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GOVERNMENT OF SIKKIM
URBAN DEVELOPMENT & HOUSING DEPARTMENT
GANGTOK- 737101, SIKKIM

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NOTIFICATION

State Policy and Strategy on Solid Waste Management (Action Plan)

This shall come in force w.e.f. the date of publication in the official Gazette, Government of Sikkim.

Ganga D Pradhan
Secretary
Urban Development & Housing Department

In pursuance of the provision of clause (a) of rule 15 of the Solid Waste Management rules, 2016, the Solid Waste Management Plan as per State Policy and Strategy on Solid Waste Management are hereby laid down as under, namely:-

1. Objective:

(a) To ensure compliance with**Solid Waste Management Rules, 2016**notified in April 08,2016

(b) To bridge the gap that exists between the current solid wastes being generated, collected, transported, processed and scientifically disposed of by the year 2030.

(c) To use a holistic integrated and cluster based approach to make the SWM sector self-sustainable and viable based on the **Principles of 5R's** i.e.Reduce, Recycle, Reprocess, Reuse and Recover.

(d) To promote the principles of **Polluter to Pay** and enhance collection of userfee.

(e) To address the current needs, constraints and capacity limitations so to achieve **Zero waste by the year 2030** goal.

(f) To modernize and mechanize the operation and maintenance of Civic and Public Health Facilities in all the ULBs of the State to provide better and healthy living environment for the citizens of theState.

(g) To develop the strategy that provides a 'road map' to completely transform State's SWM sector, transitioning it to an integrated, fully functioning and sustainable system which will serve the ULBs for comingdecades.

(h) To generate "**civic sense**" amongst the mass to uplift the city's sanitation and personal hygiene condition and raise the hopes for a sustainable common future through extensive IECprograms.

(i) To preserve precious lands by creating regional scientificlandfills.

(j) To provide extensive job, research and development opportunities in MSWM sector.

2. Background of Sikkim's topography and Geography: Profile

Sikkim is a landlocked state in the north-eastern region of India and shares international borders with China, Nepal and Bhutan, and state boundary with West Bengal.

Owing to its location in the Himalayan Mountains region, the geography of Sikkim is diverse in the form of high mountain peaks and steep river valleys. Tucked between the Himalayan ranges, the state has mountainous terrain with elevation ranging from 280 meters to 8585 meters. The climate of Sikkim varies from subtropical in the south to tundra in the northern parts. The tundra region in northern Sikkim is covered by snow for four months consecutively every year. The temperature during these winter months drops down to below 0°C. The most of the populated lower regions of Sikkim experience a temperature climatic with temperatures ranging from 28 degree C in summer at times and dropping below 0°C in winters.

Sikkim has a very rugged topography due to which there are very less flat lands no flat area more than a few hundred square meters exists in continuity. This makes management of Municipal Solid Waste very challenging especially in terms of collection of waste from the households.

3. Background of Existing Solid Waste Management and its Status

Sikkim has seven Urban Local Bodies which has been constituted since 2010-11 under Sikkim Municipalities Act 2007. Themanagement of municipal solid waste by the ULBs in their respective areas is in a nascent stage. Most of the ULBs till date do not have full-fledged capacity or infrastructure to manage the waste in their respective jurisdiction.

Presently Sikkim, due to rapid urbanization and changing lifestyle is generating about 31,000 tonnes of municipal solid waste every year.

Although the ULBs in Sikkim spend a sizeable portion of the municipal budget on cleanliness of towns, they are unable to provide effective services in the MSW management sector. The MSW generation estimates are normally based on the capacity of bins of the garbage collection utility vehicles.

The Urban Development & Housing Department (UD&HD) is the primary agency responsible for the town development and management matters, including the physical planning, growth management and the provision and management of core civic services. Growth trends are estimated to continue concentrating on the major towns, thus, leading to the aggravation of the imbalances in the already hard pressed civic facilities.

Unplanned urban expansion has strained the State resources. In State, as estimated 50 MT of solid waste is generated daily in the Gangtok Municipal Corporation itself. In certain areas the curb-side collection is prevalent. All ULBs areprimarily responsible for collection, transportation and disposal of the solid waste, collection and transportation of the waste.

(a) Numbers of Urban Bodies Constituted in the State of Sikkim

A total of seven ULBs have been constituted in Sikkim in the towns of Gangtok, Rangpo, Singtam, Mangan, Gyalshing, Nayabazar-Jorethang and Namchi.

(b) Current status of Municipal Solid Waste Management

Currently, among the sevenULBs, 89 %source segregation of MSWhave been achievedso far after rigorous training and IEC activities at cluster /ward wise in a phased manner. Separate bins are being provided to residents for source segregation by ULBs. The segregated wastes collected thereafter are being taken to the landfill where degradable discard are being compost while non-degradable items are being recycled through scrap dealers and remaining inert waste are disposed at landfill accordingly. Two ULBs i.e. Gangtok Municipal Corporation and Mangan Nagar Panchayat are composting their partial amount of bio-degradable waste within the ULBs itself. Also 100% door to door collection of waste has been achieved in all the seven ULBs.

In North District, under Mangan Nagar Panchayat, all the vegetables waste of the marketing center is being turned into compost through the Organic Waste Convertor that has been installed by the ULB.

MSW from South and West Districts is being collected and sent to scientific landfill under construction at Sipchu, West Sikkim.

(c) Quantity of Municipal Solid Waste generated daily from each town

The quantification of waste generation for Gangtok city has been worked out as per the sampling methodology in accordance with the SWM, CPHEEO Manual (DPR on SWM for Gangtok under NERCCDIP, MoUD). Furthermore,the quantum of per capita waste generation for Class I, IV,V& VI towns as per Census 2011 has been taken as an average count of wastes generated from residential households, commercial establishments, markets, construction etc.

Estimation of per capita waste generation (household and other sources) of ULBs in Sikkim based on the 2011 Census data can be seen in the table below;

Sl.No	Town	Population	Average/capita generation (gms/day)	Total (Tonnes/day)
1	Gangtok MC	100286	500	50
2	Namchi MC	12190	450	5.50
3	Gyalshing MC	4013	400	1.60
4	Jorethang	9009	450	4
5	Nayabazar	1235	400	0.50
6	Singtam NP	5868	450	2.64
7	Rangpo NP	10450	450	4.70
8.	Mangan	4644	443	4.2

4. Cluster plan of MSWmanagement for urban centers

In every urban center, MSW will be managed by dividing wards into clusters. Each cluster will comprises of more than 50-60 households, the demarcation of clusters will be so made as to suit the landscape specifications that would facilitate collection & transportation of waste. Community Collection Centres (for segregated dry waste as well as compost at the household level) will be set up. Community composting/biogas units will also be taken up at these Collection Centres wherever deemed feasible. However, prior to introducing the hardware and infrastructure, the software must precede it in terms of rigorous IEC &Awareness Campaigns. This cluster approach will be adopted in all ULBs.

(a) Disposal of waste at cluster Level

(i) ULBs shall adopt suitable technology or combination of such technologies to make use of wastes so as to minimize the burden on landfills.

(ii) The biodegradable wastes shall be processed by composting, vermin composting, anaerobic digestion or any other appropriate biological processing for stabilization of wastes, at source to the extent possible and thereafter all the community level.

(iii) Landfilling shall be restricted to non-recyclable, residual and inert wastes that are unsuitable for either recycling or for biological processing.

Furthermore, the MSW, bio-degradable & non-degradable, emerging out of all marketing centres (primarily sabzimandis) will also get linked to these Community Collection Centres. Alternatively, Biogas units/community composting of varying capacities based on waste quantum will be installed at these marketing centres for managing vegetable waste as to treat it at source and avoid burdening the community centres. These units will be maintained and managed by the shopkeepers & immediate stakeholders.

(b) Initiatives in municipal SWM under Government of Sikkim

The Government of Sikkim is amongst the first state if the country to successfully enforce the total ban of the use of polythene bags. The State has also

(i) Passed the Non-biodegradable Garbage (Control)Rules in 1997 to minimize the generation of such waste as also its indiscrimination dumping on roads, streets and in jhoras.

(ii) Installed a 50 TPD Capacity Compost plant at Martam to dispose the biodegradable waste which has been recently revived following a period of importation, thereby reducing the waste generation for disposal.

(iii) Compost plant with the capacity of 1000kg per day has been installed at Lall Bazar Vegetable market premises subsequently Organic waste convertor at Mangan Nagar Panchayat has been installed.

(iv) Distribution of composting bins at household level covering all the seven ULBs has already been started.

(v) Distribution Colour coded bins for household level and religious institutions.

(vi) Further, processes have been initiated to impose bans on use of disposable items life Styrofoam and plastic plates, cups; spoons etc. along with other non-recyclable waste such as flex banners/ hoarding/signposts in order to reduce waste at source. Burning of agricultural waste, leaves, litter, paper waste and garbage has been prohibited vide Notification No. 196/FEWMD, dated 5/1/15.

5. Management Principles

(a) Effective segregation, collection and transportation

The important components of the management of MSWviz; segregation, collection, transportation and storage of waste, requires active involvement of the government bodies, private operators, community, NGOs, SHGs and local people.However, the key component would be awareness/sensitization andthereby bringing behavioral change of the people in their current attitude/perception of waste which is important for developing and creating a healthy environment. The mechanism to be adopted will be as per Zero waste concepts.

For effective segregation, collection and transportation, of the municipal waste management will be based on the following important principles:-

(i) Sensitization and Mass Awareness
(ii) Effective & Efficient source segregation, collection, transportation
(iii) Maximum resource recovery
(iv) Effective treatment
(v) Safe disposal
(vi) To avoid manual handling of waste and also minimize multiple handling by adopti n g state of the art modern SWM vehicles and equipment suitable to hilly terrain.
(vii) Developing of skills and mechanism in waste collection of the 'waste collection crew' which are humane and dignified.

(b) Collection and segregation at each town

(i) ULBs provide daily waste collection service to all households, shops and establishment for the collection of segregated bio-degradable waste due to its putrescible nature. The practice of segregation of waste at source are being ensured through different category bins such