

Plastic Waste Management
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Lecture – 11
Plastic Waste Management Rules 2016 (India)

So, welcome to the third week of Plastic Waste Management course. So, we have already finished 10 lectures, this is the lecture number 11 and in this lecture and we will be looking at Plastic Waste Management Rules. So, we will be talking about the rules, the rules and regulation which came in India it was 2016 rule we will talk about that and there has been some amendments to this rule which got which was discussed and kind of under implementation since 2018.

So, we will talk about the amendment to 2016 rule as well. So, the focus on this particular week over next 5 video, will be to try to understand the plastic waste management rules of India and at the same time in terms of the concept that will be covered in this week will be also looking at, how the India rule compares with the global rules and regulation.

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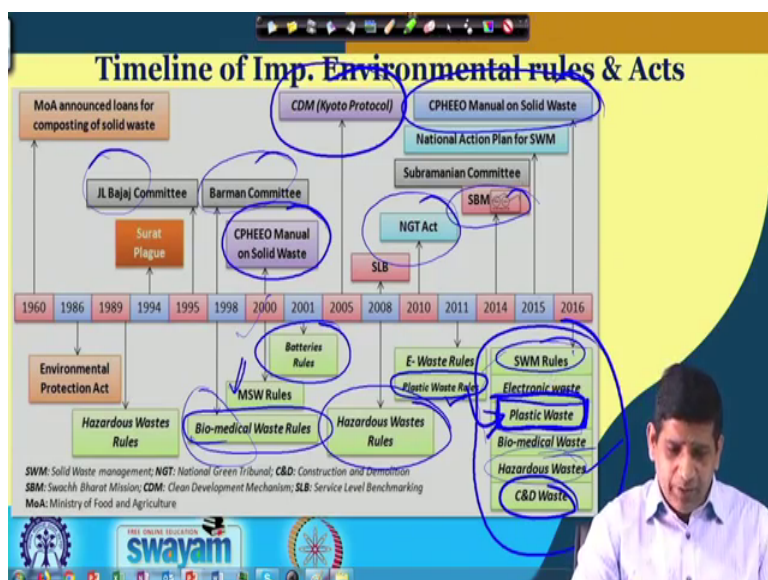
So, we will we will try to bring some example from other countries like, what is happening in part of US, what is happening in Europe, what is predominantly happening

in Japan and Korea and if we can those kind of discussions will be part of this particular week. So, that is the concepts that will be covered.

So let us try to understand the rules India rule and how it compares and contrasts with global rules and what is the some salient points of these rules. Although, as I have been, I think I have told in previous class maybe, in this class as well, in this course as well its rules are very boring like remember any software that you try to install on your laptop or on your phone, there will be a long list of license agreement which we just kind of click and say except; we do not never really read about it, but they are important rules has their own place and then rules are very very important for any implementation of any program.

So, although rules may get dry sometimes, but a still it is very very essential for us as an environmental professional to be aware of the rule. We may not be become like an expert on this particular rule because that is not our domain, our that is we can get the help of our lawyer friends, who work in the area of environmental law to help us on that aspect, but in general we should have a pretty much some idea about what are the rules, what are the responsibilities of different stakeholder in terms of the plastic waste management.

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So, let us get started. So in terms of rule I thought I will just give you a little bit history about waste management rules or in general we can talk about even the environmental rule in the country. So, if you look at the Indian environmental rules and acts that has

been passed. In this particular slide that, we have here I have tried to give a snapshot of that, just kind of a you can say a big picture summary of it. So, let us let us we will and it is a time line, so we will go from early efforts in 1960's to the recent efforts of 2016 and 2018. So, 2018 is just last year.

So, if you look at how things have evolved in the Indian context, we can start from first a stuff that was came up in terms of waste management was looking at Ministry of Agriculture, announced loans for composting of solid waste. So, think about that 1960, when the, for the first time that people we started thinking about in our country that we need to composed our agricultural waste into composed of solid waste aggregate most predominantly agricultural waste at that particular time and; so that is started in 1960 long back, even I was not born.

And then we had the kind of first Environmental Protection Act, came in 1986. So, 1986 when the Environmental Protection Act, came in terms of but that first set of rules for environmental protection. Then 1989 we have the hazardous waste rule, when 1989 because of the industrialization in the country we have a started producing lots of different types of chemicals, many of these hazardous chemicals and then hazardous waste were being produced in different industries. So, we there was a need for there was a need in the country to look at the hazardous waste management.

So, and that came in 1989. So, that would be around 13 years after US has their first hazardous waste management rules. So, if you look at that way in terms of the rule making in India, we had not actually far behind and rest of the world. The problem actually comes in the implementation of those rule and sometimes the ambiguity of that rule needs to be resolved and we the infrastructure is not in place which we will talk about in this if you have taken my solid waste class which is another NPTEL course, which is offered in the other semester there that integrated waste management for smart cities.

We all there as well we talked about that, how the rules are sometimes not that practical, although it is good, it is good, it is strong, it is it makes sense to have but, India may not be ready for that kind of rule yet. Because that kind of rule is there in Europe or in North America because they have been working on waste management for 30-40 years and today they are able to follow that rule.

Everything has a nor has in has a learning curve. So, it takes time for any society to evolve in terms of managing their waste or looking at their environmental protection. So, our rule in for hazardous waste came in 1989 RCRA, the Resource Conservation Recovery Act, which is kind of the primary act for hazardous waste and solid waste rules in USA, United States; it is again, it came in 1976.

So, around 13years before our hazardous waste management rule come, it came into effect. Then we had, then something happened in the country, in 1994 you see here kind of highlighted in a the yellowish color, in 1994 we had this Surat plague and that raised a lot of awareness and that kind of created a lot of, you can say concerned in terms of improper management of waste in the country. Because the Surat plague, at that particular time Surat was one of the dirtiest city in the country. Today Surat is the cleanest, one of the cleanest city in the country.

So, there was a realization and the local government came into being and then the Surat plague was kind of a wakeup call for environmental professionals, environmental practitioners, environmental government, the governments, government offices in the environmental sector and then we had several follow up with things that was done is started with Bajaj Committee which was formed in 1995 you see, JL Bajaj Committee. Then we also had Barman Committee in 1998 and 1998 we also had our Bio-medical Waste Rule came into picture

So, with the biomedical waste, the rules came in picture then we had which came in 2000 and it was rule was made and at the same time there was this CPHEEO Manual on Solid Waste management was also developed. CPHEEO Manual is kind of a design not only a design, it is a like a guidance document of to help people be a; so that the ULB's and Urban Local Bodies, the cities the, a states in general should be able to implement those rules. So, that is what the CPHEEO Manual kind of helps in terms of implementation of those rules.

So, that is where, that came in 2000 right after like I kind of follow up to this Municipal Solid Waste Rules, then in 2001 we have a Battery Rule, 2005 the that is not in it is not a Indian phenomena, it is a global phenomena; we have the Clean Development Mechanism, CDM it Kyoto Protocol came in 2005 which again, acted some more a stuff, some more follow up action Hazardous Waste Rule was revised in 2008 which was again

further revised in 2016, we had NGT Act came in, National Green Tribunal in 2010, E-Waste Rule in 2011 same with Plastic Waste Rule also came in 2011.

First, plastic waste rule came in 2011 which was again further if in 2016 it was revised. Swacch Bharat Mission came in picture in 2014, Subramanian Committee again around the same time, National Action Plan for Swacch Bharat Mission, revised CPHEEO Manual and Solid Waste in 2016 then all these rules had a revision in 2016, Solid Waste Management Rules, Electronic Waste, Plastic Wastes, Bio-medical, Hazardous, now a new rule C and D Waste; Construction and Demolition Waste was also added.

So, as you can see in terms of the rule making monastery of environment and climate change, we long with partnership with the different stakeholders, lots of different rules have been made in the country. In this particular course since, our focus is on plastic waste we will be talking about mostly plastic waste rule, but the in terms of solid waste management rules also kind of deals with plastic a little bit hazardous waste rule may also deal with plastic a little bit bio-medical waste as well.

So, but all these aspect of plastic kind of has been taken and put into a one plastic waste management rule which we will be talking in little bit detail, in this particular course. And the kind of look at and if you have looked at other rule in terms of the e-waste management rule which is covered again in other NPTEL course which is running parallelly this semester as well and then we have solid waste management rules of 2016.

So, all these rules as you will see the basic kind of principle, basic layout is more or less the same of course; the details will be different because we are looking at the different waste streams, but the basic layout is more or less kind of makes similar structure. So, just a quick overview of different rules that we have and just to give you like a historical perspective of environmental rules and acts from Indian angle.

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Major Environmental statutes in India

1. **Water (Prevention and Control of Pollution) Act, 1974**
2. **Water (Prevention and Control of Pollution) Cess Act, 1977**
3. **Air (Prevention and Control of Pollution) Act, 1981**
4. **Environment (Protection) Act, 1986**

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Now, in terms of major environmental statutes, we had the Water Act, 1974, we also had the Water Cess Act and in 73 here, we act in 1981, Environmental Protection Act in 1986 which you saw; which was kind of one comprehensive which took water air and not that much on solid waste, mostly water and air was kind of path was. It so, here number 1, 2 and 3 is kind of taken together and merged to make number 4. So, that is what Environmental Protection Act 1986.

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Major Environmental statutes in India

- The Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 replaced by Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008
- The Coastal Regulation Zone Notification, 1991
- The Chemical Accidents (Emergency, Planning, Preparedness, and Response) Rules, 1996
- The Biomedical Waste Management Rules, 2016
- Recycled Plastic manufacture and uses (Amendment) Rules, 2003

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So, in terms of for some other statutes, you saw that the Hazardous Waste Chemical Rules. So, these are just kind of revision of, what we saw in the summary in the first in that timeline slide, so I will go through this little bit faster. So, we had this hazardous chemical rules 1918, which replaced by hazardous waste rule at 2008, then we have Coastal Regulation Zone, 1991, Chemical Accidents which is emergency, planning, preparedness and response rules which is 1996. Again, kind of relates to hazardous waste; hazardous chemicals, biomedical waste rule revised in 2016 recycle plastic manufacture and cess Amendment rules which also has been in place for quite some time.

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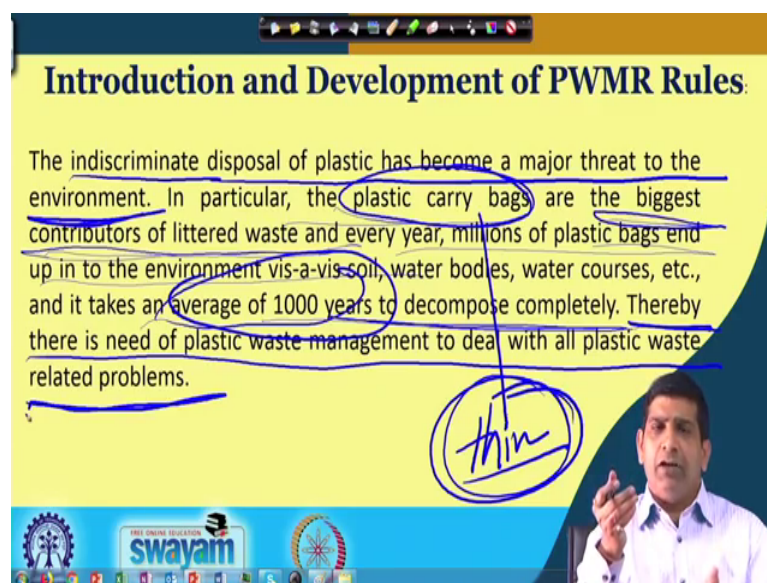
Major Environmental statutes in India

- **The Plastics Waste Management Rules, 2016**
- The Solid Wastes Management Rules, 2016
- The Hazardous & Other Waste Management Rules 2016
- The Batteries (Management and Handling) Rules, 2001
- The Noise Pollution (Regulation and Control) (Amendment) Rules, 2000

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So, if you look at the plastic waste management rules. So, which is the major one's which you are going to talk about, then we had solid waste management rules, hazardous waste, every rule got the revised batteries rules are there, noise pollution at the regulation control amendment rules is also present.

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So, if you look at the kind of, why this plastic waste management rule? What was the need for having a separate plastic waste management rule? Plastic as we saw in the previous 2 weeks is becoming like we are using lots and lots of plastics and you saw all those figures already. So, you can actually now, teach me in terms of plastic like in terms of the quantity and global perspective of plastic waste, what are the sources, how it is distributed in an environment in different types of environmental systems and different types of plastic we talked about that in week 1.

So, week 1 and week 2 kind of covered a lot about different types of plastics, their quantity, how it is projected to be much higher in by coming years, coming decade. So, all these because plastic by itself is becoming a quite significant portion of the waste stream, it there was a thought in you can say global community and in different countries as well that we need to have a separate set of rules just focused on plastic. I just because the plastic by itself is becoming a environmental; you can call nightmare or you can say it is a nuisance or and when we say it is a we are talking about plastic waste. The rule is also plastic waste management rule; it is not plastic management rule.

So, once it comes in a waste stream, then it is a problem. Plastic products by itself as I said earlier as well, the plastic being such a nice material because it does a lot of functions, it is it can it does not degrade. It can be used in many applications and it is personally, it is cut off you should say that it is, but pretty act like a non reactive. So, it

stays in the environment which is kind of becomes negative when we talk about the plastic waste. So, plastic waste it is becomes a negative because you it does not degrade.

So, it just breaks down into smaller pieces and the smaller pieces ends up in the ocean, in the river from the river to the ocean and the ocean we have fish marine, it becomes part of the marine later and creates lot of chaos, lot of environmental problem, human health, environmental health as well as human health problem. So, plastic by itself becoming a huge and there is a indiscriminate disposal of plastic has become a major threat to the environment.

So, that is what because we are using plastic a lot you go to any shopping say, now nowadays many camp, many places plastic bags are banned; especially those single use plastic, this plastic carry bags. And, when we talk about this plastic carry bags, actually we are talking mostly about those thin ones, we are the thin bags, which is less than like 40 micron less than 50 micron that bag we are talking about.

So, which is a thin bag which kind of flows around gets into the environment much easier, but if you have a thick bag that you buy say, if you bought some fences stuff in a in a mall shop, they meant any times gives you a thicker bag. So, that bag is not that much of a problem as compared to the thin bag, that you get when you buy send of in a in a grocery shop or sometimes not that much in grocery, but maybe in the fruit shops and the vegetable shops and through there you get those thin bags, which becomes a problem.

So, this tin particular the plastic carry bags are the biggest contributor of littered waste. So, when we say it is biggest contributed of the littered waste, if you remember from the last slide; last video or maybe the video before we looked at, if you go by the weight; if you go by the weight of the material plastic this thin, plastic carry bags is only around few percent, volume wise its a lot.

So, when we look at the volume it becomes too much and that volume needs because it is very light. So, you did you see it kind of a too much, but if you take the weight wise it is not that much. So, but it does move around quite a bit and every year million of plastic bags end up in the environment, in soil, water bodies, water courses and it takes in average it may take an average of around 1000 years to decompose.

So, so in 1000 years what will happen? It will start disintegrating, it will get from bigger pieces to smaller pieces through some like it water current, through some wear and tear because of exposure to the UV rays, because of exposure of the sunlight and; so it will get into the smaller, a smaller pieces and that a smaller pieces actually becomes kind of food for lower organism compound in marine and water environment.

So, it and it takes 1000 years to decompose completely. So, it is lot of lot of time. So, thereby; so, there has been a need for plastic waste management to deal for all plastic waste related problem. So, their problem with plastic waste is now well established, we know that it is an issue and just recently many article that you just go on Google and say plastic waste management issues, you will find tons and tons of articles. Many articles, many websites, BBC has done some recent work in that area as well. There are many small stories on plastic related environmental problem in on BBC website and one of them kind of relates to plastic getting into river Ganga so, where they try to estimate, how much plastic is actually getting into river Ganga.

So, our river Ganga is getting impacted by plastic pollution as well which we kind of know, because which was also there we saw that in some of the previous videos in terms of the data that has come from some of the studies that some of these Asian rivers are contributing a lot of plastic to the ocean.

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1999 recycled plastic manufacture and usage rules

The Plastic Waste (Management and Handling) Rules, 2011 were notified in 2011, which included plastic waste management.

The Government has notified the Plastic Waste Management Rules, 2016, in suppression of the earlier Plastic Waste (Management and Handling) Rules, 2011. The Plastic Waste Management Rules were notified on 18th March, 2016.

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So, in terms; so that is the reason why the rule was there was a need, there was a thought, that yes we need to have some sort of rule to have a like a plastic waste management rule has to be in place and although the rule finally came into existence in 2016, before that we have a 2011 rule as well, but in terms of looking at plastic usage in the industry and plastic manufacturing.

Now, way back in 1999, there was a kind of a rule, which was looking at which was looking at plastic waste like a recycled plastic manufactured and usage rule. So, when you try to recycle the plastic, you need to make sure that you do it in an environmentally safe way. Then, this kind of led to a plastic waste management and handling rules, in 2011, which was notified in 2011 which included plastic waste management. So, the for the first time, the plastic waste management kind of thought about in 2011, in terms of the plastic waste management and handling roles.

Then this was common notified that in 2016. In 2016 as you know all the rules were updated some modifications were done more or less, it was like this may be slightly modification or what was there in 2011, but since the government wanted to revise everything all the different rules; so, they put a 1 year kind of date and there were some modifications for sure. And the suppression of these earlier plastic waste management rules and then they were notified on 18th March, 2016.

So, now that is why, it is easy for us to remember all of these rules were revised in 2016. So, solid waste management rules 2016, plastic waste 2016. So E-waste 2016so, it is one way it is easier for you to if somebody ask you in a general knowledge question that when they were last time these rules were revised 2016. It is easy, but if there has been work in progress, it is not that things were done just in 2016. There have always been work in progress and we have where we are trying to develop rules and regulations for better management of that.

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Again, rule has is we have one of them as you will see one of the strictest rule in the world, but the implementation even in the plastic waste sector as we saw in US sector and other sectors is still lacking. We still need to it the infrastructure needs to be in place to manage this kind of waste to stream, which is not there until now. There have been some work going bits and pieces here and there, but in general we are still lacking a lot of infrastructure to support these rules.

So, this is just say news newspaper snapshot, where you can see ministry of environment and climate change, he was Minister of Environment and Climate Change in 2016, Shri Prakash Javadekar ji which you can say he was comment has notified the plastic waste management rules, 2016 that will now supersede 2011 rules minister of state for environment his announced that. And the new rules will extend the right to the village and to ensure proper plastic human right at a grassroots level where plastic is in much in use.

So, there was some modification of course, from 2011 to 2016. 2016 became more comprehensive rule lot of different stakeholders were also included in 2016 rules which was not there in 2011. So, which is true for other waste stream as well where here for example, even the rural areas were included; because the earlier the thought was plastic waste problem is only for urban areas, but as the government based on the feedback to the government has received, they felt it is that we are actually seeing lot of plastics plastic related stuff showing up in the waste stream in the rural area as well. So, they should be included. So, this rule in 2016 revision it was done.

And, and but again this was, so there has to be a like, we need to focus on overhauling of plastic waste management system. So, that is very important, before you ban; before you do a countrywide ban on plastic, it is it says that the considering that a countrywide ban on plastic is not practical in the absence of a suitable eco friendly alternative. The rule calls for comprehensive overhauling of plastic waste management system.

So, which I try to highlight you are highlighted earlier as well, just banning stuff is not the solution actually, we will you want to ban plastic grid, but what will replace this plastic bags. Because there has to be viable alternative which can take the place of plastic. If we can come up with a material which does the job of plastic and which is eco friendly, which is environmental friendly it is easy to replace otherwise, it is not that easy to replace plastics.

So, we can ban certain items or which is really a nuisance for the environment in terms of plastic, but plastic is everywhere nowadays from morning toothbrush to evening medicine or even when you go for anything like a for all the stuff that you touch since, morning you get up until evening you sleep. If you can count on that, you will find probably more than hundred items will be there which you have touched which were made of plastic, which plastic is one of the component in there.

So, one thing they have done that the minimum thickness as per the new rule, the minimum thickness of plastic carry bag has been increased from 40 microns to 50 microns. And with is that, it is so it will increase the cost of course, it will of course the cost will go up and then there will not be free the thought process was that there will not be free carry bag and stored there would be some charges. Once there is some charges, people will start carrying their own bag.

We always talk about in the waste management sector; one more thing we always talk about is the behavior aspect. Once people start behaving properly like, when we say behaving properly means it is becomes a habit, we have it habit of kind of wasting stuff and earlier if you remember people use to carry their bags when you go for shopping.

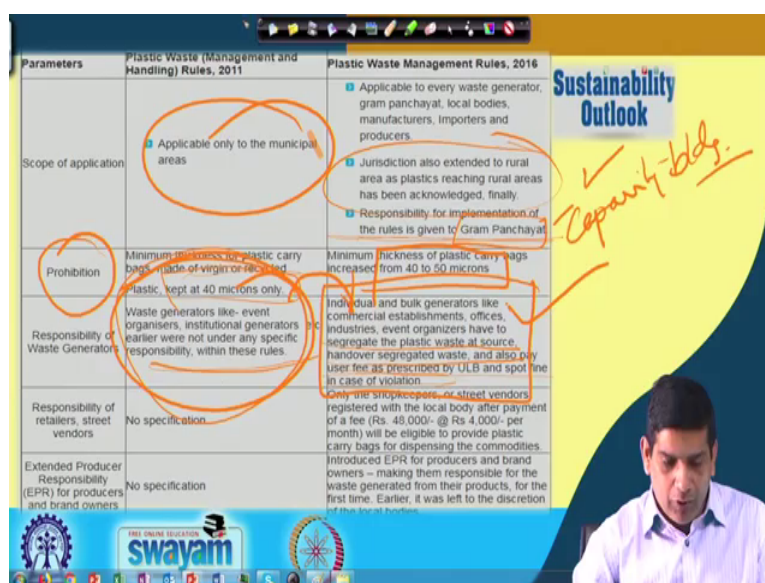
Nowadays in between we had carrying bags was out of fashion, it was not safe you know you are carrying a bag you are not cool is a you have to be look cool. So you have to behave cool I do not know what is that cool, but it is this late too many where it is a I

saw it was out of fashion to carry your own bag and that led to usage of all these plastic bags.

Now with plastic bans and realization that these single use plastic bags of 40 micron size is a nuisance to the environment, we should not use it because it is like a health hazard, it is an environmental hazard. So, people have started focusing on that we need to kind of get away with this and they start using our reusable bags again, reusable bags, reusable cans, reusable water bottles and that is where things are coming back to.

So, and that is to have a, so that people go and do it like people are more. So, that it becomes easy like a for the people to go and not buy these bags governments philosophy or this rules philosophy is that if we make that people pay for these bags; it will better them because economics is something which everybody understands. So, hopefully that will help in getting rid of some of these plastics coming into our into our environment.

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Parameters	Plastic Waste (Management and Handling) Rules, 2011	Plastic Waste Management Rules, 2016
Scope of application	Applicable only to the municipal areas	Applicable to every waste generator, gram panchayat, local bodies, manufacturers, importers and producers Jurisdiction also extended to rural area as plastics reaching rural areas has been acknowledged, finally Responsibility for implementation of the rules is given to Gram Panchayat
Prohibition	Minimum thickness of plastic carry bags made of virgin or recycled plastic kept at 40 microns only	Minimum thickness of plastic carry bags increased from 40 to 50 microns
Responsibility of Waste Generator	Waste generators like event organisers, institutional generators earlier were not under any specific responsibility, within these rules	Individual and bulk generators like commercial establishments, offices, industries, event organizers have to segregate the plastic waste at source, handover segregated waste, and also pay user fee as prescribed by ULB and spot fine in case of violation
Responsibility of retailers, street vendors	No specification	Only the shopkeepers or street vendors registered with the local body after payment of a fee (Rs. 40,000/- @ Rs 4,000/- per month) will be eligible to provide plastic carry bags for dispensing the commodities
Extended Producer Responsibility (EPR) for producers and brand owners	No specification	Introduced EPR for producers and brand owners – making them responsible for the waste generated from their products, for the first time. Earlier, it was left to the discretion of the local body.

So, some quick like we will look at some of these table and then kind of close this particular video, in terms of a scope of application for this particular rule how it changes, what were the major changes from 2011 and 2016. It was 21, 2011 was mostly focused only on urban, on the municipal, on the municipality area; the focus was more on the municipality area. Now here the entire waste generator Gram Panchayat, local bodies, jurisdiction also extended to rural areas as plastics are reaching in rural area. And responsibility for implementation of the rule was given to the Gram Panchayat.

Now, these are great these are great initiative; but the question is they need to have lot of capacity building like people need to know, how to really manage this plastic? I tell my Gram Panchayat you need to have and do it, but they do not know really how to do it. So, we have to train them, we have to provide a lot of capacity building in the waste management sector in general and plastic waste in particular. That people should be aware what is actually the what is the real what is, why we first of all; see you need to get people on board in terms of, why this plastic waste management is important? Why we need to manage this plastic in a better way?

Of course, there are some in their evidence, there are things on the YouTube or things on Google or you find different website, but that is that is in general many people many times people say, oh that is what is happening in developed country, that is what is happening in a big wealthy community, we are a poor community, we live in a small village, what is the problem we have?.

So, we need to educate these people that these are the problems that you are going to face if you are not going to manage the plastic waste properly. Especially if you go to any village today, you will find that there are so many a small plastic stresses all those like a from sample oil and this pan masalas, the gutkas and lot of other things are used in small packets for different food items as well, it can and these things have market because people have low income; they have low like a low disposable income where they can buy this stuff.

People their daily laborers, daily wage earners who get the money go to market buy this a small stuff because they also want to enjoy those luxuries of life and they have every right to do that and then they will use those stuff, but they cannot buy a Rs.70 say 70 sometimes 100 not 70 maybe too cheap; maybe Rs. 100 Rs.150 sample bottle. So, they will buy those Rs.1 pouch and that Rs.1 pouch will create this plastic waste every day, when they after they are taking shower, after taking bath.

So, those and they add up, if they may feel like oh this is only a small package, but you are talking about, but over the time they do add up and with the population of the village they do add up and it is not only one there are several items like that which is used from morning to evening. So, that really leads to and so manages those wastes our Gram Panchayat needs to understand, how to manage it, then only they will be able to do it.

So, and the other things was, there was some prohibition that thickness minimum thickness of the plastic carry bag made of virgin or recycle plastic kept at 40 microns only that was in 2011 and it was 11 in 2016 it was increased to 50 microns. Now, waste generators like even organize and institutional generators were earlier not under any especially responsibility.

Now individual and bulk generators like commercial establishment, offices, industries, event organizers have to segregate the plastic waste at source and handover segregated waste and also pay the user fee as prescribed by ULB and the spot fine in case of violation.

So, these things many of the developed country also do not have; that is where I have some problem like, I have some problem when we start putting so many things in the rule without even being able to achieve this; we were not able to achieve this, but we want to achieve this without doing any infrastructure development, how is that possible? See, it is too idealists sometime, you have to be you have to be a pro growth oriented in terms of environmental performance and all that, that is a great, but going from here to here without being able to achieve what was there which was much easier.

Now, you are asking the bulk people to segregate the plastic waste at source handover segregated waste ok; I give hand over segregated plastic waste to this ULB people, ULB will be person; he does not have truck to carry it as un segregated to segregate it, he will mix it together. So, what is the point of doing it? So, first let us build the infrastructures. So, that we can follow this rules; So, things can go parallel things can go parallel as well, but building infrastructure, capacity building, knowledge, capacity, training those are very very important, then only these rules can be really implemented.

So, responsibility of our earlier for the street retailers as street vendors now they have been also given a all these the stop copper sustainment and register with the local body, after a payment of fee of 48000 or 4000 per month will be eligible to provide plastic carry bags. Now a small shop owners, how they will pay this money?

No specification in terms of EPR and then there was a introduce CPR for produced and brand owners making them responsible for waste generator and for first time earlier it was left to the description of the local body. So, then the EPR concept was also introduced.

So, that is kind of discussion in terms of plastic waste management rule. So, we will continue this discussion as you can see of course, we need to make improvement there are some improvements happening, but at the same time we are trying to we are actually making this rule sometimes too clumsy and to not to idealist and probably not to be able to implement that.

So, we will continue this discussion in the next video as well in the next module. So, again thank you and for your interest and I hope you are enjoying this course, any issue put it on the discussion form we will be happy to answer see you in the next video.

Thank you.