

Sustainable and Affordable Sanitation Solutions for Small Towns
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Lecture - 09
Municipal Solid Waste Management

Hey, my name is Neelam Rana. I am doing or almost finished PhD under Professor Narayanan. My work was on public policy in sanitation in urban cities and I try to look into role of different actors, stakeholders and discourses in making or influencing policy in sanitation. So, today I will be talking to you about a Municipal Solid Waste Management, it is an overview.

So, we are not going to go into much details about municipal solid waste management, it is just an overview. So, that the next exercises, the next session that we going to talk about which is about a planning solid waste management in small towns, you have certain understanding of solid waste management, what is the value chain, what are the actors, what are the technological options if one has to plan for this solid waste management.

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Outline

- Different components of municipal solid waste (MSW)
- Status and trend of MSW in India
- Governance structure to manage MSW
- Challenges in management of MSW
- Different technology options /approaches to manage MSW
- Policy and regulatory framework




So, this will be, this is the outline of current presentation. I will be talking about different components of municipal solid waste management, what is the status and trend, governance structure to manage municipal solid waste, challenges in managing a solid

waste, what are the different technological options that are available and that are suitable for Indian conditions and policy and regulatory framework. So, we will begin with first exercise, I want each of the groups to just reflect upon what are the different components of municipal solid waste in your city or in your town ok.

And second exercise that I want to do is, what are the different steps of municipal solid waste management. So, this might come, either you must have already read about it from your, when you are studying or it might come from your experience when you see what is happening in the city ok. So, these are the two questions I want you to reflect upon your next.


So, what I can gather from the presentation, individual presentation that more or more or less all of you have some level of understanding of what does municipal solid waste mean and what are its different components and what are the, what is the value chain and as in how it happens segregation, collection, transportation and some level of processing plastic processing, paper processing. So, all of you have spoken about these specific components. So, I am going to take you through a definitions which are by the book so to say.

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Components of Municipal Solid Waste (MSW)

- Solid waste : solid or semi-solid, dry and wet waste , bio-degradable and non-biodegradable
- Includes waste generated under the local authorities/other entities
 - Domestic, commercial and institutional waste, non residential waste
 - sanitary waste
 - catering and market waste
 - street sweepings
 - silt removed or collected from the surface drains
 - horticulture, agriculture, dairy waste
- Excludes
 - bio-medical waste
 - radio-active waste
 - e-waste, battery waste
 - Industrial waste

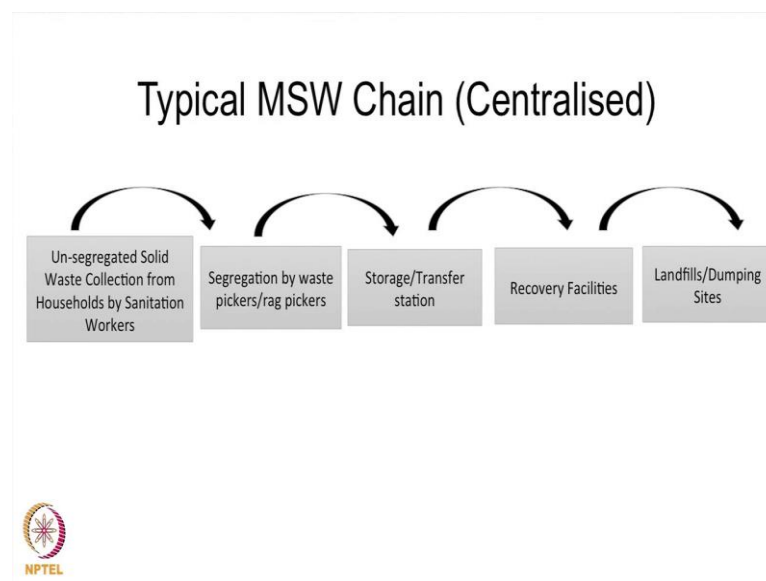
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So, solid waste when we talk about municipal solid waste, it includes solid or semi solid, dry and wet waste which can be divided into bio-degradable and non-biodegradable waste. So, dry waste is your non-biodegradable waste and wet waste is biodegradable

waste which comes from your kitchen or anything from that area. It includes waste generated under the local authority or urban local body within the city limits.

So, why we call it municipal solid waste management? because it comes under the municipality or urban local body; urban local body supposed to manage under the constitution of India, urban local bodies are supposed to manage your city waste and it includes domestic, commercial and institutional waste. As you can see different kind of waste is there, it is municipality is also responsible to manage silt which is removed from the streets or silt which is removed from the nala or the ah drains, it is also responsible for managing horticulture, agriculture and dairy waste. What it excludes is biomedical waste, radioactive waste, e-waste, battery waste and industrial waste ok. This is the typical municipal solid waste management chain.

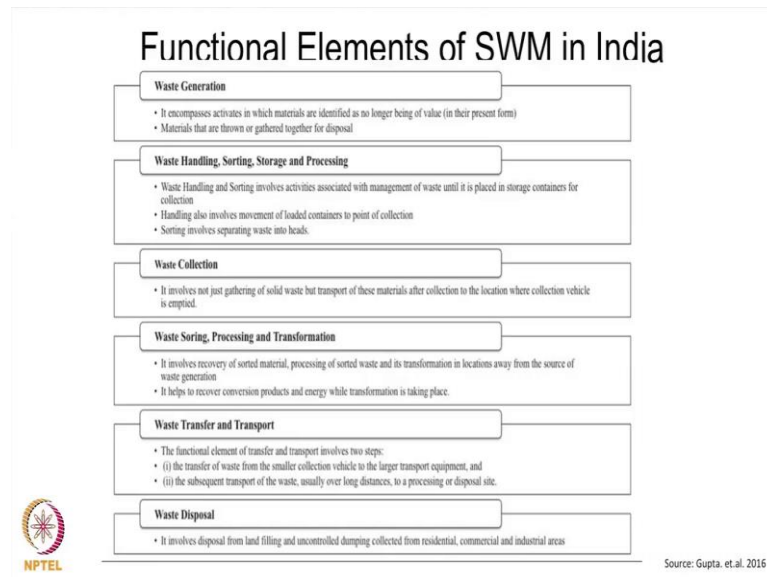
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As you can see the first point is un-segregated solid waste collection, this is very simple waste solid waste management chain, where this waste is not being segregated at the source ok. So, this is called kind of centralized mechanism, where the waste is not segregated at household or at the source level, there is a segregation by either by the waste pickers or rag pickers and there will be some storage, big storage or transfer station and then there will be some recovery happening by mostly by informal sector or maybe some waste entrepreneurs will be there and ultimately most of the waste goes to landfills like Bhalsawa landfill site which is there in Delhi.

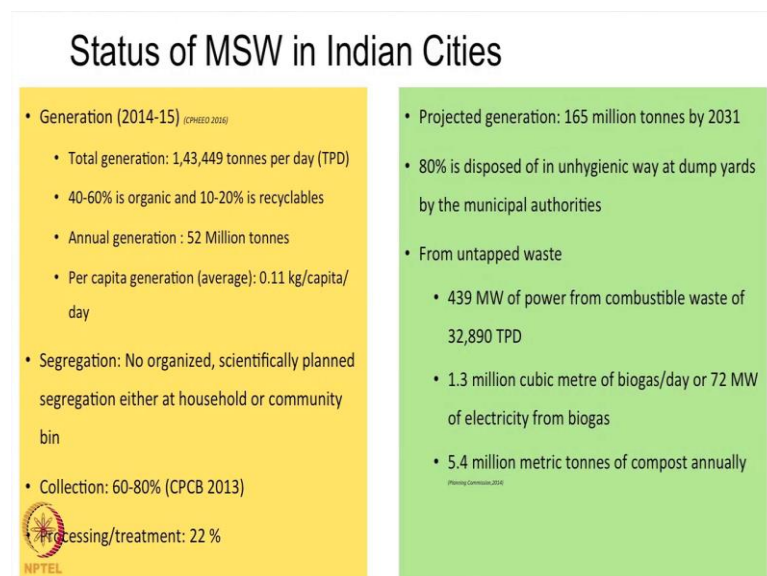
When you look from a nearby when you go nearby it feels like as a there is a natural mountain over there or natural hill over there, it does not look like a dumping site anymore, it is so big so huge.

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These are the functional elements of solid waste management in India which most of you have covered waste generation, waste handling, waste collection. So, this is just the again listing of the same elements I am going to provide you a status of municipal solid waste management in Indian cities.

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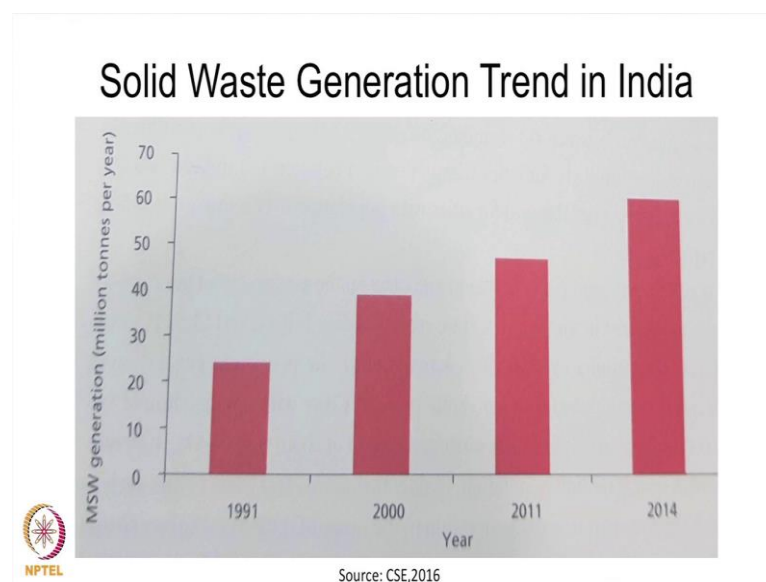


As you can there see there is a huge gap between what is generated what is the, what is the per capita generation and how much is collected. I am pretty sure these numbers are wrong actually, 60 to 80 percent they are saying that it is collected, I am pretty sure these numbers are much lower in most of the cities in India.

And when it comes to processing and treatment, only 22 percent of the total solid waste a solid waste that is generated at a city level is being treated or being recovered for useful materials. If you go by some projections, Indian cities will kind of have huge dump to deal with, waste to deal with, which is 165 million tonnes by to 2031, if there is huge potential that we can, which goes untapped because we are not able to recover lot of material from this solid waste.

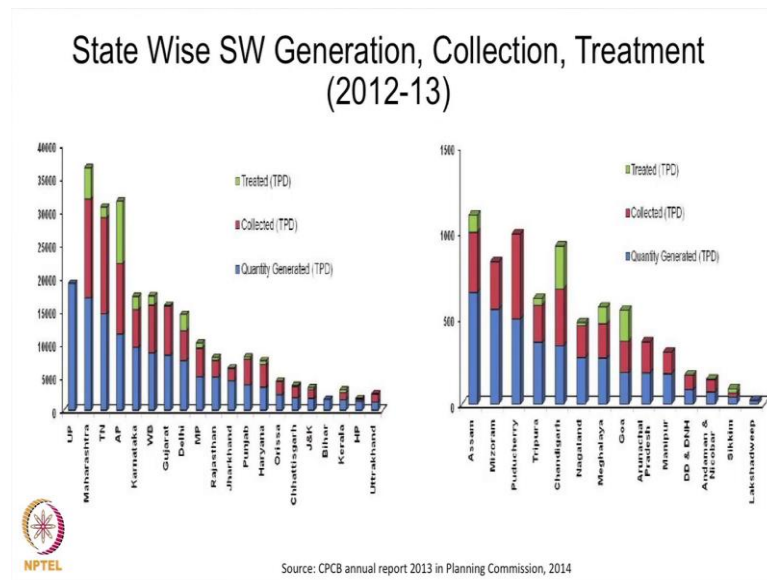
Like if we can kind of a manage, we can we can manage to have a power of 439 Watt million Watts for this thing from the waste, 1.3 cubic meter of biogas can be generated if we process municipal solid waste and 5.4 million metric tonnes of compost annually can be produced. So, these are the things which goes untapped because most of our waste goes to the landfill, which is the centralized system of managing a waste.

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These are the trends in solid waste generation in India, you can see these are increasing.

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This is the state wise solid waste generation collection treatment in different states in India. As you can see, UP being the one of the biggest states, there is no capacity of collection and quantity being treated, while the smaller states they are still doing well when it comes to collection and treatment. Which is what type of solid waste is produced by your household, do you find any differences in composition of solid waste from different cities?

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Exercise : 2

1. What types of solid waste is produced by your household and city/ town/village?
2. Do you find any difference in composition of solid waste from different cities?
3. Is there any difference in composition of solid waste from different class of households (low, middle and high income)? If yes, list them.



Is there any difference in composition of solid waste from different class of household? Do you find any differences, when solid waste comes from different class of household like high income, low income, middle income and is there any difference in composition of solid waste from different cities?

You have, each group has different cities, composition by composition I mean again like bio-degradable, non-biodegradable. So, is there any change, any differences in the composition of solid waste being generated across cities and what kind of waste is generated mostly the percentage is higher for which kind of waste at your household level.