish the 'Guidelines on Waste Management at Public Events' on NNH website	Short term
		Provide infrastructure support to citizen groups and institutions adopting and implementing the 'Guidelines on Waste Management at Public Events'	Short term
	Citizens, Religious places like temples, dharamshala's, religious leaders, event planners, Restaurants, hotels, other government offices etc.	Adopt, implement, promote green events through 'Guidelines on Waste Management at Public Events'	Medium term
		Pay required fee in lieu of infrastructure support provided by NNH for managing the waste at the event.	
Cooperation with commercial establishments	NNH	Develop a brief to outline the purpose of the cooperation.	Short term
		Initiate a reoccurring series of dialogues, the Haridwar Litter Dialogue, to discuss, develop and implement measures and innovative approaches against littering.	Medium term
		Sustain 'Litter and SUP free Har ki Pauri' through continuous IEC and awareness activities	Long term
	All commercial establishments including temporary setups at ghats and tourist locations.	Promote use of twin dustbins and segregation at source amongst the customers	Short term
		Maintain at least two bins for Dry and Wet waste within the premises/proximity of the establishment.	Long term
		Install 'Litter free zone' IEC and boards within the premises/proximity of the establishment.	Short term

► 4.2. Strategy 2 for Plastic Waste Reuse

To repeatedly use products and components for the same purpose for which they were conceived, there needs to be a market for reused goods. Therefore, an enabling policy framework for reuse includes mechanisms that encourage reuse as such and encourage markets for reused goods.

The introduction of certification for reused goods can support a functional reused goods market. In addition, it is essential to create consumer awareness.

► 4.2.1. Action 3: Support reuse

► 4.2.1.1. Haridwar Reuse Dialogues

The NNH proposes to set-up Haridwar Reuse Dialogues, between Haridwar's catering stakeholders and the NNH in order to discuss, develop and implement measures and innovative reuse approaches. The introduction of a take-back systems and/or multiple-use systems of take-away products are discussed.

► 4.2.1.2. Reuse IEC material

The NNH aims to develop Reuse IEC material in order to approach the broader public with relevant reuse approaches.

Table 6: Action 3 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Haridwar Reuse Dialogues	NNH	Develop a brief including objective and roadmap to then select catering stakeholders	Medium term
		Initiate the dialogue with selected catering stakeholders	Medium term
	Selected catering stakeholders	Participate and support NNH in Haridwar Reuse Dialogues by discussing the practical constraints and arriving at a negotiated strategy.	Medium term
IEC material promoting reuse	NNH	Develop reuse-specific IEC materials, both digital and physical to introduce this system amongst the citizens	Short term

► 4.3. Strategy 3 for Plastic Waste Processing

In the area of plastic waste processing, a number of measures have been identified in order to address the different steps, from source segregation to collection and processing.

▷ 4.3.1. Action 4: Implementation of source segregation

The Solid Waste Management Rules, 2016, have made source segregation mandatory. Source segregation has a high priority, especially when considering any form of further waste treatment options.

In the recent past, the NNH has taken measures in order to increase the source segregation rate in its jurisdiction. Also, to encourage citizens on waste segregation NNH has modified and upgraded the tricycles and e-vehicles in some wards having facility to collect & transport segregated waste to the designated transfer stations. From there, the waste management agency's M/s Casa Green BKNSSS Pvt Ltd and M/s K L Madaan move it to Sarai IWMF plant for proper disposal. NNH with the help of Aviral project is also establishing state of the art MRF. With Ayushi Hygiene Pvt Ltd, NNH is clearing the legacy waste. All these efforts to ensure that the waste once segregated by households remains segregated through out the value chain.

▷ 4.3.1.1. Information for waste generators and the commercial sector

Every household receives an annual waste calendar, which shall describe the way each waste fraction shall be segregated, collected and disposed of. It shall also inform the waste generator on the journey each waste fraction will take within Haridwar's waste management system in order to create transparency and understanding of the importance of waste segregation.

In addition to this the NNH requires commercial establishments including bulk waste generators (>100 kg/day) to develop a concept for the management of their generated plastic waste. This plastic waste concept is discussed with the responsible person of the respective establishment and possibilities for plastic waste prevention, recycling and plastic waste disposal are highlighted.

The door-to-door collection staff, who shall be trained on source segregation, shall check the daily waste given by the waste generators and explain the parameters of segregation to the waste generators during the collection of waste. This is a daily activity reported by the IEC and awareness team.

▷ 4.3.1.2. Set-up of buy-back system in cooperation with commercial sector

The implementation of a buy-back system for plastic waste is considered as a measure to encourage segregation at source. A barter system like "Plastic lao Khana Pao" [Bring plastic get food], "Plastic lao Thaila Pao" [Bring plastic get bag] etc. shall encourage the segregation of waste.

Table 7: Action 4 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Information for waste generators and the commercial sector	NNH, bulk waste generators	Develop IEC material templates, both digital and physical to introduce this system amongst the citizens	Medium term (Swachh Survekshan 2023 should be set as target for this so that it reflects in the improved rankings of NNH.)
Set-up of buy-back system in cooperation with commercial establishments	NNH	Plan the logistics and designate vehicles, routes and timings.	Medium term
		Fixing the cost sharing mechanism of such a system	Medium term
	Market associations and shopkeepers	Co- develop the cost sharing mechanism with NNH	Medium term
	NNH, NGOs and international agencies such as UNEP, GIZ etc. (through their projects).	Organize workshops for Market associations and shopkeepers.	Medium term
	Door to Door Waste collection agency	Co-plan the logistics and designate vehicles, routes and timings.	Medium term
		Carefully handle the segregated waste received through this barter/buyback system and deliver to operator at Sarai/specified by NNH.	Medium term

4.3.2. Action 5: Implementation of collection and transportation of segregated waste

A collection and transportation system, that allows the segregation of waste in multiple waste streams is one key requisite when it comes to an efficient and effective sustainable plastic waste management system. The five following measures have been identified.

4.3.2.1. Haridwar Collection and Transportation Plan

Present: NNH has hired two agencies for providing 100% door to door waste collection services in the municipal area with 60 wards i.e 30 wards to each of the agency. In the morning the service providing agency use to collect waste from households and commercial establishments of all wards. Afterwards, they transport the waste to transfer stations prescribed for wards. In this case for each 10 to12 wards NNH has established one transfer station from where the whole waste is transported to Sarai IWMF via covered tractors and tippers where the weight of collected waste is measured through an electronic weigh bridge. The service provider gets their tipping fee based on the collected tonnage. A processing facility for mix waste is operational with the capacity of 250 TPD, where the waste based on size and other parameters gets segregated and the same is transported to market as per requirement (for eg. RDF, soil, bulky waste especially textile etc.). The processing of legacy waste at Sarai is ongoing by Ayushi Hygiene & Care Pvt. Ltd. India, additionally, fresh waste is processed on daily basis, which will continue until the legacy waste inside the Sarai IWMF area is processed.

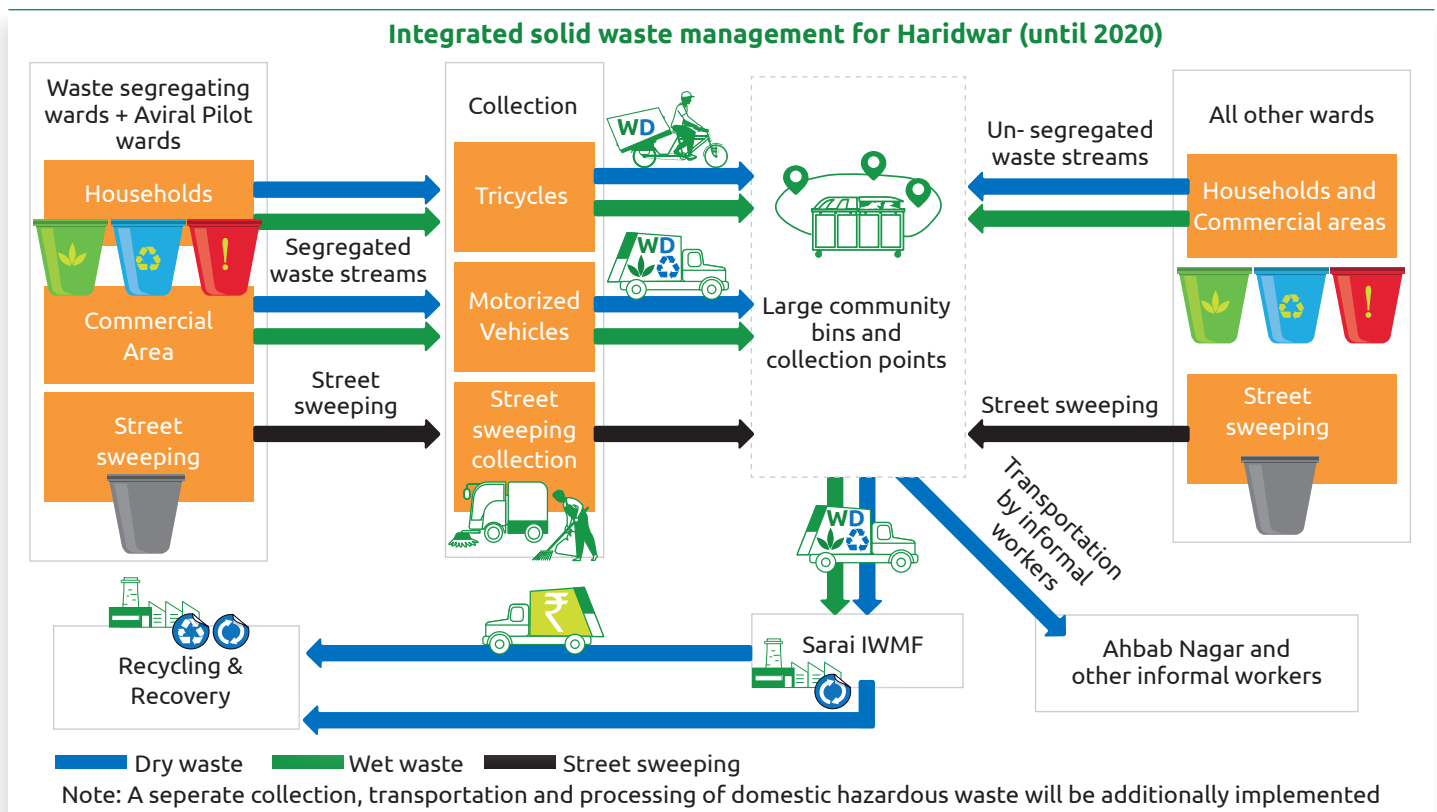
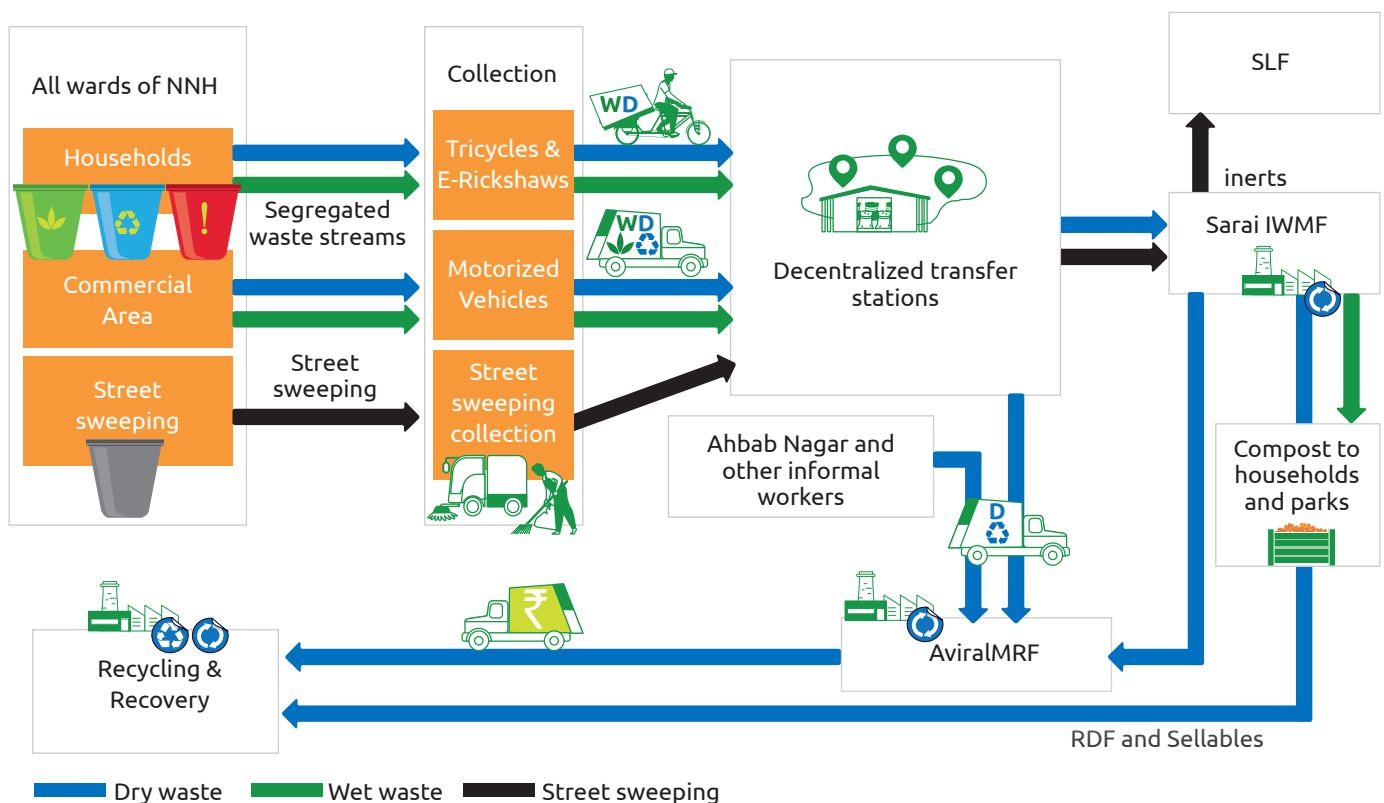


Figure 7: ISWM Haridwar (until 2021)

Way forward: NNH has already developed 5 numbers of transfer stations for efficient transportation of collected waste. Additional transfer stations shall be developed to further enhance the waste collection efficiency. Presently NNH is working towards ensuring storage of the source segregated waste at the transfer stations. This will be the feed stock the MRF which is coming up at Sarai IWMF with the support of project Aviral with capacity of 5 Tons per day. After the MRF get established at Sarai, Haridwar it will be state of art facility & one of its kind in the Uttarakhand state where the secondary segregating, baling, shredding & packaging of processed waste will be done. This will be sent to co-processors for further recycling which will also generate revenue for NNH apart from helping close the waste loop.

NNH shall lay special focus on source segregation during the time frame of this action plan and beyond. Action 4 specifically deals with this and is supported by Action 2 and Action 3.

Integrated solid waste management for Haridwar (2021 onwards)



Note: A separate collection, transportation and processing of domestic hazardous waste will be additionally implemented

Figure 8: ISWM Haridwar (beyond 2021)

▶ 4.3.2.2. User fee collection

As per SWM Rules 2016, Clause 4 (3) lays out payment of user fees as a mandatory duty of the waste generator as per the respective city byelaws. The SWM Manual 2016 also says that collection and reinvestment of user charges will ensure financial viability of Municipal Solid Waste Management projects and infrastructure. These are explicitly mentioned in the Annexure 1 of the Nagar Nigam Haridwar Solid Waste Management byelaws 2011. The relevant portions of the byelaws have been attached as Annex IV of this Action Plan.

▶ 4.3.2.3. Capacity Building Plan

The NNH will develop a Capacity Building Plan (CBP) to provide training at all levels of plastic waste management. The CBP will be structured along the plastic waste value chain. One key element will be the training of drivers and helpers in the collection system as this is critical to ensure that waste is collected in a segregated manner and waste is not mixed in the landfill area while tipping. These capacity building targets shall be achieved by the funding available under Centrally Sponsored Schemes such as Swachh Bharat Mission 2.0, Namami Gange 2.0 and AMRUT 2.0. Apart from this the door-to-door waste collection agency and the operator of the Sarai waste management facility will also support this. External agencies such as GIZ and NGOs which are willing to support the trainings financially and technically shall be welcomed.

This capacity development plan should highlight a Nodal officer as a single point of contact for any training and capacity building needs. Adherence to the guidelines for management of waste at public events shall be promoted so that the trainings/workshops are Zero Waste Trainings/Workshops.

Example: The training could be segregated based on the participants, i.e.

- › Mandatory training of the officers above the rank of/and equal to Sanitary Inspectors + City Mission Management Unit, AMRUT and SBM within 2 months of release of this Action Plan
- › Mandatory Training of all the Ward Councilors within 3 months
- › Monthly Training of 50 officials at rank of Sanitary Supervisors and below starting the third month of release of this PWMAP.

▶ 4.3.2.4. Waste management during events

In response to the Uttarakhand Plastic Waste Management Action Plan, 2019, with support of project Aviral, the NNH has developed the guidelines for management of waste at public events, which specifies waste management processes during the time of public events of all types.

During the mega events like Kumbh, support from Centre and State level is provided for managing the waste through Kumbh Mela Administrative Committee. Additional infrastructure is provided, and dedicated waste management agencies are appointed during this period. Whereas, during the events of *Char Dham Yatra*, *Kaanwar mela*, *Ganga Dusshera*, etc. the city administration supported by the district and state administration manages the waste. During these events, various *bhandaras*, road side public feasts and refreshing drinks are offered to anyone and everyone who comes to the city. The guidelines for management of waste at public events have been developed for the organisers of these events so that they play their part in managing waste emerging from their events.

▶ 4.3.2.5. Integration of informal waste workers in collection processes

As per the State PWMAP 2019, ULBs are obliged to establish a system for recognizing organizations of waste pickers and scrap dealers and promote & establish a system for integration of these waste collectors in organized systems of door-to-door collection. The NNH proposes to establish a knowledge exchange and support framework for informal workers in Haridwar as well as waste management agency's representatives, in order to discuss and act upon following measures:

- › Consideration of sharing of revenue of material collected and MRF being an intermediate destination for dry waste (especially low value)
- › Encourage the association with the MRF by support to provision of insurance, children's education, better working conditions among others
- › Provision of an identity card
- › Support to get access to government schemes such as e-shram card, health schemes, loans, education etc.
- › Consideration of introduction of regular monthly income. This will encourage and help in mainstreaming them in waste management initiatives anchored by the municipal corporation and supported by various government programs, external funded projects like Aviral.

Local non-profit organisations such as Udaan that work with children, are considered as potential partners for activities such as education of children of informal workers.

Table 8: Action 5 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Haridwar Collection and Transportation (C&T) plan	NNH, operator at Sarai IWMF and Door to Door waste collection agency	Develop a draft Collection and transportation plan in consultation with the appropriate stakeholder	Short term
		Develop an online waste collection vehicle monitoring and tracking system	Short term
	RWAs, Market Associations	Provide inputs on timings, agree to and abide by the final C&T plan	Medium term
User fee collection	NNH and Door to Door waste collection agency	Develop a monitoring mechanism to implement 100% user fee collection.	Short term
		Define guiding targets for increase in User charge collection year on year	Short term





Measure	Stakeholder	Role & Next Steps	Timeline
Capacity Building Plan (CBP)	NNH	Develop a CBP to provide training at all levels of plastic waste management. The SBM 2.0, Namami Gange and AMRUT 2.0 trainings and courses should be taken every year.	Short term
		Nominate a Nodal officer as a single point of contact for any training and capacity building needs.	Short term
Waste management during events	NNH	Notification and launch of the Guidelines for management of waste at public events.	Short term
		Designating concerned officers through an office order as single point of contact to assist anyone who seeks support of NNH in organizing zero waste events	Short term
		Support the citizen groups with infrastructure to organize and manage waste during events	Short term
	D2D agency/any other agency brought via process of bidding for the same	Support the citizen groups with infrastructure to organize and manage waste during events	Short term
	Citizens including volunteer group, youth club, waste champions, other NGOs, NSS, schools, colleges & other govt. & private institutions etc.	Pay designated fee in lieu of waste management infrastructure support by NNH	Short term
Integration of informal waste workers in collection processes	NNH	Nominate a Nodal officer as a single point of contact for informal waste worker integration purposes Establish a knowledge exchange and support framework for informal workers in Haridwar as well as waste management agency's representatives	Short term

▶ **4.3.3. Action 6: Support local sorting and processing infrastructure**

Haridwar's local sorting and processing infrastructure has improved over the past couple of years. The cornerstones in this regard are the Sarai IWMF, MRF, SLF and transfer stations. The aspect of innovation when considering plastic waste, has also been addressed in the recent years, and it is essential to build upon this experience to expand Haridwar's local sorting and processing infrastructure.

▶ **4.3.3.1. Planning of Sarai IWMF**

Sarai is the part of NNH area which used to come under Haridwar rural. It is situated at a distance of about 10 kms from the NNH office and city center. The Sarai IWMF facility consists of a huge mixed waste management facility with trommels and screens. It's capacity is 250 TPD. The city behaviour shall soon reach to a mark of 100% source segregation. Until then, the existing facility will be used to cater the mixed waste and the wet waste coming from the city. Post that, the trommels and the screens will be utilised for processing of wet waste only. In addition to this, NNH has also deployed a power screen which is processing the legacy waste and clearing all the heaps of mixed waste. This work is set to be completed before the onset of monsoon this year. To cater the incoming dry waste, in Project Aviral, an MRF of 5TPD capacity is under construction, and the project will also handhold and support the operator selected by NNH for operations and maintenance of the MRF till end of December 2022 and thereafter the facility will be handed over to NNH for operations as a part of integrated waste processing facility at Sarai.. The land for this MRF was also attained by clearing the existing waste, screening it and recovering RDF from it. This saved a huge investment on land for NNH. To scientifically dispose off the inerts, NNH is also developing a sanitary land fill (SLF) in the same premises.

The solid waste management unit i.e. IWMF is working in close coordination with the adjacent sewage treatment plant (STP) to effectively dispose the waste water and treated leachate from the IWMF.

▶ **4.3.3.2. Rethinking plastic waste and support to innovation**

Swachh Bharat Mission-Urban 2.0 (SBM-U 2.0), under the aegis of the Ministry of Housing and Urban Affairs (MoHUA), launched the Swachh Technology Challenge in 2021. The Challenge seeks to harness the entrepreneurial potential of the waste management sector in India and promote an enabling environment for enterprise development under Swachh Bharat Mission-Urban 2.0.

In line with Hon'ble Prime Minister's clarion call for an "Atmanirbhar Bharat", there is a need for identifying indigenous, cost-effective technologies that are easy to replicate and scale-up, and can be put to use by ULBs to implement various components of SBM-U 2.0 on the ground.

NNH too believes that new age problems such as increasing types and quantities of solid wastes need new age and tailor-made solutions. Along with Aviral team, NNH had already launched a similar challenge with the name 'Plastic Waste Innovation Grand Challenge' wherein applications were invited for two categories – track 1 is to create added value and improve plastic waste value chain and track 2 to develop a solution pertaining to plastic waste from the tourist population.

NNH received a total of 94 applications from various startups, non-government organizations and private companies, most of them are highly appreciated by Indian and international startup awards and recognitions. A technical committee was setup which critically evaluated all the applications on various parameters like technology readiness, business plans and sustainability aspects etc. and shortlisted a winner.

The winner received a grant of Euro 50,000 from GIZ to establish their business in/nearby Haridwar and work with the waste generated from the city. A compendium of these innovative ideas was also developed by GIZ and available in public domain.

NNH will now widen the scope of this plastic waste grand innovation challenge to align it with SBM-U 2.0 guidelines and make it an annual event. NNH will also try to partner with external non-governmental national and international agencies such as GIZ, UNDP, AFD etc. to assure funding and grants for the startups and innovations. This will add additional working hands for Haridwar's waste management problem.

Table 9: Action 6 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Planning of Sarai	NNH	Coordinate with relevant stakeholders for efficient input of waste to Sarai integrated waste management facility	Medium term
Rethinking plastic waste and support to innovation	NNH	Use the annual swachh innovation challenge guidelines mentioned in SBM 2.0 or GIZ Aviral plastic waste grand innovation challenge framework	Medium term (Swachh Survekshan 2023 should be set as target for this so that it reflects in the improved rankings of NNH.)
		Support the winners of the innovation challenge and other startups that voluntarily approach NNH with necessary permissions and pilot projects	Medium term (Swachh Survekshan 2023 should be set as target for this so that it reflects in the improved rankings of NNH.)

▷ 4.3.4. Action 7: Support to plastic waste recovery

▷ 4.3.4.1. Clearing up the legacy waste at Sarai IWMF and Sarai dumpsite

NNH has already initiated the process of clearing up the Sarai IWMF. NNH is also working with NHAI to clear the waste lying at Sarai dumpsite. The output of this legacy waste clearing process will be Refuse Derived Fuel (RDF), combustible waste, Multi-Layer Plastic (MLP), non-MLP plastic, rigid plastic, and flexible plastic. These wastes will be sent for final disposal to government approved cement kilns, waste to energy facilities, and registered recyclers.

▶ 4.3.4.2. Use of MLP and Low Value Plastic (LVP)

NNH supports start-ups and innovations to tackle the problem of residual plastic waste especially the low value plastic waste. This is a section of waste remains largely uncollected and littered into the environment, as its collection and transportation are uneconomical even for the informal waste management sector.

The Haridwar Baseline Assessment Report 2020 also highlighted this issue. This formed the main problem statement of the Plastic Waste Innovation Grand Challenge. It was realised that few recycling and upcycling companies are there in SIIDCUL and peripheral areas of Haridwar district. The appropriate MLP and LVP could be recovered from the streets and legacy waste and converted into boards, second grade plastic items etc... The use of these plastic boards is limitless. These can be used to develop park benches, washrooms, changing rooms, student desks etc.. Samples of these are already being used in the NNH campus and have become an integral part of the campus.

Table 10: Action 7 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Clearing up legacy waste at Sarai IWMF	NNH	Target based monitoring of clearing up the Sarai IWMF by M/s Ayushi Hygiene and Care Pvt Ltd	
		Develop a target based monitoring frame to assess the progress	
	M/s Ayushi Hygiene and Care Pvt Ltd. and any other agency related to the process	Develop roadmap for sending the waste for final disposal to government approved cement kilns, waste to energy facilities, and registered recyclers and submit to NNH with updated timelines	
Use of MLP and LVP	NNH	Support innovative solutions and any other related to the process by providing them plastic waste.	Short term
	Innovative solutions and any agency related to the process	Scale-up the innovative solution of by assessing the market for the upcycled and recycled products and establishing market connect to introduce the product.	Long term
		Support NNH by accepting the waste provided by NNH and showcasing use of recycled/upcycled products for public use in Haridwar.	Medium term

► 4.4. Strategy 4 for Scientific Plastic Waste Disposal

Disposal is the least preferred stage of the waste hierarchy. The improper disposal of plastic waste constitutes a problem as it can result in serious environment and health risks as well as social justice concerns. Scientific landfilling is therefore a key element when improving an existing plastic waste management system.

► 4.4.1. Action 8: Support to scientific disposal

A IWMF at Sarai is being upgraded by the NNH. This includes addition of a dedicated MRF and scientific landfill site as well. With the support of Aviral project, NNH has developed detailed business case scenarios and a financial model of the MRF. This MRF will cater to 5 TPD dry waste initially and is capable of process approximately 1.5 TPD plastics from this every day. The inerts shall be sent to the landfill whereas the valuables shall be sent to the dedicated and government approved destinations for either recycling or other end of life disposals.

Table 11: Action 8 - Roles & Responsibilities

Measure	Stakeholder	Role & Next Steps	Timeline
Support to scientific disposal	NNH	Identify a suitable operator for the MRF.	Short term
		Ensure 5 TPD dry waste as feedstock.	Medium term
		Setup a monitoring team under Sanitation cell to supervise MRF operations.	Short term
	D2D service agency, Processing agency/ selected contractor for Sarai facility	Adhere to the government norms for disposal of waste since residences are coming up near to the Sarai site.	Short term
	D2D service agency	Ensure that the plastic leakage is to the minimum and ensure delivery of at least 5 TPD dry waste for MRF to be financially viable.	Medium term



5. Monitoring

The backbone of this action plan is the monitoring process. A rigorous monitoring structure will lead to achievement of all actions and intended goals. NNH is committed to utilize its resources optimally to make Haridwar a 'Plastic Litter Free Haridwar'.

► 5.1. Tracking and Monitoring Progress

▷ 5.1.1. Biannual steering meetings

A steering meeting, headed by the Municipal Commissioner, every six months will add to effective monitoring and celebrating milestones in the management of plastic waste. In this steering meeting representatives of all stakeholders mentioned in respective actions shall join. Any other experts as deemed fit by the Municipal Commissioner may also be invited. The key achievements of the city through combined efforts of all the stakeholders may be published in local newspapers and reported to the Urban Development Directorate (UDD), Dehradun as well.

The minutes of this meeting shall act as guiding document complimentary to the PWMAP. These shall be required to submit the Annual report to UDD.

▷ 5.1.2. Annual reporting

The State PWMAP obliges every person engaged in recycling and processing of plastic waste to submit an annual report to the local body.

Every local body is obliged to submit an annual report to the UDD every year. The NNH will submit an annual progress report to the UDD. This report will cover the progress regarding the identified measures as well as the difficulties encountered of foreseeable and proposed corrective measures to be taken. Annual reports will form a base for the mid-term evaluation due in 2025.

▷ 5.1.3. Mid-term evaluation of PWMAP

PWMAP is a rigid yet flexible document by design. A mid-term evaluation is deemed necessary to keep the actions close to practical realities rather than a theoretical policy. Based on this evaluation, the Municipal Commissioner after consultation with relevant stakeholders, will suggest course correction, addition or modification of actions and revision of the PWMAP.

The mid-term evaluation will also highlight the successful strategies, resource intensive actions and the need to relocate focus and resources to more urgent actions based on latest notifications of Government of India, Government of Uttarakhand and board resolutions of NNH.

Annexures

► Annex I: GIZ Ganga Toolbox



► Annex II: Guidelines for Management of Waste at Public Events



**सार्वजनिक आयोजनों में
अपशिष्ट प्रबंधन के लिए
दिशा-निर्देश**

► Annex III: Sample IEC Collaterals

More of these can be accessed at Aviral Ganga - Reduce Plastic Waste in Ganga (aviralganga.in)





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सहयोग द्वारा: **SAATHAS** **WASTE**

सफाई अभियान **माँ गंगा को स्वच्छ बनाने में हमारे साथ जुड़ें**

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गंगा नहीं कूड़ादान

आप करे प्लास्टिक का दान, हम करेंगे उसका उचित समाधान।

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ध्यान दें, कहीं आपका कूड़ा गंगा में तो नहीं जा रहा?



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को कम करना



स्कैन करें



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को कम करना

यह एक न्यूनतम अपशिष्ट समारोह है। कृपया
दिए गए निर्देशों का पालन करें और एक स्वच्छ
एवं हरित ऋषिकेश / हरिद्वार की ओर कदम
बढ़ाये।

Do's



- ✓ अपने कचरे के लिए सही कूड़ेदान का प्रयोग करें।



- ✓ पानी के लिए वाटर डिस्पेंसर का प्रयोग करें।



- ✓ अपनी स्वयं की पुनःप्रयोग की जा सकने वाली वस्तुएं लायें



Dont's



- ✗ कूड़े को आपस में ना मिलायें।



- ✗ पानी की बोतल खरीदने से बचें।



- ✗ कृपया कचरा ना फैलायें और कूड़ेदान के अलावा कहीं और कूड़ा ना डालें।



► Annex IV: User Charges and Fines

भाग 8] उत्तराखण्ड गजट, 10 दिसम्बर, 2011 ई० (अग्रहायण 19, 1933 शक सम्वत्) 53

16. उपविधि में लगाये जाने वाले यूजर चार्जस में छूट का प्राविधान नहीं होगा।

17. इस उपविधि के अन्तर्गत देय धनराशि नगर निगम अधिनियम, 1959 के अध्याय 21 में उपबन्धित रीति से वसूल किये जा सकते हैं।

18. उपरोक्त किसी भी प्राविधान की अवहेलना करने पर प्रथम दोष सिद्धि के लिये रु० 500.00 तक अर्थदण्ड तथा अवहेलना जारी रहने पर रु० 20.00 प्रतिदिन का अर्थदण्ड होगा।

अनुसूची-1 सेवा शुल्क (User Charges)

अपशिष्ट उत्पादक की श्रेणी/ अपशिष्ट के प्रकार	प्रतिमाह सेवा शुल्क (user charges) की प्रस्तावित राशि रु० में
1	2
1. गरीबी रेखा से नीचे के घर (बीपीओएल0 कार्ड धारक)	कच्ची झोपड़ी रु० 5.00 प्रतिमाह पक्का मकान रु० 10.00 प्रतिमाह
2. कम आय वाले घर (बीपीओएल0 कार्ड धारक के अतिरिक्त रु० 5000.00 प्रतिमाह आय वाले घर)	रु० 20.00 प्रतिमाह
3. उपरोक्त के अतिरिक्त घर	रु० 30.00 प्रतिमाह
4. सब्जी एवं फल विक्रेता	ठेली पर फेरी में रु० 5.00 प्रतिदिन, दुकान/फड़ पर रु० 150.00 प्रतिमाह
5. मांस एवं मछली विक्रेता	रु० 1000.00 प्रतिमाह
6. रेस्टोरेन्ट	छोटे रु० 150.00 प्रतिमाह, मध्यम रु० 400.00 प्रतिमाह, बड़े रु० 1000.00 प्रतिमाह
7. होटल/लाजिंग/गेस्ट हाऊस	रु० 10.00 प्रति कमरा प्रतिमाह
8. आश्रम/अखाड़ा	रु० 1.00 प्रति कमरा प्रतिमाह



54	उत्तराखण्ड गजट, 10 दिसम्बर, 2011 ई0 (अग्रहायण 19, 1933 शक सम्वत्)		[भाग 8	
1	2			
9. धर्मशाला		रु0	1.00 प्रति कमरा प्रतिमाह	
10. बारातघर (चैरिटेबल)		रु0	250.00 प्रति उत्सव	
बारातघर (नॉन चैरिटेबल)		रु0	500.00 प्रति उत्सव	
11. बैकरी		रु0	150.00 प्रतिमाह	
12. कार्यालय	न्यूनतम	रु0	100.00,	
	51 कर्मचारियों से 100 तक	रु0	200.00,	
	101 से 300 तक	रु0	300.00 एवं	
	उससे अधिक पर	रु0	500.00 प्रतिमाह	
13. स्कूल/शिक्षण संस्थाएं (आवासीय)		रु0	10.00 प्रति बैड/प्रतिमाह	
14. स्कूल/शिक्षण संस्थाएं (अनावासीय)	500 विद्यार्थियों तक	रु0	200.00 प्रतिमाह	
	उससे अधिक	रु0	500.00 प्रतिमाह	
15. हॉस्पिटल/नर्सिंग होम (बॉयोमेडिकल वेस्ट को छोड़कर)		रु0	10.00 प्रति बैड/प्रतिमाह	
16. क्लीनिक (मेडिकल)		रु0	200.00 प्रतिमाह	
17. दुकान		रु0	150.00 प्रतिमाह	
18. फैक्ट्री	छोटी	रु0	150.00 प्रतिमाह,	
	मध्यम	रु0	400.00 प्रतिमाह तथा	
	बड़ी	रु0	1000.00 प्रतिमाह	
19. वर्कशॉप	छोटे रु0 200.00, बड़े रु0 500.00 प्रतिमाह			
कबाड़ी	छोटे रु0 100.00, बड़े रु0 300.00 प्रतिमाह			
20. गन्ने का रस/जूस विक्रेता		रु0	300.00 प्रतिमाह	
21. सार्वजनिक/निजी स्थलों पर सर्कस/प्रदर्शनी		रु0	500.00 प्रतिदिन	
22. ढहान तथा निर्माण सम्बन्धी अपशिष्ट	0.50 घन मी0 तक रु0 100.00, 1.0 घन मी0 तक रु0 200.00, 3.0 घन मी0 तक रु0 500.00, 6.0 घन मी0 तक रु0 1000.00, इससे अधिक प्रति घन मी0 रु0 200.00 अतिरिक्त।			



भाग 8]	उत्तराखण्ड गजट, 10 दिसम्बर, 2011 ई0 (अग्रहायण 18, 1933 शक सम्बत्)	55
जैविक (Biodegradable) अपशिष्ट	पुनः चक्रणीय (Recyclable) अपशिष्ट	घरेलू परिसंकटमय (Hazardous) अपशिष्ट
हर प्रकार का पका, बिना पका हुआ खाद्य अपशिष्ट जिसमें अण्डे के छिलके एवं हड्डियां भी हो सकती हैं	कागज तथा हर प्रकार का प्लास्टिक	एरोसोल कैन
सब्जी एवं फलों के छिलके, फूल एवं घरेलू पौधों का कूड़ा	कार्ड बोर्ड तथा कार्टन	बटन सेल, फ्लैसाइट/कार बैटरी
घरेलू झाड़े से निकली गंदगी	हर प्रकार की पैकिंग	ब्लोब्ले, घरेलू रसोई तथा नाला सफाई का सामान
सेनेटरी टावल	हर प्रकार के डिब्बे परिसंकटमय को छोड़कर	ऑयल फिल्टर तथा कार सुरक्षा के उत्पाद
बच्चों के डायपर	हर प्रकार का कौच/धातु/रबर/लकड़ी	रसायन तथा उनके खाली डिब्बे, सौन्दर्य तथा उनके खाली डिब्बे
	फाइल, पुड़िया, ट्रेटोपैक, कैसेट कम्प्यूटर, डिस्कट, इलेक्ट्रॉनिक पुर्जे, खराब कपड़े, फर्नीचर आदि	इन्जेक्शन सुई तथा सिरिज, खराब दवाईयां कीटनाशक तथा उनके डिब्बे
		लाइट बल्ब, ट्यूब लाइट तथा छोटे फ्लोरोसेन्ट बल्ब, थर्मामीटर एवं अन्य पारे वाले उत्पाद
		पेन्ट, तेल, गोंद, शीनर तथा उनके डिब्बे, फोटोग्राफी के रसायन
डा0 आर0 मीनाक्षी सुन्दरम्, प्रशासक, नगर निगम, हरिद्वार।		
पी0एस0यू0 (आर0ई0) 50 हिन्दी गजट/615-भाग 8-2011 (कम्प्यूटर/रीजियो)। मुद्रक एवम् प्रकाशक-संयुक्त निदेशक, राजकीय मुद्रणालय, उत्तराखण्ड, रुड़की।		

Plastic Waste Management Action Plan 2022

Nagar Nigam Haridwar