

Integrated Waste Management for a Smart City
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Module-03 Lecture-15
Waste Management Rules 2016

Okay. Let us get started again. So this will be the last module for week 3. So as we decided like as I was telling you towards the beginning of this particular week, after covering this waste characterization, some of this data analysis, we will start looking at Municipal Solid Waste Management Rules of 2016. Then we will talk little bit about Swachh Bharat Mission and as well as the Smart Cities. So for this particular module, I will focus on MSW Rules of 2016 and if possible, we will try to look at Smart Cities as well or if not, then Smart Cities and then and other aspect we will try to cover in the first module of next week.

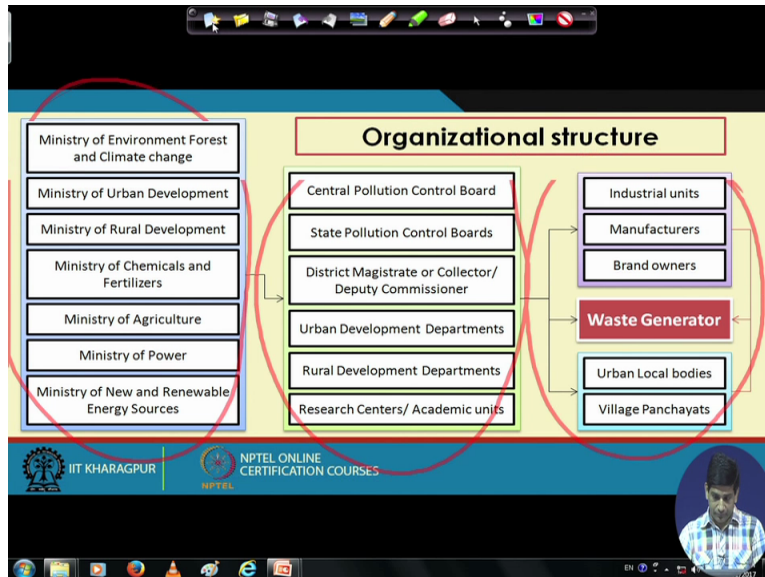
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So let us start at this rule. And unlike previous slides as you know, the rules gets little bit boring. So there are lot of text on these slides, I apologize for that. But there is nothing can be done. Rules are rules. And most of the material that you will see in the slides essentially is, you can say has been taken from this waste management rules which just came out last year. And I have tried to make it a little bit interesting by putting some sketches, some diagrams and other stuff to explain it nicely. And there are lot of text for you to read, so you can use this. I encourage you to read the rule as well. At least look at the rules, go over that if you do not read it line by line.

And this you can, this set of slides you can use for as a summary of the rules. So at least you can read these slides carefully because these are important. We need to follow those rules, so we need to know what those rules are.

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So there is a different, there is organizational structure for that rule. There is ministry of, we have Ministry of Environment and Climate Change, Ministry of Urban Development. There are lots of all these different ministries which is involved in this rule. Ministry of Agriculture, Ministry of Power, so all these different ministries which are being involved. Then from this ministry comes to this our different bodies like Central Pollution Control Board, State Pollution Control Board, District Magistrate, Urban Development, Rural Development, Research centers, Academic units.

And then here we have essentially the waste generators in terms of industrial units, manufacturers, brand owners, me and you as a waste generator like or anybody, urban local bodies, village panchayats, all those different aspect. This is, so all these different units are involved in MSW management rule. At some part or other, all these different units are involved in MSW management. So that is in terms of the organizational structure.

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The slide is divided into two main columns. The left column, titled 'Areas of Application', contains five boxes with the following text: 'Urban local body (ULB), Census towns, Notified areas and industrial townships', 'Areas under the control of Indian Railways, Ports and harbours, airports/ airbases', 'State and Central government organisations special economic zones, Defence establishments', 'Places of pilgrims and religious and historical importance as may be notified by respective State government from time to time', and 'Every domestic, institutional, commercial and any other non residential solid waste generator situated in the areas.'. The right column, titled 'Waste Generators', contains six boxes: 'Every household', 'Event organizers', 'Street Vendors', 'Market Associations', 'Hotels and restaurants', and 'Resident welfare Associations'. A seventh box, 'Gated Community having area more than 5000 sq.m', is located below the 'Waste Generators' column. A red circle highlights the first box in the 'Areas of Application' column. The slide footer includes the IIT Kharagpur and NPTEL logos, and a small video inset of a presenter.

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This slide is identical to the one above. However, it features red checkmarks next to the first five items in the 'Waste Generators' column: 'Every household', 'Event organizers', 'Street Vendors', 'Market Associations', and 'Hotels and restaurants'. Additionally, a red circle highlights the 'Gated Community having area more than 5000 sq.m' box at the bottom of the 'Waste Generators' column. The rest of the slide content remains the same.

And then areas of application. We have in terms of area of application, one of the most important that we see and which is more relevant for this particular course is the urban local body because what we said, as I said in the very beginning of the course, I am not going to focus too much on the rural area. So this, the title of this course is Integrated Waste Management for Smart Cities. As the country is focusing on development of several smart cities, we have list of more than 100 now. And we have, I will give you some examples in, as part of this class, I will give you some like on-field examples.

We have visited some field, some of these smart cities. In fact, we have visited several of the first 20, that first 20 list of the smart city and I will try to give you summary of at least few of them. Like what is the ground realities and what we are doing right now and what they should do in terms of taking it to a smart city level. So this urban local body which is essentially responsible for management of solid waste, management of municipal solid waste, there we will have lot of discussion associated with that.

ULBs are trying their best. There are lot of enthusiasm has come also in the country after this Swachh Bharat Mission initiative and looking at and the Smart City initiative. There is lot of enthusiasm is there. What is needed is a proper planning, is proper planning and do not repeat the mistakes that we have been doing earlier. Do not, composting is great, I am not against compost but compost may not work everywhere. We have to realize that. Same thing with any technology.

All the technologies which have been working anywhere in the world, they are good technologies but it may not work in Indian context. So we have to really be careful, judiciously invest our money so that we do not end up having that problem. So do not, and again I will say that we need to do things in, we have to do things quickly but not in a haste. So again what we, I said earlier, in few videos earlier that jaldi karana hai par jaldbaji nahi karana hai.

So it is, that is the thing we have to be little bit, do a proper planning on that. And there are lot of DPRs being made. I myself has been involved in reviewing of several DPR, so several ULBs in the country. So that is, there are some stuffs are going in good direction. But there still I see lot of things we are trying to, we are actually, if we are not very careful, we will be repeating the mistake that has been done earlier and then again after ten years from now, we will be saying that we should have done it little bit better. So we should try to avoid that.

So urban local body is where it is the most of the focus will be in this particular course which has been and then of course this notified area, industry. These are some of the terminology which came from that MSW Rules 2016. Now this, it can be, it also applied in the area of control of Indian Railway, ports, harbor, airport and those things. Those areas also it is applied.

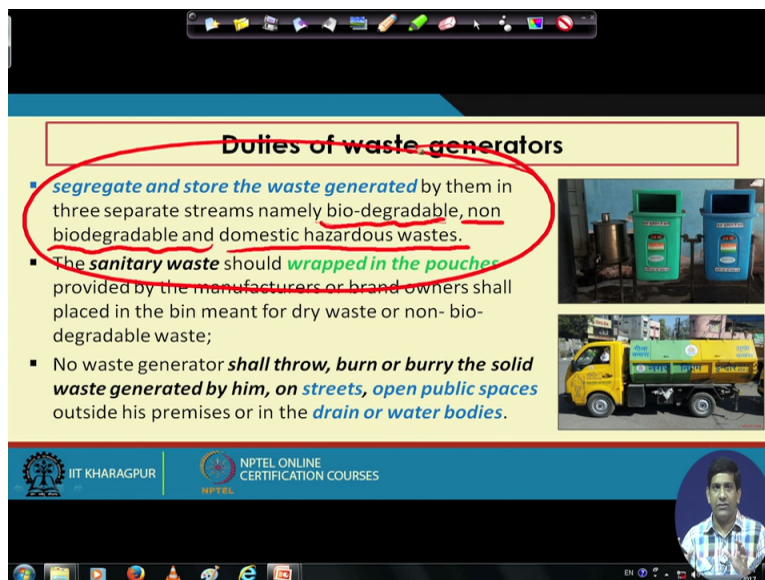
Then special economic zone, that also comes under MSW management rules. Then place of pilgrims, religious and historical important that also comes under municipal. Then every domestic, institutional, commercial and non-residential solid waste generator situated in the area.

So these are all they come under MSW management rule. So for example, if you run, if you live in a railway locality, you also you have to follow municipal solid waste rule.

If you are living under a military establishments, airport station, I am sitting in Kharagpur right now, so it is, even say Kalaikunda for that matter, air force base, they have to follow municipal solid management rules. So it is nobody is exempt. And so those are different areas where people have to follow these waste management rules. And there are lot of waste generators as being identified in the rules. It is every household, every household is a waste generator.

We have household, event organizer, street vendors, market association, hotels, resident welfare and gated community having more than 5,000 square meters. All these are, they are put as a waste generator. They are put, they have been given certain responsibility in terms of this municipal solid management rules that we have. That again, it is pretty similar than what it was earlier in 2011 with certain differences and I will try to highlight some of these differences.

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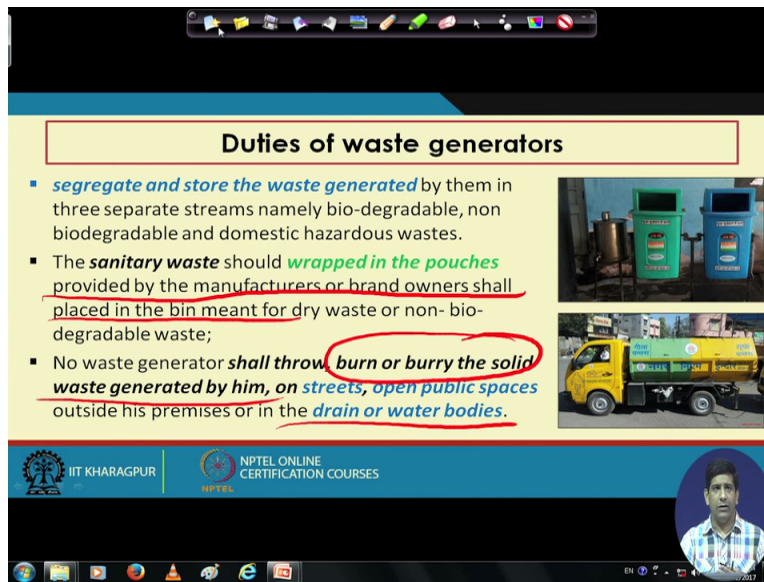


Duties of waste generators

- *segregate and store the waste generated* by them in three separate streams namely bio-degradable, non biodegradable and domestic hazardous wastes.
- The *sanitary waste* should *wrapped in the pouches* provided by the ~~manufacturers or brand owners~~ shall placed in the bin meant for dry waste or non- biodegradable waste;
- No waste generator *shall throw, burn or bury the solid waste generated by him, on streets, open public spaces* outside his premises or in the *drain or water bodies*.


The slide includes two images: one showing green and blue waste bins, and another showing a yellow waste collection truck. The slide footer contains the logos of IIT Kharagpur and NPTEL Online Certification Courses, along with a small video inset of a presenter.

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Duties of waste generators

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One of these, major one is segregate. So what is the duty of the waste generator? All these waste generators, what is expected of them in terms of like doing their part as per the MSW management rules? They need to segregate and store the waste generated by them in three separate streams. So now we have been talking about, one of the key point of MSW Management Rule 2016 is source segregation.

If we can do the source segregation, that is actually very, very critical part. If we can do the source segregation really well, if we can at least keep our wet waste and dry waste separately and there are three streams that we talked about here. They are the biodegradable which is essentially your wet waste and then we have this non-biodegradable which is essentially your dry waste, and then you have a domestic hazardous waste.

Domestic hazardous waste you will not have that much. So essentially even this wet and dry, there is a two-way and then domestic hazardous waste can be collected from time to time as well. Even in the western world, this what they do, they try to do this wet and dry separation. Even if you go to Europe and other places, at least they try to do this wet and dry separation. And dry again, they can separate it into different recyclables. That is a different matter either at the house level or initially when they started they started it with doing wet and dry separate.

They will take their dry and do that, take it to a material recycling facility and try to do their recyclable separation over there rather than doing it at a household level because more separation

you have at the household level, more trucks you require to collect them as well or you can have multiple components in the same truck, so it requires more sophistication.

And to go to a more sophisticated level, say in Indian context, we are with all due risk like with we are all due humility or like we have to expect the fact that in the waste management is at least in general in the country there are some good pockets happening in the country. But in general in the waste management, we are kind of just started, we have just started working on it. So if you make it too complicated, it becomes very difficult to manage. And we do not have the infrastructure to support that.

So if we say that okay, you will have multiple components in recyclables and then we bring one truck and mix all those recyclables together in the truck, when the common people see that, why should I do this separation? So at least wet and dry and this hazardous waste component can be collected once in a while. That is what they do in, say I have lived in US and Canada and other places, they do wet and dry and many places they are doing this wet and dry separation.

And this household hazardous waste is collected once in six months or because they are not that much anyway. They will be like few kgs produced in from a like standard household in a year. So you just have a specific drive for that. You collect it every three months or six months or 12 months rather than doing that collection in a very regular interval. You do not need to because other thing requires money. So at least if we can do this wet and dry separation and then bring it, take the wet waste and do this composting on anaerobic digester, whatever works for that particular city, we have to look at the economics as well, very, very critical.

And then in terms of the dry waste can be taken to a recycling facility, material recycling facility. We can sort it out, we can take different components. Whatever could be recycled, had to be recycled and the residual from the recycling facility, residual from the (anaerobe) like from the compost plant, there will be some reject in the compost plant. There are certain things which cannot recycled at all.

If they have a good calorific value, go for waste-to-energy. If not, we need a place as engineered landfill. Unfortunately, we may not like it. Many people like I have, when I talk about it, many people say we do not have space for landfill in this country. We need to make space. We do not have any other option because even if you go and do, I am not saying you dump everything into

the landfill but even if you do very good in terms of source separation, do some composting, anaerobic digester, recycling, there will always be some.

Even the waste-to-energy plant, the residual from the waste-to-energy plant, the ash that is produced, where you will keep that? So there will be, even there will be some residual which has to go to a landfill. Look at the western European countries like Germany, Denmark and other places, they have been working on waste management for last 40, 50 years. Even after 40, 50 years, they are sending 8 to 10 percent of their waste to the landfill.

If their technology was how come in India we can have, we can survive without having a landfill, that is not going to work. It sounds good but that is not practical. So it is you may, that is no person who has a real knowledge of solid waste management will tell that we can survive without a landfill. If somebody pretend to say that, I am sorry, that person probably does not know solid waste management.

So I may sound harsh but that is the reality. And I have traveled around the world, so I can say that with good command on that. So if we can do this biodegradable and wet and dry separation and do all those composting, anaerobic digester if possible waste-to-energy, calorific value has to work, and then whatever is the residual comes out, try to recycle some of those out of that too. But there will always be some fraction which needs a landfill. So again, if you do not have space for landfill, make a space for landfill because you will need it.

But you can make your other process such that your landfill can last for a longer period of time. What we are doing right now is rather than say we will, we do not want landfill, we do not want landfill and then what happens is we are just dumping them in unengineered fashion. We are just polluting the environment. Engineered landfill will be much better than what we are doing today. So but again mind it, I am not saying that we have to send entire waste to the landfill.

I am saying that landfill will also be needed after we have exhausted composting, anaerobic digester and waste-to-energy and based on how they work from economic sense of point, sense of from the economic point of view. So but the segregation is very, very critical and that is, it is really good that new municipal solid waste management rules has kind of brought that up where we need to segregate that, at least wet and dry. Again if you do the wet and dry separately, we have to collect them separately or we need a truck which has a separate components.

And I will try to show you some of those examples in the collection site, I will, where they are, it is done separate collection for that. Then there are other requirements that the sanitary waste must be wrapped in pouches, that is okay. That is manufacturer or brand owners place in a bin, should be wrapped in pouches provided by the manufacturers or brand owners. These are some of the stuff.

I do not know how practical they are but this because we place them in the bin for dry waste or non-biodegradable waste and the no, there should not be any littering, no burning of the property, no burying of the solid waste generated by him on the street, open place, outside his premises, in drain or water body. So those things are good practices. Good practices which is like which is needed. It is kind of basic in I would say basic common sense, things that people should do in terms of the waste management.

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Duties of waste generators

- *segregate and store the waste generated* by them in three separate streams namely bio-degradable, non biodegradable and domestic hazardous wastes.
- The *sanitary waste* should *wrapped in the pouches* provided by the manufacturers or brand owners shall placed in the bin meant for dry waste or non- biodegradable waste;
- No waste generator *shall throw, burn or burry the solid waste generated by him, on streets, open public spaces* outside his premises or in the *drain or water bodies*.

Here are some pictures. You can see this is like wet or dry separate collection here from one of the, one of our like smart cities. Like it is as you can see wet and dry separate collection. On top, this is bin for that. At the bottom, as you can see this truck has two components. They have a sukha kachara and the gila kachara. And this is from the Indore. Indore was in news as Swachh Survekshan survey. Indore actually, I will show you more detail about Indore.

Indore has recently made lot of progress in terms of waste management. It may not be a perfect system but since their system has been improved quite a bit, people are happy. That is why they

got that first prize in the Swachh Survekshan survey. If you go to Indore and if you look at their waste management and that you may not be say that oh, this is not the perfect waste management, my city does it better. Like maybe if you are from Ahmedabad or from some, even from NDMC or in Delhi, you may say oh, my city is doing it much better than, my ULB is doing it better than Indore.

But Indore has recently made a lot of progress. So if you are at this level and then you go up to this level, the people see that difference. And that is what there in the Swachh Survekshan survey. And they were, I think they were placed in first position for that. And but NDMC was already at this level and they made, they may have made incremental progress but and Indore is still heavier but since the progress is more visible in the case of Indore and that is why you see more, they got higher points in the surveys. So those and we will talk, we will, I think I will give you more details about Indore, Bhopal and other places.

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Duties of waste generators

- **Construction and demolition waste** generated in their premises shall be disposed as per C&D waste rules 2016.
- **Horticulture waste and garden waste** as and when generated, in his own premises and shall be disposed as per the instructions of local bodies.
- Every **street vendor** shall keep **suitable containers for storage of waste generated** during the course of his activity and shall deposit such waste at waste storage depot or container or vehicle as notified by the local body.

The slide includes two images: one showing a large pile of construction and demolition waste, and another showing a street vendor with a green container. Red circles highlight the terms 'Construction and demolition waste', 'Horticulture waste and garden waste', 'street vendor', and 'suitable containers for storage of waste generated' in the text, as well as the corresponding images.

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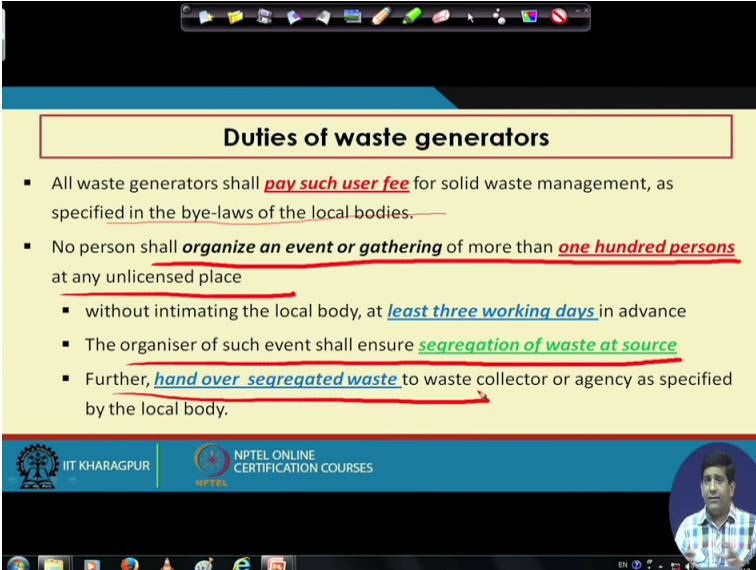
So then there are the duties of waste generation. For the first time in I would say in Indian solid waste history, we, construction and demolition waste has been added to this municipal solid waste management rules. So construction and demolition waste is being, this is a newer thing added, C&D waste. We will, that is why I have decided to put two weeks, just talk about C&D waste towards the end of this course which is a, it is a very, like C&D waste has been, is a separate kind of handled in a separate waste stream.

Most of the western country, this is the first time in India, we have started talking about C&D waste. Since my PhD work was on C&D waste, so I thought why not. So we will talk about, two weeks of this course will focus on C&D material. And then previous two like another two weeks will focus on electronic waste which is again very, very important waste stream. So construction and demolition waste that shall be disposed as per C&D rule. So we have a new C&D waste management rule which is actually a subset of MSW management rules, so this came up in 2016 as well. That is C&D waste management rules.

Then we have the horticultural waste and garden waste, they can be disposed as per the local body instruction whether you send it to a compost plant or you can do on your home composting, that can be done as well. Horticultural waste and garden waste can be managed accordingly. Now every street vendor has to keep suitable containers for storage of waste. So as you can see this particular restaurant, so they do have a like a garbage bin right there.

So every restaurant or every house vendors are supposed to keep a garbage bin so that they can collect that and this they will be notified by the local body or ULBs like how they are going to do it. And this is a (())(18:42) picture of construction and demolition waste that particular site. So this is on that part and let us look at some more stuff.

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The image shows a presentation slide with a yellow background and a red border. The title is "Duties of waste generators". Below the title is a list of three bullet points. The first bullet point states that all waste generators must pay a user fee as per local by-laws. The second bullet point states that no person should organize an event or gathering for more than one hundred persons at an unlicensed place, with sub-points requiring advance notice to the local body and ensuring segregation of waste at source. The third bullet point states that segregated waste must be handed over to the waste collector. At the bottom of the slide, there are logos for IIT Kharagpur and NPTEL Online Certification Courses, along with a small video inset of a man speaking.

Duties of waste generators

- All waste generators shall pay such user fee for solid waste management, as specified in the bye-laws of the local bodies.—
- No person shall organize an event or gathering of more than one hundred persons at any unlicensed place
 - without intimating the local body, at least three working days in advance
 - The organiser of such event shall ensure segregation of waste at source
 - Further, hand over segregated waste to waste collector or agency as specified by the local body.

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So duties of the waste generator. There is a 'pay such user fee' and this concept is also coming up where there will be user fee and on in terms of waste generated, based on how much waste you

generate or there could be based on the size of the house, size of different locality. ULBs will come up, ULBs are coming up and they will come up with how they should charge people for their waste disposal fee. And that is needed like many times people say that I have already paid the property tax.

And some places, some ULBs around the world, they actually they do not have a direct waste disposal fee but they charge it through this as part of the property tax. But some cities, some ULBs around the world, they have a separate waste disposal fee. And personally, I prefer to have a separate waste disposal fee because that money then get directly designated to the waste management.

When you have part of the property tax, what happens is based on what is the priority of the local council, local municipal commissioner, things may not come to the waste management because waste management now has become important especially after this launch of Swachh Bharat Mission and all that, but it is still, it is I would say comparatively many places it is a neglected area. So money does not go there. Money may go to something else which, it is all based on the lobby. If we have a designated waste disposal fee, that money will definitely come for waste management. So the all waste generation have to pay some such user fee for as per the by laws of the local body.

And then no person if you have, this is a little bit, I am not sure how good it is but hopefully it will happen. But no person shall organize an event, more than 100 persons at any unlicensed place without intimating the local body at least three working days in advance and then organizer of such event shall ensure segregation of waste at source and then hand over segregated waste to waste collector. This may not happen immediately because say if I want to do a marriage today of where I will more than 100 people at in Kharagpur here, I do not think my municipality is ready.

If I tell them even if like a week in advance or if I may tell them three days in advance that I am doing this, you come and set it up a source separation waste bins and I will pay for that because I am not, I am like if I have I will not, I am not going to buy those source separated bins, different bins, that will be an additional cost to me. And what you will do with those bins after my function is over? So it is the ULBs, they have to either provide the service by themselves or they

have to have, some of these could become a like a business where some people can come, they set up their own bin, they kind of have as a, there could be like PPP, private public partnership. Any way it can be, there are different ways, it can be implemented.

But once the logistics are ready, when the infrastructure is ready, then only person like you and me who really, he who wants to follow this rule, can call a municipality or the municipality can give us the number that these are our designated vendors, you can call them and they will do all these things for you and they will charge you say 10,000 rupees or 15,000 rupees or 5,000 rupees depending on the number of people, number of bins and all those things that you require. So then it is going to work.

But like say if I am, say somebody is doing the marriage of his or her daughter and they will be more worried about the guest from the groom side and worried about like seeing off their daughter. They do not have time to look at whether the waste is segregated or not. It is little bit sounds impractical. So we need, if you leave it on the individual level, so it has to be done more from ULB side. It at least has to be facilitated from the ULB side to really be implemental. So that is, but this is important. This is a good thing.

Many, but I would also like to point out that this is like it is, even if we just do day-to-day wet and dry separate collection and even if we leave these special events, that also it is not going to harm too much because many places in the western world still they do not do it. But doing this is good but there are implementation challenges and we need to be ready from with the infrastructure to really implement it.

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The screenshot shows a presentation slide with the following content:

Duties of waste generators

- Resident welfare and market associations, gated communities and institutions with more than 5,000 sqm area, hotels and restaurants in partnership with the local body should ensure segregation of waste at source as prescribed in these rule
- Facilitate collection of segregated waste in separate stream
- Handover recyclable material to either authorised waste pickers or recyclers.
- The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises.
- The residual waste shall be given to the waste collectors or agency as directed by the local body.

The slide also features logos for IIT KHARAGPUR and NPTEL ONLINE CERTIFICATION COURSES, and a small video inset of a speaker in the bottom right corner.

And then the residents welfare or the market association, if they have more than 5,000 square meter area, hotels, restaurants, they have to ensure, this anybody who comes under that, they have to ensure that segregation of waste at source which is actually good and facilitate collection of segregated waste stream. So when they say facilitate, actually the ULB has to do it, is not it? The ULB has to, it has to do the collection or it could be when I say ULB, ULB can give, if ULB cannot do it, they can do it to the private parties. Many cities around the world, the ULBs do not do the collection by themselves, they give it to private contractor and they do it. But it has to be facilitated from the ULB side like you and me cannot do the collection and take garbage to the compost plant because we have other things to worry about.

We have to go to office at 8 o'clock, come back at 5, 6, 7, we never know what time we will come back. But that is, so we do not have time to do that and we are not, that is not our expertise. The expertise is of ULBs to do those kind of stuff. And then hand over recyclable material towards the authorized waste pickers, so we need to have authorized waste pickers and recyclers. There these, the rag-pickers or the kabadiwalas comes in pictures too.

There it will be a good, I think if we think that we will do it without these kabadiwalas and rag-pickers, I do not think that is going to happen because they do have their livelihood. And it will make more sense, that is my personal view, it will make more sense to, as a part of the Skill India or all those Startup India that program that is coming up, if we can get these rag-pickers and

kabadiwalas to get some training so that they do it in environmentally and human health safe manner, they do not get sick, they do not get a needle poked into their hand while sorting through the garbage.

And they can do it in environmentally safe as well as the human health safe manner and they get this skill and they work with the ULBs and then they make their own living as well as the ULBs can because it, if it will be little bit not possible I think to kind of get rid of these rag-pickers and kabadiwalas and that is their livelihood too. So there is a social angle. It would be very difficult to, and I do not think any political party will take that chance to do that because they may have political implications of that too. So but there has to be something has to be done in that area. We need to figure out what to do, what is the best way to do that.

Then biodegradable waste shall be processed and disposed of through composting or anaerobic digestion or biomethanation whatever. It can be done within the promise, within the premises. Here it depends on the size, that is why the size is there 5,000 square meters area. So it is economy, that is where the economy of scale will come in picture. So economy of scale has to work.

So if we start, this is a decentralized approach for the wet waste and I think it is a good, in my view I agree with that because we can have, again as long as this economy of scale works, so if we can have a small anaerobic digester plant where for the urban areas I am not that much of a big supporter of composting. Composting we can do but if I take the entire food waste of Delhi or entire food waste of Kolkata for that matter and make compost out of that, I am not sure, I am not convinced by any report that I have seen that we do have market for that compost.

Government right now is giving some subsidy to the compost, that is okay to get the industry going, but how long will provide subsidy? At some point of time, we have to take that subsidy off. So that is, we have to look at a solution which is a long-term, it is a long-term solution which can stand on its own, which is economically viable solution. So for like urban, for the semi-urban areas, rural areas, composting kind of makes more sense because the market is there, market is nearby.

For a highly urbanized area where when if the market is there, it may be 30, 40, 60 kilometers away and we have to factor into account that after making this, first of all, we need a lot of space

to make compost. If we do not have space for landfill, how can we have the space for the compost plant? So but, even if we make this compost, if I have to take it 100 kilometers away to sell it and that there is a transportation cost associated with that and there is environmental impact of the transportation as well, so we have to look at the whole what is life cycle analysis.

Last semester I was teaching a course on LCA, if I think it is the course is available on Swayam platform as well as NPTEL platform. So that is, we have to do that LCA kind of exercise on there where you need to look at are we really doing environmental good. So for urban areas, doing decentralized anaerobic digester which takes less space and producing this methane gas and using that gas to a cafeteria, to a restaurant nearby or any usage nearby and then the sludge coming out of it can be taken out with other things in the semi-urban, outskirts of the city and do one compost plant for the whole city maybe and then several anaerobic digester within the city.

So that is my thinking that, that may work actually better than having a huge compost plant or even decentralized compost plant for highly urbanized city. I do not think that is based on my experience of working at several places around the world, I do not think that is really going to work. But that is because it is good that the new rule talks about anaerobic digester, talks about the biomethanation, I really I like that. And then once you have the residual waste which cannot be done anything with that, that can go to a waste collector and then go to any directed by the local body and it goes to those.

One good thing about this MSW management rules is there is a lot of clarity now. MSW Management Rules (20) like 2000 did not had that much of a clarity, this rule of 2016 has brought in lot of clarity and it looks to be more now in implementable than what we had previously. So it is really very, very good progress. But there are still some areas where we need to actually get our infrastructure up and running so that it can really work in that way which I have been highlighting to you.

(Refer Slide Time: 30:05)

Duties of MoEF & CC

- The Ministry shall be responsible for over all **monitoring the implementation** of these rules in the country.
- It shall constitute a **Central Monitoring Committee** under the **Chairmanship of Secretary**, MoEF & CC, comprising officer not below the rank of Joint Secretary or Advisor
- This Committee shall meet at least **once in a year** to monitor and review the progress. The Committee shall be **renewed every three years**.

Central Monitoring Committee members	Ministry of Urban Development	Urban Development Departments of three State Governments by rotation
	Ministry of Rural Development	Three Urban Local bodies by rotation
	Ministry of Chemicals and Fertilizers	Two census towns by rotation by rotation
	Ministry of Agriculture	Two subject experts, FIICI and CII
	Central Pollution Control Board	Rural Development Departments from two State Governments by rotation
	Three State Pollution Control Boards or Pollution Control Committees by rotation	

And then there are duties of Ministry of Environment and Forest and Climate Change. So what minister, ministry will responsible for overall monitoring. So ministry is ultimately, ultimately minister, ministry is monitoring the implementation of these rules. It will make a central monitoring committee under the chairmanship of secretary of MoEF and Climate Change. Then committee shall meet at least once in a year and committee shall be renewed every three years to get some new people in there.

I assume they will have people, some of the experts in this field. People who are working in places like IITs and other places maybe called to be on this committee as well. So because I think we can contribute to that and we can help make good decision in terms of waste management. So there are some of these, here some of the stuff are given. There are some subject experts, are listed there too. And there are ministries, different ministries will have membership, different things have membership. There will be some different towns will have membership. So lot of stakeholders are, have been brought in in terms of having this, looking at how things are going to work.

So I did it and so let us kind of for the interest of time, let us stop here and we will continue that in the next module because we still have lot of things to cover in terms of these management rules. So we will continue our discussion on this in the next module. And I think if you again, if you have any question related to any aspect of this course, feel free to put it on the discussion

board. We are keeping an eye on the discussion board and we will be responding the question as soon as possible. And do not forget to take your quiz as well.

This is the week three now. We are wrapping up week three. So we will continue this discussion in the first module of week four and then we will go to other topics as per the course content. So thank you. Enjoy the course and looking forward to you, to talk to you again in the next week.