

Solid Waste Management in Kathmandu City, Nepal

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Map of Kathmandu Metropolitan City



Environment Management Department

- One division – Environment Division
- Four sections:
 - Solid waste management Section
 - Landfill site Management Section
 - Parks and greenery promotion section
 - Mechanical section

Generation & Collection of KMC

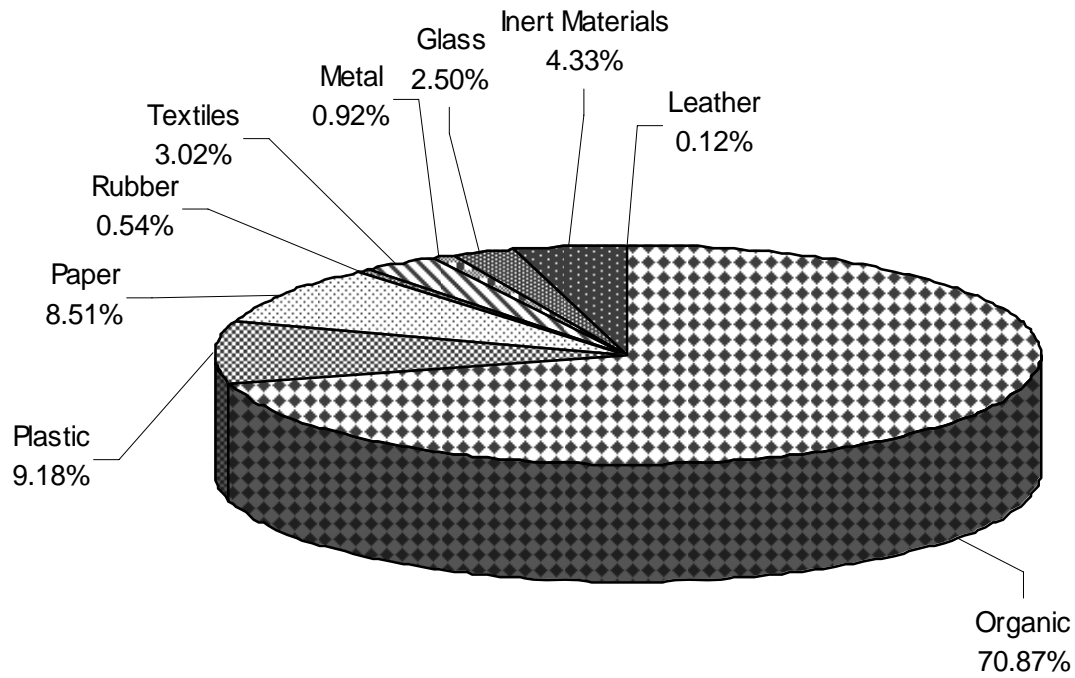
- Waste Generation 0.3 kg/p/day
- Total domestic waste gen. App. 246 ton/day

Others

- Commercial waste (12%)app. 30 ton/day
- Street Waste (12%) app. 30 ton/day
- Waste from VDC (12%) 30 ton/day
- **Total Generation** ***335 ton/day***
- **Collection** ***306 ton/day***

About 70% waste are organic

Waste Composition



Current Situation of SWM in Kathmandu

Collection and Transportation

Sweepers: 1018 for daily sweeping

Waste at Roadside or in a private container are picked up by KMC or private sector operators and transported to Teku Transfer Station

81 units (tipper, tractor, etc.)- for primary collection and 25 units (17 roll of tippers (donated by Japanese Government, 7 multi compactor donated by Indian Government and 1 container) for secondary transportation



Road sweeping



New vehicles

Where are We Today?

- Municipalities are completely responsible
- Some new approaches are being tried out in KMC
 - Door-to-door collection
 - User fees
 - Source-separated collection
 - Composting
 - Private sector participation
- “Landfilling” on the banks of Bagmati has stopped since the operation of Sisdol Landfill Site from June 5
- Preparation of Action Plan 2004-2015 (CKV)

Waste collection vehicles



Tractors



Mini-Compactor



Tipper

Need to replace



Newly Constructed by Japanese government – direct loading system 2005

Teku Transfer station



Solid Waste Minimization-

- Composting: household composting using bins
community composting
vermi-composting
- Recyclable materials are collected from households, commercial premises, restaurants, etc by recycle hawkers and sold to recycling dealers so called "kabadi"
- Altogether there are 30 to 35 groups of waste pickers in the KMC, who are working mainly at Teku
- Establishment of a community recycling center has been encouraged by KMC at ward no. 21

Composting



Compost bin



Vermi-composting

Final disposal

- Opened on 5 June 2005 sisdol landfill site valley 1 (technical and financial support by Japanese government through JICA)
- Daily Waste transfer from KMC & LSMC 300-350 ton/day
- Operation of sisdole Landfill site-valley 2
- Development of a Long Term SLFS
- Appropriate closure of used landfill Site



Operation Flow at Landfill site

Weighing by weighbridge



Unloading Waste



Spreading Waste



Soil Covering



Landfill site management vehicles



Compactor (7 tons) – 7 nos



Roll Of Truck (7 tons) – 17 nos.



Komatsu Dozer



Sheep Footed Compactor

Social Aspect -

- Waste collection service: 89% household Majority having knowledge about waste separation
- 41% of respondent have positive attitude towards making compost
- KMC realizes that community participation is the key improvement of the urban environment, after the establishment of CMU
- NGOs/CBOs have been involved in various SWM activities including collection services, awareness, and 3R activities

Financial Aspect –

KMC spends about Rs 17 million for SWM services, which represents 30-35% of total municipal expenditure

SWM cost : street sweeping cost and personnel cost

Mass Education



Public awareness program

आस्काई आयो. ...



किन फाल्ने फोहर
बनाउ यस्ललाई मोहर

Managerial Aspect -

Solid Waste Management Section

Mechanical Section and

Landfill site management section under the Environment Department are managing the solid waste generated within KMC.

KMC is the only municipality in Nepal which have a mandate to comprehensively address various aspects of SWM

Total number of staff SWM: 1,299 staffs about 60% of overall municipal staff

Organization Strengthening and Institutional Arrangements

- Capacity building of staffs (trainings, studies, and participating in national and international programmes)
- Appropriate staffing Arrangement
- Preparation of Short and Long Term Action Plans (Each year Department prepare a action plan)

Our Challenges

- Attitude of *throw & forget*
- Transportation – long distance, old vehicles and heavy equipments
- Lack of Training
- Need of well equipped equipments and workshop
- Only one landfill site and transfer station
- Lack of manpower
- No appropriate laws & policies
- Lack of awareness
- Low composting efficiency in households
- Public and political intervention

KMC's commitment for future programs related to environmental aspects by 2010

Waste management sector:

- Improvement of transportation and collection system
- Selection and construction of more transfer stations and landfill site
- Promotion of Public participation and behavior change by establishment of more nature clubs, more training programs and regularly interaction with locals
- Conduct a media campaign for waste segregation at source
- Lobbying for tax exception for recycling materials
- Management and Implementation of community based clean up programs (like streets clean up, community parks, historical places, temples, river clean up programs)
- Promotion of household composting programs providing compost bins and bags at 45% subsidy rate
- About 5000 compost bins will be distributed till 2010
- Cooperation with central government to proceed establishment of long term landfill site

KMC's commitment for future programs related to environmental aspects by 2010

- Expansion of more community based recycling center and medium scale vermi-composting
- Promotion of biogas technology from vegetable wastes, night soil waste with the technical and financial assistance from UN Habitat
- Mobilize school children and local communities for environmental activities
- Provide training and assistance to community groups interested in environmental protection
- Mobilization of youth city volunteers as a linkage between KMC and citizens in environmental campaign
- Plantation program: about 3000 trees will be planted till 2010 in Kathmandu City
- Assist locals in marketing of recycled products and provide forums for recycling industries to display a raising of public awareness programs through mass media: message board, exhibition, metro FM and National Television and promote their products

KMC's commitment for future programs related to environmental aspects by 2010 -Policies

- Assisting MoLD in preparation of New SWM Act and National SWM Guidelines (Under preparation at MoLD)
- Implementing KMC's Public Private Partnership Guidelines (PPPUE/UNDP)
- Partnership with a NGO, UN-habitat in preparation of Rain Water Harvesting (RWH) Bi-laws
- Enforcing sanitation bi-laws



Impacts

- The PPP in SWM has reached 35% in collection and transportation
- More than 40% of people are paying for SWM services to private sectors
- Public toilets are rehabilitated and new city service centers are constructed in PPP approach and mobile toilets are under construction to address urban sanitation problem
- All newly constructed buildings have septic tanks to address urban sanitation problems (40% of buildings have septic tanks)
- After formulation and enforcement of RWH bi-laws all newly constructed buildings will have a RWH systems to address the water shortage problem and ground water recharge
- Working with donor to prepare policy papers on- Public toilet, waste water management,





Thank you