GOVERNMENT OF JAMMU & KASHMIR

HOUSING AND URBAN DEVELOPMENT DEPARTMENT

ACTION PLAN FOR MUNICIPAL SOLID WASTE MANAGEMENT JAMMU & KASHMIR - 2018

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List of Abbreviations

NGT	National Green Tribunal
UT	Union Territory
PMSU	Project Management Support Unit
SWM	Solid Waste Management
JMC	Jammu Municipal corporation
SMC	Srinagar Municipal Corporation
MT	Metric Tonnes
IEC	Information, Education And Communication
NGO	Non-Government Organisations
MSW	Municipal Solid Waste
ULB	Urban Local Body

Districts of Jammu and Kashmir

Districts	-	22
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(Source - Housing and Urban Development Department, Government of J&K)

1. Introduction

Solid Waste Management is one of the most essential services for maintaining the quality of life in the Urban Areas & for ensuring better standards of health and hygiene. In India, this service falls short of the desired level, as the systems adopted are outdated & inefficient. Institutional weaknesses, shortage of financial resources, improper technology, inadequate coverage & lack of short- and long-term planning are the main reasons for the inadequacy of these services. Looking to the rapid urbanization & growing population, this sector needs immediate attention. Being a popular tourist destination, issues pertaining to solid waste are on a rise in the state Jammu and Kashmir and need to be addressed immediately.

As per the Hon'ble NGT order dated 15.01.2015, all the states and UTs were directed to prepare an Action Plan at the State Level for Solid Waste Management in accordance with the Solid Waste Management Rules, 2016.

With a view to improve the Solid Waste Management services in the State of Jammu and Kashmir, the Project Management Support Unit (PMSU) from All India Institute of Local-Self Government (AIILSG), Srinagar, J&K desired to formulate a State Action Plan in this regard for all the 78 Urban Local Bodies (Source - Housing and Urban Development Department, Government of J&K), with respect to existing systems of solid waste management in details, identifying the deficiencies & steps to be taken up for improvement of these services with a set timeline. The Action Plan is a broad visionary document formulated to determine key solid waste management strategies for increased waste prevention, reduction and minimization.

2. Objective of the Action Plan

The State Action Plan for SWM (J&K) aims to strengthen management capability for the solid waste of each municipality and adopting eco-friendly solid waste management practices for sustainable development of Jammu and Kashmir State. The Plan lays down specific steps and timelines which will enable early implementation in a time bound manner. Implementation of this Plan will be facilitated through a proactive public information and public participation program.

3. Solid Waste Management Principles

- As per the SWM Rules, 2016, Principle of Waste Hierarchy –

  Waste Hierarchy means the priority order in which the solid waste should be managed by giving emphasis to prevention, reduction, reuse, recycling,

recovery and disposal, with prevention being the most preferred option and the disposal at the landfill being the least.

- Solid waste can be classified into various types.

  Types of Solid Waste:

  - Municipal Solid Waste
  - Electronic Waste
  - Bio - Medical Waste
  - Hazardous Waste

- Segregation at Source
- Endeavour to achieve zero land fill status
- Polluters to Pay

4. Solid Waste Management in Jammu and Kashmir – Assessment of the Existing Situation

4.1 Background

The State of J&K is located in northern part of Indian sub-continent. The geographical area of State is 2,22,236 sq. km comprising 6.93 per cent of the total Indian territory. The State shares international border with Pakistan in Jammu region and with China in its Ladakh region. Out of this disputed territory, India controls 101,387 km^2. of the total area.

The state of Jammu and Kashmir is demarcated into three administrative divisions: Jammu, Kashmir Valley and Ladakh, and is further divided into 22 districts. Jammu is the winter capital of the Jammu and Kashmir state whereas Srinagar is the summer capital.

4.2 Population

Population of State according to 2011 Census of India is 1,25,41,302 which is 1.04 % of country's total population. Out of the total population of Jammu and Kashmir, 27.38 % people live in the urban areas and around 72.62 % live in rural areas.

Year	Population	Average Annual Growth Rate
1961	35,60,976	0.91
1971	46,16,362	2.63

1981	59,87,389	2.63
1991*	77,18,700	2.57
2001	1,00,69,917	2.69
2011	1,25,41,302	

Table – Population of Jammu and Kashmir state (Source – Census of India)

*The 1991 census was not held in J&K. The population of India includes the projected population of J&K as on 1.3.1991 made by the Standing Committee of Experts on Population Projections (Oct. 1989). The projected population of J&K excludes the population of area under occupation of Pakistan and China.

- Since, Jammu and Kashmir is a major tourist destination and there is a large influx of tourist population in the state, hence it is also important to consider this floating population while assessing the existing situation of solid waste management in the state.

4.3 Solid Waste Management by ULBs

- All the municipal authorities are responsible for providing basic civic amenities including solid waste management services. Municipalities have overall responsibility for Municipal Solid Waste Management. The magnitude and density of urban population in India is increasing rapidly as a consequence of which the Municipal agencies spend about 5-25% of their budget on SWM.

- Even then most of them are unable to provide a proper system to tackle the current situation. Despite such heavy expenditure, the present level of service in many urban areas is so low that there is a threat to the public health in particular and the environmental quality in general.

- Collection and transportation activities constitute approximately 80-95 % of the total budget of SWM. Hence; it forms a key component in determining the economics of the entire SWM system.

- On the contrary, disposal and treatment of waste in an underinvested area and open dumping, uncontrolled and poorly managed landfills are a common feature across most Indian cities and towns. The State of Jammu and Kashmir has the same type of scenario.

- As per the below table, the total waste generation in the state as computed at 1.39 crores population comes to 3134 TPD.

Year	Total Population	Annual Growth Rate in %	Average per capita waste generation (gm/capita/day)	Total Waste Generation in TPD
2012	12837551	2.20	0.200	2568
2013	13125956	2.15	0.206	2704
2014	13414647	2.11	0.212	2844
2015	13703350	2.06	0.218	2987
2016	13991468	2.02	0.224	3134

Table – Population and Waste Generation of Jammu and Kashmir state

4.4 Waste Composition and Characterization

- The characterization of solid waste is an important aspect as the composition will determine the applicability of waste processing technology. On an average, garbage is composed of 40-45% of organic fraction and 20-30 % of inert fraction, rest being plastics, paper, rags and other components.

4.5 Generation

Municipal Solid Waste in J&K State in 2016 – Generation, Collection and treatment

Generated	Collected	Treated	Landfilled
1792 TPD	1322 TPD (74 %)	320 TPD	375 TPD

Table - Municipal Solid Waste in J&K State in 2016 (Source - CPCB, Annual Report 2016)

The above table indicates that a total of 1792 tonnes of waste is generated per day in the state of Jammu and Kashmir. Out of this, 1322 TPD (74 %) of waste is collected by the authorities.

City	Population (2011)	MSW Generation (in TPD) in 2004 - 05	2010 - 11	2015 - 16
Srinagar	11.80,570	328	370	400
Jammu	5,02,197	-	-	350

Table - Waste Generation in Srinagar and Jammu city

- In Jammu the total Waste generation is 350 TPD. A private agency is engaged by JMC for door to door collection using two-bin collection system through mechanical &

manual methods. A landfill site is located at Bhagwati Nagar where 80 dumping trucks dump wastes every day. A new landfill site with an area of 45 acres has been identified. Solid Waste management plant with 350MT capacity is at tendering stage. 116 Yellow bins, 44 dumpers, 52 RC Bins &14 blue bins have been installed in the City. Door to door collection facility has increased from 17% in 2015 to 42% in 2016.

- In Srinagar, All 35 wards are completely considered for door to door collection. The safai karmacharis are responsible for conducting the primary collection of waste through door to door collection mechanism. Along with door to door collection, the safai karmacharis of a particular area are also responsible for sweeping of the small streets and drain cleaning. A particular safai karmachari conducts door to door collection of waste from households, street sweeping and cleaning of drains. This results in reduced efficiency of safai karmacharis.

  The vehicles used for primary collection at domestic level are wheel barrows and hand carts. In the core areas of the city, the lanes are narrow and only hand carts can be used for door to door collection. In the external areas of the city where the roads are broader, Hopper Vehicles and tricycles are used. The wheel barrows and hand carts used by safai karmacharis are not maintained properly and it reduces the efficiency of primary collection process. The equipment's like Pushcarts and other tools are not provided to all workers. Since many of the handcarts are not containerized, mixed waste is just emptied at the collection bins, thereby inviting multiplied handling. The waste collected by domestic and trade sources are emptied into nearest compactor bin or dumper placer bins.

  The wastes generated by markets are directly dumped into nearest container bins. The vegetable markets and fruit markets located around Dal gate, Lal chowk and Batmaloo area generate huge quantity of waste.

  - CPCB report estimates that a total of 400 metric tons of waste is generated per day in Srinagar – 62% of which is organic waste, while the rest is inorganic including around 7% of plastic waste.
  - The Srinagar Municipal Corporation has, after following due tendering process, engaged 6 NGO's for capacity building of citizens of city to segregate the waste at household level and has started collection of segregated waste in 15 Wards of the Corporation and more Wards are proposed to be brought under the ambit of collection of segregated waste at household level. The NGO's are successfully conducting capacity building amongst the masses.

4.6 Segregation, Collection and Transportation

- Currently segregation at source is performed at all the 35 wards in Srinagar and a Mechanical Segregator has been installed at the land fill site Achan.

- The average collection of waste/day: 350 MT in 2013 to 400 MT in 2016 in Srinagar and 100% of HH covered under Door-to-Door waste collection.

- As on 2016, Srinagar has 575 garbage collection points, 110 dumpers, 500 handcarts and 1000-wheel barrows and 30,000 color coded bins are being procured.

- A 30 TPH Mechanical Segregator has been installed and commissioned at dumping site Achan. 100 to 150 MTs of garbage is being mechanically segregated at the Mechanical Segregator on daily basis. Organic waste is collected from less than 30mm sieve which is being taken directly to compost plant for its curation and further sieving at 4mm sieve. More than 30mm and less than 100 mm waste sieved is also organic matter which is kept for curation in windrows and after 45 to 60 days of curation and turnings is again sieved at less than 30mm sieve and further sieving at 4 mm trammel for final compost produce.

4.7 Treatment and Disposal/ Landfill

- In Srinagar, a Compost plant of 5 Tons Per Day has been commissioned and 3 units of leachate treatment plant (with total capacity 120 KL/day).

- Landfill site of 65 acres exists at Achan, Srinagar with 80 trucks dumps waste on daily basis.

- The compost produced at dumping site is marketed in packed form and is being sold in 20 Kg's bags at the rate of Rs. 3/- per Kg. Though there is marketing issue, but the SMC is exploring possibilities to sell the produce in bulk to Government Departments such as Agriculture Department, Floriculture Department, SKAUST, Horticulture Department and other relevant Government institutions. SMC has also appointed a dealer for Baramulla and Kupwara Districts who has taken supplies to the tune of 2 MTs. Morethan 500 MTs of compost is ready at SMC dump site Achan.

- The resource recovery is also being done at dumping site and plastics/polythene of recyclable value is collected and baled in bundles. To make the said plastic/polythene stuff attractive to the Cement Factories and Recyclers, supply order for procurement of 10 TPD Fatka Machine and 5 TPD Shredding machine have been already placed with Bhopal based Safa Engineering and Enterprises and delivery of the machines is expected within a week's time.

- 30 TPD compost sieving plant has been installed to sieve the compostable waste at less than 4 mm sieve.

5. Initiatives taken by the State

1) The Jammu and Kashmir State has decided to adopt Cluster approach and land has been identified for 19 clusters.

S. No.	Name of Cluster	Towns Covered
1	Anantnag	Anantnag, Bijbehara, Mattan, Achabal, Aishmuqam
2	Baramulla	Sopore, Watergam, Baramulla, Tangmarg, Pattan
3	Kupwara	Kupwara, Handwara, Langate
4	Bandipora	Bandipora, Sumbal, Hajin
5	Kulgam	Kulgam, Devsar, Yaripora, Frisal, Qazigund, Seerhamdan
6	Pulwama	Pulwama, Awantipora, Pampore, Shopian, Khrew
7	Udhampur	Udhampur, Chenani, Ramnagar
8	Katra	Katra and Reasi
9	Kathua	Kathua and Lakhanpur
10	Bilawar	Bilawar and Basohli
11	Rajouri	Rajouri, Thanamandi, Kalakot, Nowshehra, Sunderbani
12	Poonch	Poonch and Surankot
13	Samba	Samba, Vijapur, Ramgarh, Bishnah, Bari, Brahmana
14	Kishtwar	Kishtwar and Thatri
15	Doda	Doda
16	Bhaderwah	Bhaderwah
17	Ramban	Ramban, Batote, Banihal

With a view to improving the efficiency of Solid Waste Management system in towns of Kashmir Division, six places have been identified on cluster basis for establishment of Solid Waste Management and processing facilities. The details of the clusters are as under:

S. No.	Municipal Committee	Landfill Sites	Present Population	Solid Waste Generated
1	Budgam	Mamat Road, Budgam	15338	9.11
2	Beerwah	Ashadpora (1 Kanal)	8192	4.87
3	Magam	Near Nallah Ferozpur	5470	3.25
4	Khansahib	Near Syed Soleh Nursery Naad	5723	1.56
5	Chadoora	Land acquisition underway.	6482	3.85
6	Charar i Sharif	Charar I Sharif Naad	11533	6.85
7	Ganderbal	Sheikh Mohalla (3 Kanal)	28233	16.77
TOTAL			**80971**	**46.26**

The following seven Municipal Institutions of Kashmir Division are included in the Srinagar Cluster, which is the jurisdiction of Srinagar Municipal Corporation:

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The following five Municipal Institutions have not been included in the Cluster basis establishment of Solid Waste Management facility, hence individual decentralized facilities need to be developed in these towns:

S. No.	Municipal Committee	Landfill Sites	Present Population	Solid Waste Generated
1	Dooru-Verinag	Nadoora	22968	13.64
2	Kokernag	Site identification underway	6553	3.89
3	Tral	Razakshah, Tral Bala	17844	10.60
4	Kunzer	Near Babareshi Stand (2.5 Kanal)	5124	1.12
5	Pahalgam	Sarbal (5 Kanals)	9264	16.82
TOTAL			**61753**	**46.07**

2) In recent years, the current SWM system has received a considerable attention from the Central and State Governments and local municipalities. The first initiative was taken by the Honourable Supreme Court of India in 1998, which resulted in the formation of a Committee to study the current status of SWM in all cities/ towns of the Country. This Committee identified the deficiencies/gaps in the existing SWM system in the country.

3) As a second initiative, the Ministry of Environment and Forests (MoEF), Government of India, published “Solid Waste Management Rules 2016” (SWM Rules 2016). These rules were developed in conformance with Sections 3, 6 and 25 of the Environment Protection Act, 1986 and aim at standardization and enforcement of SWM practices in the urban sector, which envisages that, “Every municipal authority shall, within the territorial area of the municipality, be responsible for the implementation of the provisions of these rules and

infrastructure development for collection, storage segregation, transportation, processing and disposal of municipal solid wastes". In addition, "the CPCB shall coordinate with State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) in the matters of MSW disposal and its management and handling".

4) Under the provisions of Swach Bharath Mission, the local bodies are to prepare Detailed Project Reports in consultation with the state government based on the identified needs of the City Sanitation Plans. Provision also mentions clustering of smaller cities for attracting Private investment. The DPRs should be prepared in lines with Govt. of India's goals outlined in the NUSP 2008, SWM rules, advisories, CPHEEO manuals (including cost-recovery mechanisms), O&M practices and Service-level Benchmark advisories released by MoUD and Manual on Municipal Solid Waste Management, 2016.

5) National Green tribunal was established in 2010 under Article 21 of the Indian Constitution which guarantees the citizens of India the right to a healthy environment. The National Green Tribunal Act was an act of the Parliament which aimed at providing a healthy environment, conservation of forests and other natural resources. It also looks after the enforcement of legal rights for environment and offering relief for damages to people and property. This department handles the expeditious disposal of environmental issues and assures the citizens of India the right to a healthy environment. Since its inception, steps in different directions have been taken in order to reduce pollution and other activities that are impacting the environment. Various orders have been given by National green Tribunal with respect to Municipal Solid Waste management which has made significant changes in society.

6) CPCB has framed and notified the "Action Plan for Management of Municipal Solid Waste (MSW)" in compliance with the National Green Tribunal order dated 5th Feb-2015 in the matter of OA No. 199 of 2014. The Action Plan emphasizes on strengthening the planning exercise at national, state as well as city level by improvising through the waste management value chain. In addition to that, the Plan suggested the concept of regional cluster approach as well as technology options on the basis of quantum of MSW generation.

6. Strategy for Solid Waste Management for J&K

6.1 Immediate and Strict ban on open burning of solid waste

A complete ban on open burning of solid waste should happen. However, the ban must consider seasonal considerations, as large amounts of biodegradable matter is burnt in the autumn months to produce charcoal for warming kangris (fire pots) over winter. There is however scope to promote more sustainable winter heating strategies such as improved design and insulation of homes, solar thermal heating and more efficient biomass and wood fired stoves, which ultimately enables more biodegradable resources to be freed up for composting and food production. It is important therefore that the ULBs support the effectiveness of the future ban on open burning through parallel policies to promote alternative heating technologies.

6.2 Minimization of Waste - 'Jammu and Kashmir - G25 Strategy'

It is proposed that, by 2025 – The state of Jammu and Kashmir will reduce its waste generation quantity by 25%. This goal will be reached through extensive IEC programs and spreading awareness about the importance of waste minimization.

Year	Average Population Growth	Average per capita waste generation	Total waste generation in TPD
2021	10.55	0.23072	3604
2031	21.1	0.23764	2685
2041	31.65	0.24477	6091

Waste Generation Projections for the state – 2021, 2031 and 2041

6.3 Extensive IEC Activities

IEC plays a pivotal role in creating awareness, mobilizing people and making development participatory through advocacy and by transferring knowledge, skills and techniques to the people. Information, Education and Communication (IEC) strategies, planning and their effective implementation is the key to a successful SWM Action Plan. Thus, IEC activities are not to be treated as 'stand-alone' activity as a 'component' of SWM, but the SWM is largely about effective IEC to nudge communities into adopting safe and sustainable SWM practices. The Action plan proposes to pace up the IEC activities to educate citizens regarding the importance of solid waste management and also the importance of segregation of waste at source.

Srinagar Municipal Corporation (SMC) has engaged six NGOs to provide support for better implementation of the plan. All six NGOs will closely work in collaboration with the PMSU and under the overall guidance and supervision of SMC.

(IEC Activities at Srinagar)

6.4 Door to Door Collection

To implement the system of cleaning the whole city on regular basis, the residential as well as commercial waste collection method had to be implemented. After the implementation of daily Door to Door garbage collection system the collection timings of the segregated waste have to be morning hours from 7 am till 1 pm; and it will become the practice of every citizen to store the household waste temporarily in twin dustbin as segregated (Dry & Waste) till Door to Door garbage collection vehicle arrives.

This will make a good improvement in the overall scenario. Sense of good hygiene and awareness towards environment will be visible. For the shopkeepers, waste collection system can be made operative in second shift from 5 pm to 11 pm to facilitate commercial units as bulk generators.

The residents have to be provided with containers & dustbins should collect only MSW household waste. Ward wise road block needs to be identified from where MSW was collected for its disposal to final disposal site. Initially, Door to Door collection system needs to be implemented as Pilot Project.

6.5 Segregation a Source – Color coded Bins

To improve solid waste management in the state in a speedy way, it is decided to introduce color-coded dustbins. The Action Plan proposes for two colors for bins. i.e. Blue for plastic and metal waste and yellow for bio-degradable waste. According to an estimate, 40% of municipal waste in the state is wet waste, which can easily be composted and used as manure. Nearly 30% of the municipal waste comprises of plastic and metal, which can be sent for recycling to an authorized dealer and about 20% of it is e-waste, which can also be recovered at door step.

6.6 Role of Rag pickers

The characterization and quantification of solid waste was greatly influenced by nearby communities and their economic status, while their sorting from primary collection points to dumpsites has been accomplished by other communities; like that of rag pickers in most of the places. This task by these communities plays a crucial role in reducing the amount of recyclable and reusable material sent to land fill. Hence, Rag pickers should be encouraged at ward level in a decentralized manner and at collection points at the primary stage of collection only.

6.7 Cluster Approach

The main goal of the cluster approach is to establish and develop a network of joint ties between IEC partners and the stakeholder network in the field of Municipal solid waste management and their treatment. Cluster approach will give more efficient strategy in collection, transportation and disposal of solid waste.

6.8 Public Participation and Involvement of Self-Help Groups

The Self-Help Groups will be trained to motivate societies, associations and managements of commercials complexes and residential housing units in keeping their premises clean. Officials of urban local bodies would promote public participation in solid waste management systems. Citizens will be made aware that waste is not to be thrown on the streets, drains, water bodies, open spaces and also prohibit them from littering and open defecation. They should participate in primary collection of wastes, storage of wet and dry wastes separately at source till disposal and litterbins on roads and public places.

6.9 Introduction of Penalties for Polluters

According to the SWM rules 2016, Bulk generators have to set up their own processing units. If these Bulk generators do not adhere by the Rules, they will have

to pay high penalties. All the medical, commercial establishments and other large institutions where bulk waste is produced should process their own waste and set up their own Segregation, Disposal and Treatment plants in their own premises. Any violations to norms set by SWM rules, 2016 will be penalized.

6.10 Success Stories

Motivating stories, excellent case studies, practical ideas and, above all, a genuine desire a litter-free city has to be promoted. Success stories encourages the citizens to be part and parcel of community living. By practicing proper Solid Waste Management for a month by the people they can eventually adopt the habit of proper disposal. They will be conscious about the environmental deterioration caused if the waste produced by a household is not reduced.

6.11 Other Recommendations

- **Cleaning of Rivers/ Lakes using Shikharas – Local Boats (Traditional/ Cultural way).**

Case Study of Dal Lake, Srinagar

In Srinagar, several NGOs and locals have taken up cleaning of Dal Lake into their own hands. The lake has shrunk to 24 sq. km from 31 sq. Km, in the last two decades. With growing tourist influx, hotels and houseboats, the waste from these is disposed into the Dal lake.

Every morning, hundreds of shikarawalas assemble to clean the Dal lake, Kashmir's pride. The pollution in the lake includes lily pads, algae and weed, which are extracted by these workers with traditional methods. They pile the waste in their shikaras and put it at specified places along the banks of Dal Lake. From these de-weeding points, the waste is finally loaded into a truck and transported to the dumping area.

However, the workers complain that nothing has been done for their safety or security. There have been a few incidents where workers were either injured or lost their life while performing their job.

- The authorities to provide a proper uniform, gloves and a pair of waterproof boots.
- Formal agreement with workers so that the workers are compensated accordingly.

Locals cleaning up the Dal Lake, Srinagar

- **Rewards to Recycle Plastic Program**

Case Study of Columbia

The country produces around 28,800 tonnes of solid waste per day. To tackle the plastic waste, authorities installed ECOBOT-Vending Machines in shopping malls, institutions and other public spaces. Every time someone deposits a plastic bottle or the bottle caps, they receive restaurant coupons or movie tickets or simply shopping vouchers.

- The authorities to install Vending Machines in in shopping malls, institutions and other public spaces.
- Locals and Tourists both can put the plastic waste in the vending machines to get rewards.

7. Proposals

7.1 Proposed MSW Collection and Transportation of waste management system in ULB's:

In the existing scenario more than 40% of the ULBs in the cluster practice door-to-door collection. However, waste segregation is not followed. A large percentage of the recyclable material is disposed of along with domestic and trade waste. The transportation of the waste from households, commercial establishments, schools, mandis etc. to the garbage bins are done through hand driven carts, tricycles, and tippers etc. which, in most of the cases are old and unmaintained. There is a lack of mechanized vehicles for handling waste. Therefore loading and unloading of waste is done manually by the municipal workers in most of the cases. It is also observed that there is limited use of Personal Protection Equipment's (PPEs such as gloves and shoes for their protection) by sanitary workers deployed for MSW by the ULBs. This section describes the approach devised for safe & efficient collection, storage and transportation of municipal solid waste for the ULBs within the cluster. These include primary waste collection, secondary waste collection & storage and waste transportation to transfer stations and regional landfill facility of for subsequent processing and disposal.

STORAGE OF WASTE AT SOURCE

Storage of waste in households is key aspect of establishing good SWM practices. To conduct effective storage of waste at source. Segregation of waste is mandated by the SWM Management Rules 2016 and the same has to be implemented and requires that waste is stored at source in a segregated form. In order to create a mechanism of storage of waste at source, it is essential to make mandatory that waste generators do not throw any solid waste in their neighbouring, on the streets, open spaces and vacant plots or into drains.

HOUSEHOLDS

Households are the major source of solid waste generation. Proper storage of waste in households is a key aspect of establishing good SWM practices. According to the CPHEEO Manual and SWM Rules, 2016, it is mandatory to segregate the Municipal Solid Waste as bio-degradable waste and recyclable/ inorganic waste at the source of generation and the same needs to be implemented in the cluster. In addition, it is essential to make it mandatory to prohibit waste generators to throw any solid waste in their surroundings, on the streets, open spaces and vacant plots or into drains.

Types of wastes categorized under food wastes & bio-degradable wastes (wet waste)

- Food wastes of all kinds, cooked and uncooked, including eggshells, bones, lower and fruit wastes including juice peels and house-plant wastes

- House sweepings (not garden sweepings or yard waste: dispose on-site)
- Sanitary towels
- Disposable diapers and incontinence pads viz. Ashes.

Types of waste categorized under non-biodegradable/inorganic wastes (dry waste)

- All kinds of Paper and plastic, all kinds.
- Cardboard and cartons
- All kinds of Containers excluding those containing hazardous materials
- Packaging of all kinds
- Glass
- Metals
- Rags, rubber, wood
- Foils, wrappings, pouches, sachets and tetra packs (rinsed)
- E-waste- computer diskettes, printer cartridges and electronic parts.
- Discarded clothing, furniture and equipment.

To achieve the same the following actions will be taken:

- Two Garbage bins with lid of different color coding (Blue for non-Biodegradable and Green for Bio-degradable and Hazardous Waste) , each with a capacity of 10 litre (0.010 m3), would be provided to each house hold.
- The household would be directed to keep the Biodegradable waste, when generated, in a separate Green waste bin and Non-Biodegradable waste in another blue colored waste bin • These twin dustbins will be replaced every year.

COMMERCIAL ESTABLISHMENTS / INSTITUTIONS

The commercial establishments/ Institutions in the towns are the bulk waste generator and will be asked to undertake following measures:-

- They shall refrain from throwing their solid waste/sweeping etc. on the footpaths, streets and open spaces.
- They shall keep their waste on-site as and when generated in suitable containers until the time of doorstep collection, ULBs shall ensure that all shops are included in door to door collection mechanisms.
- The size of the container for bio-degradable should be adequate to hold the waste, they normally generate in 14-18 hours with 100% spare capacity to meet unforeseen delay in clearance or unanticipated extra loads.
- They shall keep hazardous wastes which are mentioned as hazardous for household waste storage. Shops which sell electronic devices shall be conscious in segregating e-waste apart from solid waste. This hazardous waste shall be disposed off as per the guidelines of SWM.

- The association of private commercial complexes/multi-storey buildings shall provide suitable transportable community bins which match the waste collection and transportation system of the local body for the storage of waste by their members and direct them to transfer their waste into the community bin before the prescribed time on a day-to-day basis.

HOTELS & RESTAURANTS

ULBs will direct all hotels and restaurants with following instructions:-

- They shall refrain from throwing their dry and wet solid waste/sweeping on the footpath, streets and open spaces or drains.
- They shall also refrain from disposal off their waste into municipal street bins or containers.
- They shall store their waste on-site in sturdy container of not more than 100 litre (0.1 m3) capacity. The container should have appropriate handle or handles on the top or side and rim at the bottom for ease of emptying.
- In case of large hotels and restaurants where it may not be convenient to store waste in 100 litre or smaller size containers, they may keep larger container which match with the primary collection and transportation system that is introduced in the city by the ULB to avoid double handling of waste.
- Hotels and restaurants may be directed to keep hazardous wastes mentioned as hazardous for households separately as and when produced and dispose it as per directions of the ULB.
- The hotels and restaurants shall provide the food waste to animal husbandry.

VEGETABLE MARKETS

To efficiently collect and transport the waste generated from markets in the ULBs will take the following steps:-

- Provide 3 m3 secondary storage container bins in the market for storage of waste.
- Shopkeepers may be directed that they shall not dispose of waste in front of their shops or anywhere on the streets or in open spaces and instead shall deposit their waste as and when generated into the container provided for storage of waste in the market.

SLAUGHTER HOUSE, MEAT & FISH MARKETS

The following systems have to be put in place to manage the wastes from fish and meat market and stalls:-

- Shopkeepers shall not throw any waste in front of their shops or on the streets or open spaces in any conditions.

- They will keep within their premises sturdy containers (of size not exceeding 100 litres i.e. 0.1 m3) having lid, handle on the top or the sides and rim at the bottom of the container with adequate spare capacity to handle expected loads.
- The waste will be collected on daily basis separately by using dedicated auto tipper.

HOSPITALS/CLINICS / NURSING HOMES, ETC.

According to the Bio-medical Waste Management Rules, 2016 of India - “Any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biologicals is termed as biomedical waste”. It is recommended that the generated biomedical waste be disposed of in accordance with the Bio-medical Wastes Management Rules, 2016. As per the norms this waste shall not be mixed with Municipal Solid waste and should not be disposed of in the landfill. The urban local bodies would be responsible for providing guidance to the existing clinics, hospitals, primary health centres, dispensaries etc. for proper storage, handling, disposal and treatment of Biomedical Waste. The need is to ensure all the waste generators subscribe to this facility and medical waste does not enter the municipal waste stream. The medical establishments need to adhere to the following rules.

- They shall refrain from throwing any bio-medical waste on the streets or open spaces, as well as into municipal dust bins or domestic waste collection sites.
- They shall also refrain from throwing any ordinary solid waste on footpaths, streets or open spaces. The ordinary solid waste shall be stored and handed over to the door to door collection vehicles. In larger hospitals waste would place in 1 m3 containers to be provided by the medical facility which shall be picked up by the special vehicle carried by biomedical waste.
- They are required to store waste in colour-coded bins or bags as per the directions of the Govt. of India, Ministry of Environment Biomedical Waste Management Rules 2016, and follow the directions of Central Pollution Control Boards and State Pollution Control Boards from time to time for the storage of biomedical waste.

CONSTRUCTION AND DEMOLITION WASTE

It is the responsibility of any generator of construction and demolition debris to employ reasonable and practical means, including source reduction, reuse or recycling, in order to prevent construction and demolition debris from being disposed finally in low lying areas. ULBs will introduce permits system which enable obtaining permits with a monetary deposit that allows for the tracking of C&D waste.

For any upcoming large scale construction projects, ULB will obtain the C&D Waste Management Plan from the owners and ensure its compliance. The small scale waste generator has to store the waste on site and inform the concerned ULB for disposal of

the same. No person shall dispose of construction waste or debris on the streets, public spaces, footpaths or pavements. A tractor trailer and a PK shall be dedicated for debris collection by ULB.

Until construction debris is taken by ULB, the waste shall be stored only within the premises of buildings or in containers where such facility of renting out containers is available. In exceptional cases where storage of construction waste within the premises is not possible, such waste producers shall take prior permission of the local authority or the State Government as may be applicable for temporary storage of such waste and having obtained and paid for such permission, may store such waste in such a way that it does not hamper the traffic, the waste does not get spread on the road and does not lock surface drains or storm water drains. The construction debris should be disposed of in low lying areas. The ULB will identify the dedicated low lying area/ location for dumping of construction debris. The existing tractor trailer in the ULB will be used for transportation of C&D waste.

7.2 Proposed Collection and Transportation Strategy:

Based on the guidelines set out in the SWM Rules, the implementation plan for collection and transportation system has been prepared. The tools and equipment are recommended for implementation of collection & transportation system. Door to door collection systems would be through the use of handcarts, auto tipper and tractor trailer and then stored in 3m3 and 1.1m3 secondary storage containers and transferred to processing facility using dumper placer and compactor. Street sweeping silt would be directly transferred to low lying area/sanitary landfill site using tractor trailer.

Primary collection of waste

It is proposed to have a segregated waste collection from source for disposal at each cluster. The approach to this is based on the door to door collection approach for individual generators. The plan waste generator wise is elucidated below:-

PRIMARY COLLECTION OF MSW FROM NON-SLUM AREAS

Door-to-door collection would be the primary mode of collection from domestic households. Handcarts, tricycles and auto tippers are proposed to be deployed for primary collection of MSW. The primary collection activity would commence at 7.00 am and is proposed to be completed by 11.00 pm.

Both Wet (biodegradable) and dry (non-biodegradable) waste from households would be collected daily. The MSW collected in handcarts, tricycles and auto tippers would be transported to secondary storage bins. The secondary storage bins containing the waste would be transported to the compost facility through either tractor trolley, dumper placer or compactor.

MARKETS

In markets, it is proposed to place secondary storage bins for wet and dry waste at strategic locations and their wet and dry waste would be collected separately and then transported. Workers would sweep and collect the waste in smaller markets and store it in secondary containers.

HOTELS AND RESTAURANTS

Bulk generators would need to compulsorily use waste bins/containers to store their wet and dry waste separately, which would later be collected by the tricycle and auto tipper. The waste collected by tricycle and auto tipper would be transferred to secondary storage bins and transported to the processing facility using tractor trolley/dumper placer /compactor.

COMMERCIAL ESTABLISHMENTS

Shops and commercial establishments would need to compulsorily use waste bins to store their wet and dry waste separately. The waste from these bins would be picked up by workers. The waste collected by tricycle and auto tipper would be transferred to secondary storage bins. The shop owners associations would be made responsible for advocating the disposal of waste only into waste bins.

MEAT/CHICKEN/SLAUGHTER HOUSE WASTE

Meat/chicken/slaughter waste would be collected separately and then transported to deep burial facility through dedicated existing tricycle/existing mini tipper/auto tipper.

OTHER SOURCES

The current collection system adopted by ULBs would be streamlined for other generators (large institutions, construction waste, hospitals, marriage halls etc). The biodegradable, recyclable and domestic hazardous wastes from these premises would be collected in separate trips on daily basis. In case there is a large waste generation, special trips of the auto tipper or provision of container and picked up by the existing vehicles can be arranged.

Street Sweeping

The sweeping of street and public spaces is being done by the ULBs and it is proposed that the existing systems continue, covering all extensions and roads. Most the workers would carry out the street sweeping activity and would be responsible for sweeping of the roads, cleaning of the adjoining drains and would transfer the same to tractor trolleys. For continuous collection of street sweepings, tractors trolleys would be taking rounds and collecting the street sweepings from identified locations where the street sweepings would be stored/collected in a pushcarts by the workers. The silt, debris collected in the tractor trolleys will disposed-off in the low lying areas. The tree

waste, flowers, leafs, etc, would be separated and stored in litter bins in respective locations and then taken to the compost facility through tractor trolleys.

Vehicles, tools and equipment to be used for sweeping

Most of the tools used for sweeping are insufficient and out-dated and need to be replaced by efficient tools and equipment's. There is a standard specification of tools to be used by sweepers in each Cluster. Long handled broom, Metal tray and plate and basket for loading of wastes. There are standard and routine requirements which are required to be provided. As these activities are part of the day to day operations no extra budget for the same has been projected.

Litter Bins

It is planned to keep litter bins in the major commercial establishment areas for wet and dry waste. Litter bins could be provided for every 500 m length of the Type A road and the primary collection crew shall clear the litter bins waste through dry and wet auto tipper separately.

Secondary Transportation of Municipal Solid Waste

The waste carrying secondary storage bins would be transported to the compost facility in dumper placer and compactor in every Cluster. Dumper placer and compactor are planned to be used for transportation of MSW. The waste collected would be transported to the Regional Processing Facility through dumper placer & compactor and the inert from the treatment facility would be disposed in the sanitary landfill.

The silt from street sweeping activity would be transferred to the low lying area/sanitary landfill facility by way of tractor trolleys. The tractor trolley in use at present would be restricted to use for street sweeping activities and not be used for transport of municipal wastes. The requirement of the transport vehicles is estimated in the below exhibits.

Secondary Transportation of Construction and demolition waste

Construction debris is generally generated at the sites/ projects which are under construction. Over 90% of construction waste are inert and are known as public fill. Public fill (low lying areas) includes debris, rubble, earth and concrete which is suitable for land reclamation and site formation. When properly sorted, materials such as concrete and asphalt can be recycled for use in construction.

Part of the debris can also be used as daily cover in the landfill site thus covering the day's waste, and with effect of reducing nuisance, odour and exploitation by animals, birds and insects. Transport of construction waste and debris shall be done using existing tractor trailer. No additional requirements are proposed. One tractor shall be

dedicated only for transportation of Construction debris. The construction debris shall be disposed of in the low lying areas identified by ULBs.

7.3 Proposed MSW Processing and Disposal facility of waste management system in ULB'S:

There are several MSW processing technology options, which are being followed in various parts of the world. These technologies fall in the broad categorization of thermal processing, biological processing and physical processing. Details given below exhibits technology options available for the purpose:-

CONCEPT OF IWMF

A state of the art waste management facility has been planned in respect of each town:-

- The facility would meet and exceed all the environmental standards set by the CPCB.
- The facility would have no materials leaving it except as usable product.
- The facility would not have any offensive visual, sound or odour. The project would be capable of coexisting with public facilities adjacent to it.
- The facility would maximize the recycling of the waste and limit the landfill quantity to less than 30 % of waste receipt.

WASTE SEGREGATION FACILITY

The waste arriving at the integrated waste management facility will be weighed at the gate and data recorded. The vehicles arriving are smart segregated. The balance of the materials will be taken to the segregation facility and tipped. At the tipping floor the large containers will be removed and transferred to waste a receiving hopper. The waste is taken through a conveyor to 7 m diameter rotary sieve of with 100 mm holes and specification of processing machineries are listed in Annexure 3. The materials passing are taken for aerobic composting and the oversize materials are taken for recycling or landfill.

AEROBIC COMPOSTING FACILITY

Aerobic Composting is used for stabilizing organic matter. Composting can be used for mixed wastes and results in production of stable product- compost which depending upon its quality can be used as soil conditioner or potting medium.

AEROBIC WASTE DECOMPOSITION PROCESSES

Aerobic composting involves the stabilization of the organics into compost by microorganisms, which require the oxygen in air for their survival and growth. During this process of conversion heat is released. There are ideal limits for different parameters within which these microorganisms survive. Adequate moisture is required

for the microorganisms to survive and composting to take place. If these conditions are ensured to be stable the compost quality and time of composting process can be controlled. In batch conditions the composting process continues at progressively reducing rate as the oxygen becomes a limiting factor or organics get consumed. To ensure the survival of these organisms the availability of oxygen in the waste being composted has to be ensured through provision of air. For economic reasons the time of composting is restricted till the major conversion is done and subsequently compost maturing is taken up till the compost is safe for application to plants. The organics typically have high moisture and in the compost process this is removed. There are different possible configurations of holding waste and providing air for aerobic composting. The selection of this is based on economics and competence in handling technology.

The various parameters that affect the composting process and the compost quality are organisms' population, carbon Nitrogen ratio, temperature, aeration and moisture. The above-mentioned controlling parameters need to be monitored in the industrial scale plant. In large composting operations it is necessary to monitor the wastewater, which comes out of the organic waste, called leachate. The production of this leachate has to be minimized and whatever leachate is generated has to be collected and reused for maintaining the moisture content of the heap and as an inoculum.

DESIGN CHOICES

There are many alternative approaches, which have been adopted for composting of municipal solid wastes based on the broad principle of aerobic composting. The following approach has been adopted for ULBs. The waste as received is formed into windrows and aerated. Roof is proposed for the composting yard. The design is based on a 35-day waste composting cycle with 14-day waste curing cycle and additional provision in concrete yard for 3 months waste storage during monsoons and cold climate.

SIZING OF PLANT

The composting plant has been grouped into 3 parts. The inheriting part, which is the basic composting process consisting of the wastes windrowing process including aeration so that a stabilized material is produced. The second part is the compost segregation plant also called the processing facility where the stabilized wastes are segregated into compost and rejects and finally maturation and storage part. As discussed previously, the processing facility is designed to handle about 133 tons per day.

THE PROCESS FLOW

The proposed type of waste processing facility is Windrow Composting system. Turning of windrows is done using front-end loaders and optional primary air supply is through blowing.

MARKETING FOR SALE OF COMPOST AND RFD

It is proposed that the Private Operators for the Processing plant shall be responsible independently or jointly for production and sale of the compost and the RDF generated from the plant. The sale of compost and the RDF would result in additional revenue for the operator and would indirectly reduce the burden on Government. It is however, recommended that the operator shall keep the revenue generated from the sale of compost and the RDF and the revenue sharing in this component is not encouraged.

The operator is encouraged to develop suitable market and strategy for the sale of compost and RDF. The private operators can develop a detailed plan including market map, compost/RDF storage, agents, bulk buyers, transportation road network etc. There is huge potential for bulk buyers such as apple orchards (for Compost) and Cement Industry (for RDF) in the Kashmir province.

The private operator individually or jointly with operators at other clusters can develop a branding and marketing strategy. An indicative distribution network is shown below illustrating three common distribution methods: direct distribution, through sales agents (in-house/external), indirect distribution. Sales agents may include nurseries, retailers at vegetable markets or shopkeepers. Bulk buyers include potting soil producers, fertilizer companies, landscapers etc. Many compost producers claim that selling direct is important because contact with customers provides important feedback for the business and product development. However, retailers can offer benefits to your business because of their specialist knowledge of the agricultural and horticultural marketplace. As per SWM 2016, department of fertilizer ministry of chemical and fertilizers shall do the co-marketing of compost with chemical fertilizer in the ratio of 4:7 to the extent compost is made available to the fertilizer companies for marketing.

The recyclable material shall be transported to the nearest recycling plant. The processing plant operator shall enter into an arrangement with the supplier and recycling units. The revenue earned through this component to be retained by the Operator.

LEACHATE FROM PROCESSING SHED

Leachate collection tanks will be provided at waste segregation area and at the windrow compost area.

It is proposed for construction leachate collection tank next to the windrow compost pad. The leachate tanks near the windrow composting area will collect the leachate both from windrow compost and sanitary landfill. The leachate collected will be reused for spraying on the windrows. The leachate collected in the waste segregation area and SLF shall be treated together in leachate treatment plant.

SANITARY LANDFILL

MSW if dumped in open pollutes all environmental components. Waste pollutes air through gases, dust, litter and bad odour. Water passing through the waste results in leachate with high COD, heavy metals and salts content. Leachate generated contaminate ground water, runoff from disposed waste will result in contamination of surface water. The disposed waste has aesthetic negative impact on the surroundings.

The term ‘landfill’ is used to describe a unit operation for final disposal of ‘MSW on land, designed and constructed with the objective of minimum impact to the environment by incorporating eight essential components as described by CPHEEO Manual, 2016. This term encompasses other terms such as ‘secured landfill’ and ‘engineered landfills’ which are also sometimes applied to MSW disposal units. The term ‘landfill’ can be treated as synonymous to ‘sanitary landfill’ of MSW, only if the latter is designed on the principle of waste containment and is characterized by the presence of a liner and leachate collection system to prevent ground water contamination.

LEACHATE TREATMENT PLANT

The leachate collected from the facility will be pumped to a storage tank located within the facility. The treatment/handling of leachates is proposed in the following manner:

- Recirculation of leachate/recycle of leachate within the landfill for maintaining required moisture content till the active life of landfill.
- Spraying of leachate in lined leachate ponds to allow it to evaporate. These leachate ponds need to be covered with geo-membranes during high rainfall and exposed to sun for evaporation in summer. But cost for leachate pond and odour are two major concerns.
- Treatment of leachate in leachate treatment plant located within the waste management facility. The treated leachate shall meet the disposal standards given in SWM Rules 2016 and its subsequent amendments in future.
- The leachate treatment reduces the concentration of water polluting parameters in leachate for safe disposal into surface water bodies. While discharging treated leachate into inland surface water bodies, the quantity of leachate being discharged and quantity of dilution waste available in receiving water body shall be considered.

ODOUR CONTROL MANAGEMENT

- **Ventilation ducts:** The windrows number 1st to 7th, which contains fresh decomposing municipal waste will be the main source of foul odour. The primary ventilation duct will be located above the 1st windrow and will be connected to two exhaust pumps which will be operated continuously 24X7 hours. A secondary duct will be located over the eighth rows which will contain comparatively stabilized waste. The suction blower connected to the secondary duct will be operated only at the time of turning.
- **Exhaust fans:** Provision of 25 numbers of exhaust fans on PEB shed.
- **Enzymatic catalysts:** The other way of managing odour is spraying of enzyme catalytic solution on processing facility that can be used to degrade odorous compounds. These are normally applied to the surface of the compost windrow or sprayed in the airspace above it.
- **Green belt development**: 5mt green belt all around the site is provided to prevent any odour, dust and anaesthetic visuals.
- **Turning the windrows** is very important for redistributing the moisture, providing aeration, and maintaining even temperatures. The optimum frequency of turning depends on how thoroughly materials are mixed initially, the C:N ratio, any existing anaerobic conditions, and porosity of the windrows
- **Sizing the windrows** uniformly facilitates oxygen diffusion and natural air convection. This practice is helpful whether using standard windrows or forced aeration windrow systems.

HEALTH ASPECTS

The slums and traditionally dirty areas and have to be given special attention in terms of creating awareness, collection of waste from the generators.

Collection of municipal waste from these slums is recommended to be conducted daily. The waste shall be collected using auto tippers as it is possible to collect waste using vehicles from these areas. The details of the required number of auto tippers and other details are provided.

It is recommended that Collection and transportation of Municipal Solid Waste should be done on all the days including holidays and Sundays for the effective solid waste management in the slums and traditional dirty areas. Awareness should be created among the slum residents to store the waste and hand it over to the door to door collection points or dump into container bins rather than throwing it into open points.

COVERING OF BUILDINGS UNDER CONSTRUCTION

It is necessary to cover the construction sites especially in the core areas. This would avoid movement of dust and debris and ensure proper site management and debris control. ULB should make it mandatory to cover the dust during the construction and demolition of buildings and other infrastructures

8. Action to be taken and Timeline

S.No.	Activity	Action to be taken	Timeframe
1	Formation of State Level Advisory Body	A State Level Advisory Body under SWM Rules, 2016 shall be formed to govern all the matters on SWM in the State. This committee shall meet once every 6 months to review the progress and remove the bottlenecks	Already formed in May 2017 and notified
2	Preparation of MSW Bye-laws	Bye laws shall be framed for all the ULBs. The ULBs shall be free to decide and notify user charges for D2DGC	Within 2 months
3	Door-to-Door Segregated Garbage Collection in ULBs	D2DGC shall be taken up in phased manner. Phase-I: ULBs having population <5000	Within 6 months
		Phase-II: ULBs having population >5000 and <10000	Within 12 months
		Phase-III: ULBs having population >10000	Within 24 months
4	Formation of clusters	Clusters/ mini-clusters shall be formed with the consultation of ULBs. The MSW bye-laws shall be applicable in peri- Urban areas also which will be included in the clusters.	Within 1 months

5	Implementation of segregation at source by the ULBs	Through the extensive IEC campaigns and educating the community, segregation at source shall be implemented into 3 streams i.e. biodegradable, non-biodegradable and domestic hazardous waste	Within 12 months
6	Identification of sites	ULBs to identify the sites for setting up of waste processing and disposal facility. The district administration shall allocate such lands identified by ULBs for setting up of SWM facilities	Within 12 months
7	Setting up of processing plants	Processing plants will be setup for processing of waste being generated from all the ULBs and semi-urban areas which are included in the clusters.	Within 36 months
8	Construction of Sanitary Landfills	Suitable clusters shall be formed for construction of Sanitary Landfill. The sanitary landfill may cater to the need of disposing of waste from one or more cluster also.	Within 12 months

9. References

- Solid Waste Management Rules, 2016
- The National Action Plan for Municipal Solid Waste Management, CPCB, 2017
- Central Pollution Control Board (CPCB)
- State Pollution Control Board (SPCB), Jammu and Kashmir
- Srinagar Smart City Plan
- Jammu Smart City Plan
- State Action Plan for Climate Change (SAPCC), Jammu and Kashmir

10. Annexures

10.1 Government Order regarding constitution of State Level Advisory Body for implementing SWM Rules, 2016.

GOVERNMENT OF JAMMU AND KASHMIR,
GENERAL ADMINISTRATION DEPARTMENT,
Civil Secretariat, Srinagar.

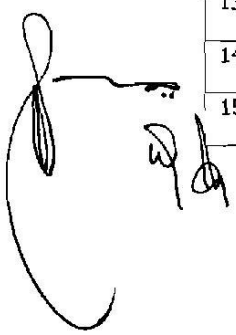
Subject: Constitution of a State level Advisory Body for implementation of Solid Waste Management Rules, 2016.

Reference: U.O No. HUD/Lit/29-AF/2014/NGT dated 30.03.2017 from Housing & Urban Development Department.

Government Order No. 594 **-GAD of 2017**
Dated: 15 **.05.2017**

Sanction is hereby accorded to the constitution of a State Level Advisory Body, comprising the following, for implementation of the Solid Waste Management Rules, 2016:-

1	Administrative Secretary, Housing & Urban Development Department.	Chairman
2	Labour Commissioner, J&K.	Member
3	Director, Agriculture, Jammu	Member
4	Director, Agriculture, Kashmir	Member
5	Representative of Department of Rural Development & Panchayati Raj (not below the rank of Additional Secretary to Government).	Member
6	Representative of Revenue Department (not below the rank of Additional Secretary to Government).	Member
7	Commissioner, Jammu Municipal Corporation.	Member
8	Member Secretary, State Pollution Control Board.	Member
9	Chief Town Planner, Jammu.	Member
10	Chief Town Planner, Kashmir.	Member
11	Commissioner, Srinagar Municipal Corporation.	Member
12	Representative from Ministry of Environment, Forest and Climate Change, Government of India.	Member
13	Representative from Ministry of Urban Development, Government of India.	Member
14	Representative from Ministry of Rural Development, Government of India.	Member
15	Representative from Central Pollution Control Board, Government of India.	Member



16	Representative from National Institute of Technology, Srinagar.	Member
17	Three representatives from Local Bodies to be nominated by the Housing & Urban Development Department by rotation in each meeting of the Body.	Member(s)
18	Two representatives from Directorate of Census Operations, J&K.	Member(s)
19	Representative from reputed non-Government organization working for the waste picker or informer recycler or solid based management to be nominated by the Housing & Urban Development Department.	Member
20	Representative from the industrial sector of the State to be nominated by the Industries & Commerce Department.	Member
21	Representative from the waste recycling industry to be nominated by the Housing & Urban Development Department.	Member
22.	Two subject experts one each recommended by the University of Jammu and University of Kashmir.	Member(s)

The mandate of the State Level Advisory Body shall be to:-

i. review the matters related to implementation of Solid Waste Management Rules, 2016, State policy and strategy on Solid Waste Management and give advice to the State Government for taking measures that are necessary for expeditious and appropriate implementation of these Rules; and
ii. act as a Monitoring Committee for proper implementation of directions of National Green Tribunal and Solid Waste Management Rules, 2016.

The Committee shall be serviced by the Housing & Urban Development Department and shall meet at least once in every six months.

By order of the Government of Jammu and Kashmir.

Sd/-
(Khurshid Ahmad) IAS,
Commissioner/Secretary to the Government.

No. GAD(Adm)29/2017-V Dated: 15.05.2017.

Copy to the:-
1. Secretary, Department of Environment, Forest and Climate change, Government of India.
2. Secretary, Department of Urban Development, Government of India.
3. Secretary, Department of Rural Development, Government of India.

4. Chairman, Central Pollution Control Board, Government of India.
5. Principal Secretary to the Chief Minister.
6. Vice Chancellor, University of Jammu/University of Kashmir.
7. Commissioner/Secretary to the Government, Industries & Commerce Department.
8. **Commissioner/Secretary to the Government, Housing & Urban Development Department. His U.O. file is also returned herewith.**
9. Commissioner/Secretary to the Government, Department of Rural Development & Panchayati Raj.
10. Commissioner/Secretary to the Government, Revenue Department.
11. Chairman, State Pollution Control Board, J&K.
12. Labour Commissioner, J&K.
13. Commissioner, Jammu Municipal Corporation/Srinagar Municipal Corporation.
14. Director, Agriculture, Jammu/Kashmir.
15. Director, Census Operations, J&K.
16. Director, National Institute of Technology, Srinagar.
17. Director, Archives, Archaeology and Museums, J&K.
18. OSD to Deputy Chief Minister.
19. Chief Town Planner, Jammu/Kashmir.
20. Private Secretary to the Chief Secretary.
21. Private Secretary to the Commissioner/Secretary to the Government, GAD.
22. Government Order file/Stock file/ GAD website.

15.5.17

(Inteeaz Kacho),
Deputy Secretary to the Government.

15/5/17

10.2 Government Order regarding constitution of committee to prepare State Level Policy and Solid Waste Management Strategy in accordance with SWM Rules, 2016.

Government of Jammu and Kashmir,
Housing & Urban Development Department,
Civil Secretariat Jammu/Srinagar
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Subject: - Constitution of a committee to prepare State Policy and Solid Management strategy in accordance with Municipal Solid Waste Rules, 2016.

Ref: - No. HuD/Lit./29-AF/2014/NGT (SMC) dated 09.02.201 of Housing and Urban Development Department.

Government Order No. 50- HUD 2017
D A T E D:- 03 - 03 - 2017

Sanction is hereby accorded to the constitution of a committee of following officers to prepare a State Policy and Solid Waste Management Strategy in accordance with Municipal Solid Waste Rules, 2016 in pursuance of directions passed by National Green Tribunal in Case Original Application No. 199/2014 titled Almitra. H. Patel V/S Union of India and others held:-

1. Director Local Bodies Kashmir	=	Chairman
2. Dy. Director Administration, Directorate of Urban Local Bodies Jammu.	=	Member
3. Chief Transport Officer, JMC.	=	Member
4. Divisional Town Planner Town Planning Org. Kashmir	=	Member
5. Senior Law Officer Housing & UD Deptt.	=	Member
6. Ward Officer cum Solid Waste Management Officer, Srinagar Municipal Corporation	=	Member Secretary

By order of Government of Jammu and Kashmir.

Sd/-
(Hirdesh Kumar Singh) IAS
Commr./Secretary to Government
Housing and Urban Dev. Department

NO: - HuD/Lit/29-AF/2014S.Court Part-II Dated: - 03 - 03 - 2017

Copy to the:-

1. Director Local Bodies Jammu / Kashmir.
2. Commissioner, Municipal Corporation, Jammu / Srinagar.
3. Chief Town Planner, Town Planning Organization Jammu / Srinagar.
4. OSD to Hon'ble Dy. Chief Minister I/C Housing and UD Department.
5. Spl. Assistant to MoS Housing and UD Department.
6. Pvt. Secretary to Chief Secretary J&K Jammu for kind inf. of Chief Secretary.
7. PS to Commr./Secy. to Govt. Housing and UD Department.
8. PS to Commr./Secretary to Government Industries and Commerce Department for inf. Of Commr./Secretary..
9. Government order files (w.2.s.c.)

(Firdous Hussain)
Under Secretary to Government
Housing and Urban Dev. Department