

Plastic Waste Management
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Lecture – 15
Global Rules and Regulations

So, welcome back. This is the last video for week 3 which is focused on looking at the Indian rules of waste of Plastic Waste Management and also the Global Rules and Regulations. And we have been trying to discuss the rule, critique the rules and then we will we have done that for Indian rules we spend quite a bit of time on that. So, we will continue with the global rules which we just introduced towards the end of the last video, we talked about United Nations, we talked about UK, we were discussing the UK stuff. So, let us continue there that same discussion and then we will look at several other countries.

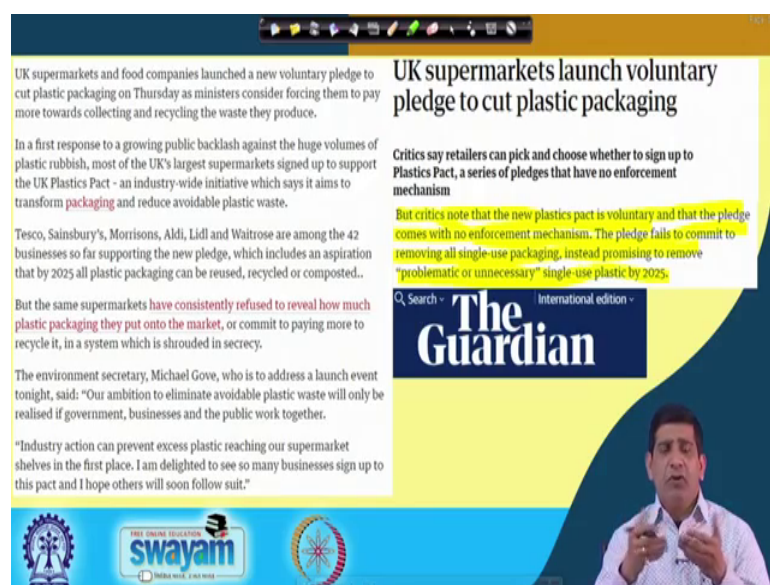
So, and then it will be in summary if you are interested of course, you can look for more details. We will try to put some documents, we will actually put some documents as a week 3 reading material which will have the not only the waste management rules of India, but the waste management rules and other documents relevant documents related to the rules and regulations from other parts of the world. So, you will get take if you are interested you can especially those of you who are law background or has a interest in policy side for them it would be helpful to look at the rules and regulations of other countries as well.

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So, with continuation of this week as we said we will be talking about the rules in India which we have already done, we started doing the global rules as well. So, let us continue that discussion of the second bullet which shows up here.

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So, we are looking at UK in terms of the rules and regulations of UK. So, continuing with that now there are certain initiatives that have been taken by the government side. But, at the same time as you will see in this particular video also you several examples from around the world, where several initiative has also been taken on a voluntary basis

by the manufacturers, by the producers. And, also in some places you are even retailers big mall owners and a several like for example, in we have presently even at IIT Kharagpur, we are trying to not use plastic as much as possible, if you go to our market, if you are visiting our campus we will see several banners say no to plastic.

So, there are certain and that is we do not like West Bengal does not ban plastic yet. So, a single use plastic there is no banned in West Bengal as of today, but IIT Kharagpur of community decided to do that and go ahead and doing it. Of course, there are challenges in implementation which, but there are some sub course we will make some at least positive impact on single use plastic material which we are trying to reduce the usage on campus. So, those we will discuss that you will see lot of global angle there as well. So, UK they found that UK supermarkets and food companies they put a voluntary pledge to cut plastic packaging as ministers we are trying to this is.

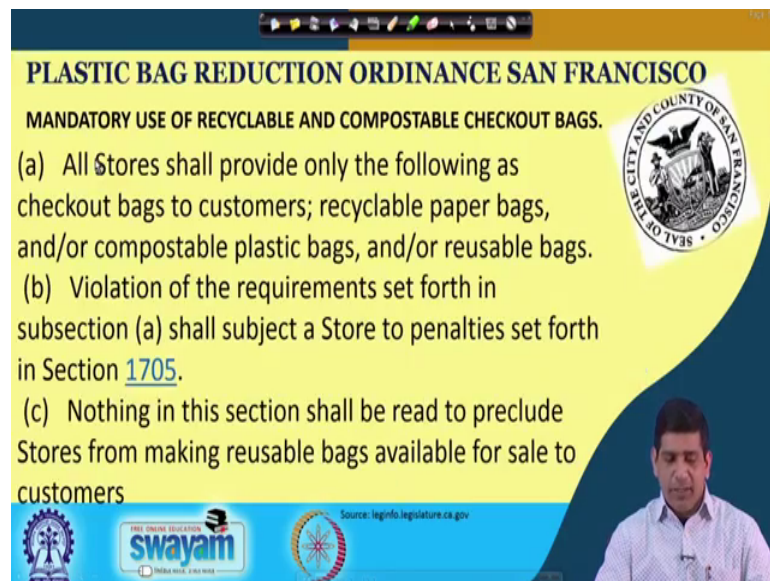
Because, the minister will also in the government wanted them to do it and then the public that does not want to see the huge volume of plastic rubbish. Because, there is lot of discussion going around with plastic or planet and National Geographic is also involved which we I mentioned to you that we will be doing some work with them very soon, in terms of plastic going to the river Ganga. So, there are so, with the lot of public kind of buildup among the public community that we should not use plastic, its not good for our health, its not good for our food and other stuff. So, it forces the companies to take some action.

So, they took some action where they were trying to reduce the packaging material in the plastic. So, industries act the minister is making a statement here saying that industry action can prevent excess plastic reaching our supermarket self in the first place. So, and he was happy that many businesses sign up. So, hopefully things will improve ah, but there are of course, you have to for everything there are pros and cons and critiques. And, you have to look at from a critical point of view as an unbiased assessment. So, there is also a another side of the argument which they say that retailers can pick and choose whether to sign a plastic act is the pledges that have no in sportsman's mechanism, its a pledge.

So, whether I am if I do not follow that pledge, I am not being penalized for it. So, sometimes if you are too much is stressed out you will probably not follow the pledge

because, its not the rule which is not enforced, there is no penalty associated with that. So, the pledge fails to commit to removing all single use plastic and they are only looking at problematic or unnecessary single use plastic by 2025. So, it is a probably its a step which in a positive way, but again lot of things needs to be done a lot of things are desired.

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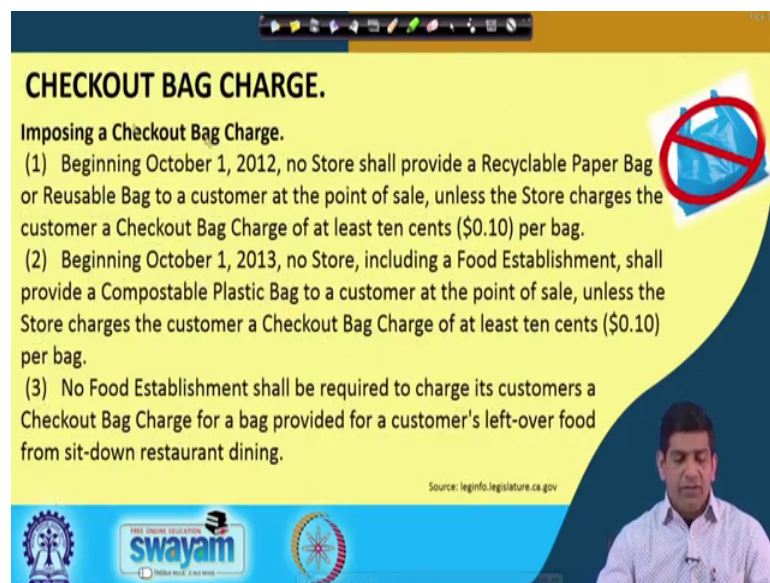


So, its kind of you have to look at from both perspective. Going to US there are certainly certain states in US especially the new England states and some progressive cities like San Francisco they have banned mandatory use of recyclables or compostable checkout bags. So, they have been doing it for almost 7-8 years now because, I remember when I was in San Francisco maybe more than 5 years ago now; they were I could not there were no plastic bags in many of the grocery stores. They will give you a paper bag, compostable paper bags which you can use or you can bring your own bag.

So, that is in many places in the western world now, in its a part of US which progressively states, progressive cities in US and all as well as in the European Union; you will find carrying your own bag is actually a cool thing to do which is becoming cool thing again in India because, they are doing it so, we do it. We try to follow them, we try to copy them many times, but they try to copy our old practices. So, east is trying to move copying the west and west is copying the older east so, the cycle continues.

So, anything which goes out of fashion today save it, I mean 20 years from now you may be able to use the same pair of your goggles because, it will again come back in fashion. So, plastic bag reduction and the ordinance was passed in San Francisco I think nearly almost maybe 7-8; if more than around 2012 or before that. So, its a there the all stores will provide only the following a check out bags, recyclable paper bag, compostable plastic bags or reusable bag. Violation has real penalties nothing from they can make a reusable bag available for sale to the customers so, rather than giving them.

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CHECKOUT BAG CHARGE.

Imposing a Checkout Bag Charge.

- (1) Beginning October 1, 2012, no Store shall provide a Recyclable Paper Bag or Reusable Bag to a customer at the point of sale, unless the Store charges the customer a Checkout Bag Charge of at least ten cents (\$0.10) per bag.
- (2) Beginning October 1, 2013, no Store, including a Food Establishment, shall provide a Compostable Plastic Bag to a customer at the point of sale, unless the Store charges the customer a Checkout Bag Charge of at least ten cents (\$0.10) per bag.
- (3) No Food Establishment shall be required to charge its customers a Checkout Bag Charge for a bag provided for a customer's left-over food from sit-down restaurant dining.

Source: leginfo.legislature.ca.gov

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So, beginning yeah that was in 2012. So, beginning no stores and its a provide these lowest stores will provide a recyclable paper bag or reusable bag to a customer at the point of sale unless the store charges the customer a bag of 10 cents per bag so, just to have a uniformity. So, that one cost one store is not charging other store is charging then it becomes a competition is unfair. So, just to have like you have to pay 10 cents per bag. So, that is that will deter people that will us force people to like a at least some people will bring their own bag rather than miss spend those 10 cents especially if you go to the market and you need 8 or 10 bags.

Because, you bought a lot of stuff that is almost close to a dollar. So, why you will do that? You can get a coffee in a dollar. So, beginning October 1, no store including food establishments shall provide a compostable plastic bag unless they charge a 10 cents; shall required to charges customers a checkout bag choice for back provided for a

customer's leftover food from sit down restaurant dining. So, if it is a part of the food you do not have to do it.

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ENFORCEMENT AND PENALTIES

(a) Any person who violates this Ordinance shall be guilty of an infraction. If charged as an infraction, upon conviction thereof, said person shall be punished by

- (1) a fine not exceeding \$100.00 for a first violation,
- (2) a fine not exceeding \$200.00 for a second violation within the same year, and
- (3) a fine not exceeding \$500.00 for each additional violation within the same year.

(b) In the event that the City adopts an ordinance creating a procedure for the City Administrator to impose and review Administrative Penalties pursuant to California Government Code Section 53069.4, the City may impose Administrative Penalties for violation of this Ordinance as follows:

- (1) in an amount not exceeding \$100.00 for the first violation,
- (2) in an amount not exceeding \$200.00 for the second violation in the same year, and
- (3) in an amount not exceeding \$500.00 for each subsequent violation in the same year.

(c) The City Attorney may seek legal, injunctive, or other equitable relief to enforce this Ordinance, including without limitation, civil penalties in an amount not exceeding \$200.00 for the first violation, \$400.00 for the second violation, and \$600.00 for each subsequent violation in any given year.

Source: leginfo.ca.gov

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GOVERNMENT OF INDIA

And then see the penalties again we do not have to read everything. A fine for 100 dollars for the first violation, 200 dollar for the second violation within the same year, 500 dollars for each additional violation within the same years. So, its a strict enforcement. So, whenever there is an ordinance or the rule or regulation coming out if the enforcement part is not proper. So, if those 100, 200, 500 does happen in San Francisco, but we have numbers we will have those very good numbers of fine and everything in India, but that does not really get implemented.

So, that is where the problem is; we have to have a proper implementation, but again as you can see here they are talking about they made those paper bag available. They make those reusable bag available, they made those compostable bag available then only they are asking people to you follow the rule so, you have to give them alternatives. So, if you do not give them alternatives and just come up with a rule, that rule is bound to fail because, if there is no alternative what the people will do? They have to use that, the other day I was in a market in a shop and for a that with jalebi those of you know jalebi and papa colas and all. And, if that jalebi is put in a paper bag its become soggy very quickly say, if its in any because it needs to be an airtight place.

So, they put in a plastic bag and just put a seal on it just tie the note on it and it remains fresh for a longer period of time. So, what that shop owner will do, if he does not have a other alternative to have this those bags which can he which he or she can use in place of that plastic bag because, the customer will not like soggy stuff. So, he has to sell his product so, he so, then he it there has to be an alternative available which is comparable price which is in a competitive price, then only people will be easily able to see a move. And, if then people does not move put all these fines and enforce it that is how they did it in San Francisco.

So, we most of the times we do half-baked stuff in India, that is where the problem is we need to take the full picture and the government cannot just leave everything to the private parties. The government has to speak government also has to take a lot of action on its own, it has to makes lot of things happens on its own. Government offices actually has to really get gear up and do lot of things because, they are the only offices which can put all these stakeholders together. Other office, the other stakeholders does not have that capability I can say or maybe they say because who will listen. If the government says people will listen other people other company says people may not listen, they will say that they maybe have a certain business motive behind.

So, that is what we need to kind of grow that culture, that is where our waste management in general fails in this country because, we do not have that culture. So, then again the penalties are also there even amount in the event that city adopt an ordinance creating a procedure, to review administrative penalty based on California government code; city may impose administrative penalties for violation again the same thing; I have charged and this is 100, 200 and 500. City attorney may seek legal impunity by other equitable relief to enforce this ordinance including without limitation, civil penalties. Then 200 for first violation, 400 for second violation, 600 for each subsequent violation and a given here.

So, that is a hefty fine; 400 like 200 dollars you can probably on a if you a very good deal you can probably buy a mini iPad in 250 around 200 to 250 dollars. 500 dollars will buy you a decent laptop actually and then if that is the amount of a pretty decent laptop 500 dollars will buy you. That is close to as a Indian rupees today there is closer we are we are looking at closer to sometimes something between 35000 to 40000 Indian rupees.

So, that is a lot of money and that can buy a pretty decent laptop to you so, that is kind of for the level of fine is there.

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The image is a screenshot of a presentation slide. The slide has a yellow background with a dark blue header and footer. The header contains the title "S. Korea Zero Waste Movement" in bold black text. The main body of the slide contains two bullet points in black text. The footer contains three logos: a circular logo on the left, the "swayam" logo in the center, and a circular logo on the right. A small video inset of a man speaking is located in the bottom right corner of the slide.

S. Korea Zero Waste Movement

- Korea Zero Waste Movement Network has been leading many nationwide campaigns against single-use plastic items such as disposable cups, straws, lids, plastic bags, umbrella covers, and excessive plastic packaging of food products.
- The network has signed voluntary agreements with municipalities, companies, and stores including coffee shops, fast food chains and large- and small-scale grocery stores to encourage all actors to #breakfreefromplastic and foster reusable-friendly cultures and systems throughout the country.

swayam

So, and its in forced that is the if its enforced people will follow it, but of course, you have to give them the option the options has to be there. South Korea they have a Korea Zero Waste Movement Network leading to nationwide campaign against single use plastic disposable cups, straws and all that. A lot of voluntary agreements with the larger scale, small scale grocery stores encourage all actors like break free from plastic and all those kind of stuff.

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S. Korea Zero Waste Movement

- As of August, 2018, the Korean government has introduced stricter regulations on single-use plastic items, which include a ban on plastic cups and umbrella covers at governmental offices, a ban on plastic bags at grocery stores, and new fines on the use of plastic cups at coffee shops and fast food restaurants.

The slide features a yellow background with a blue wave-like shape on the right side. At the bottom, there is a blue banner with logos for 'swayam' and other educational institutions. A small video inset in the bottom right corner shows a man speaking.

In August 2018, the Korean government introduced a stricter regulation on single use plastic item which is a ban on plastic cups and umbrella covers at government offices, a ban on plastic and this umbrella covers actually some of you may be familiar with that some of you may not be. But umbrella covers are usually provided at as its a thin plastic again provided at the government offices in many countries. Where, if you are coming with a rain because, your water will drip all along in the office corridor from your umbrella so, you can put your in that plastic bag and carry it with that.

So, it does not drip along inside the offices so, but they have banned that on a umbrella cover. So, it may be then they have to have some different umbrella covers because, that is also needed otherwise that is becomes a problem in terms of water on inside the office, people may slip and those kind of issues are there. Ban on plastic bag and grocery store, new finds of the use of plastic cup at coffee shops and fast food restaurants say again they have to provide the alternatives associated with that.

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Japan's Containers and Packaging Recycling Act, 1995

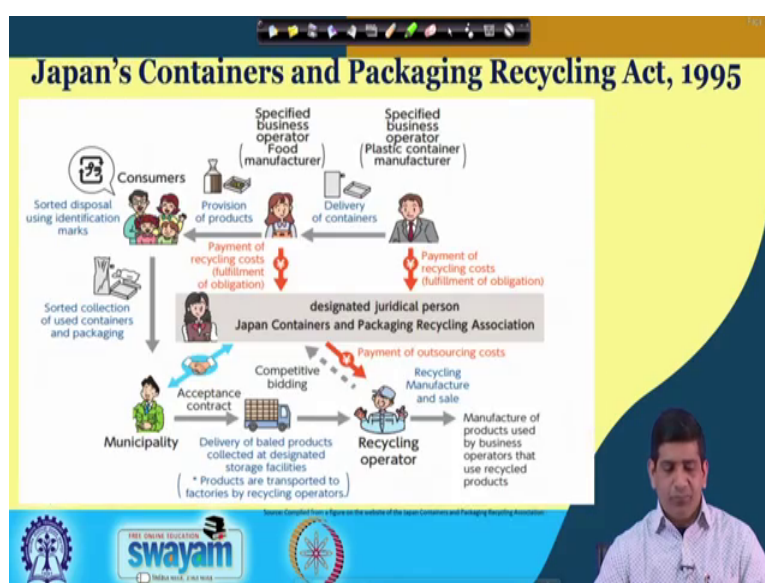
- The Containers and Packaging Recycling Act specified the respective roles of consumers, municipalities, and business operators.
- This act placed the responsibility for sorted waste disposal on consumers, the responsibility for sorted waste collection on municipalities, and the responsibility for recycling on business operators, in order for these three entities to work together to promote the recycling of containers and packaging.
- The most important characteristic of the Containers and Packaging Recycling Act was that it adopted the concept of extended producer responsibility (EPR) for the first time in Japan to impose physical and financial responsibility for waste recycling on business operators.

Source: <https://www.atsugi.go.jp/ken/kenpoku/kenpoku/attach/kenpoku.pdf>



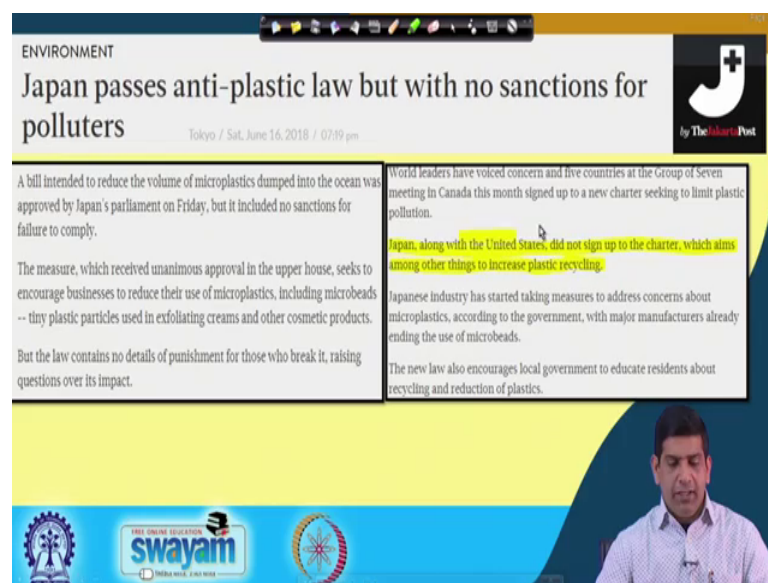
Japan container and packaging act this came long back almost its close to now at 18 plus 5 23 years ago. So, Japan they were looking at packaging and Containers and Packaging Recycling Act. They have to sort all the waste and start to recycle as much as possible that is it adopted the concept of extended producer responsibility for the first time in Japan. So, Japan was talking about EPR 23 years ago and many other countries European Union and other countries started after that. And of course, in this kind of concept from a implementation point of views is still in a very nascent stage in India, we are just talking about it, not much implementation is happening.

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So, in terms of Japan Act you have to sort disposal consumers will bring to the waste in a sorted waste and you dump it sorted collection for use container, municipality will take that waste. After sorting it goes for competitive bidding, goes to recycling manufacturing side. Here when you have designated you Japan containers and packaging recycling association payment of recycling cost, payment of recycling cost to fulfill evaluation that has specified business operators. For plastic container manufacturer, for food manufacturer and then it kind of goes back; the circle continues in terms of recycling of plastic and other recyclables.

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Recently, last year on 6 months back, Japan 7 months back introduced the looking at the micro beads, micro plastics getting into the ocean. So, they were they were banning it they were looking at passes anti-plastic law and they were trying to get rid of that unanimous approval to seek the encourage business, to reduce the use of micro plastics including microbeads. Those are tiny plastic particle used in creams like your when you use scrubbers and other cosmetic products, but there is no punishment right now so, it is just a probably the first step. And, the world leaders have voiced concern and 5 countries at the group of 7 meeting in Canada signed up a new charter to say limit plastic pollution.

Canada as we will talk about in a later time has a huge coastline and water those beaches are very very important for Canadian economy, so, they need to keep it clean those

waters need to be clean. Japan along with US did not sign up the charter which aims to bring the increase which among other things was to increase plastic recycling. So, that was a little bit drawback on Japanese side no why they ended up doing that because, Japan is known for better environmental practices so, but sometimes the politics kind of overtakes so, that could be something around that line. Japan industries started taking measure to address concern of micro plastic.

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Other global initiatives for plastic waste management

- Belgium, Brazil, the Dominican Republic, Panama and the Philippines are drawing up or adopting national plans and legislation to combat marine litter.
- Canada, which has the world's longest coastline, is funding community-based programmes, like beach clean-ups, and continuing critical research into the impact of micro plastics. It is also drawing up regulations to ban the manufacture and sale of toiletries containing microbeads.

So, there are the new laws also is there so, there are some initiatives there. So, others if you can go in online and start looking at you will find from Brazil, Belgium, Dominican Republic, Panama, Philippines every country is looking at plastic today. And so, plastic waste is a huge like its a big topic as of now that is the reason why this course. So, that I thought that I will put again as I said in the very beginning of the course I am a student of this course as much as you are.

So, I am what we are doing from here is we are trying to get the information collected as much as possible, put it together in a critical way, discuss it in these videos and present to you based on my expertise of a working in this field or on different ways trained for nearly two decades now. So, I can put like I can compare contrast which probably since I have the background to do that, but at the same time I am also learning; I am also learning a lot of new stuff.

So, I again I request all of you that if you find any new information which we could not cover in this course, do put it in the discussion forum for the interest of everyone including me so, that it will help us to learn more. It is a evolving topic, lot of things are happening, it is highly dynamic. Every day if I go or just do a Google search for a news and other stuff I find at least 8 or 10 articles good articles related to plastics from different places in the world so, its not possible to cover everything in one course.

So, but this is just a seed, its a seed which is trying to put a perspective. So, that once you take this course whoever is interested in working in this area you can you should get a you get a baseline now, you get a baseline and you can go further from here. So, that is the whole purpose of offering this course and again these kind of course, you have to have a lifelong learner. Its not possible lifelong learning is what is needed today because, degrees are ok. But, degrees are not that relevant in the job market you need to have a skills and to have to develop the new skill you need to be a lifelong learner.

So, coming back here; so, as you can as this slide is showing you that there is a lot of work is going on in different countries Belgium, Brazil, Dominican Republic there are coming up with the plan. Canada which just I referred to a few minutes back which is the world's largest coastline. And they are funding a lot of community based program, the beach cleanups and critical out research, they are also looking at critical research in the impact of micro plastics, this micro plastics are when its a concern for the environment.

Because, they are getting into the fish, they are getting into even our salt there are an IIT Bombay, the study was done where the Indian the salts that are most of the major brands of salt, that sold in Indian market they took that and they analyzed it for micro plastics. And, they found in many of them micro plastics traces of micro plastic there so, this is coming into our salt. So, salt is used pretty much every day in the food and so, you it may it will get into our body too which is not good. So, they are looking at it also draws up regulation to manufacture and sell of toiletries containing micro beads.

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Other global initiatives for plastic waste management

- Indonesia has committed to reduce plastic waste by 70 per cent by 2030
- Kenya, Jordan, Madagascar, Chile and France have banned or pledged to ban single-use or non-biodegradable plastic bags.
- Denmark, France, Ireland and the Netherlands had existing national legislation to reduce the consumption of carrier bags and in 2011/12 consumers in those countries consumed fewer bags than the average.

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So, that is its that is Canadian initiative is going on, Indonesia its goal is to reduce 70 percent by 2030. So, its reduce the plastic waste Kenya, Jordan, Madagascar, Chile, France a banned or pledged to ban single use plastic or non biodegradable plastic bags. Denmark, France, Ireland, Netherlands already have a rules in 2011 2012 and look and consumption to reduce the consumption of the carrier bags.

And those countries consumed fewer bags than they average because, these countries are a bit environmentally more cautious. The people in general are aware of the environmental issues, literacy rate is also pretty high in compared to if you take the world average. So, they have a practice they have a habit of doing things in that way. So, its they are they are using much less plastic they are generating much less plastic compared to other parts of the world.

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Other global initiatives for plastic waste management

- Israel aims to have 70 per cent of its beaches clean 70 per cent of the time this year and is implementing a ban on certain types of plastic bags.
- Denmark, Finland, Iceland and Sweden have committed to implement the “Nordic programme” on a sustainable approach to plastics by preventing plastic waste, encouraging recycling and promoting a circular economy
- New Zealand has committed to ban products containing plastic microbeads from June and is developing options to get rid of single-use plastic bags.

The slide features a yellow background with a blue wave-like shape on the right. At the bottom, there is a blue banner with the Swayam logo and the text 'FREE ONLINE EDUCATION swayam INDIA WISE, LEARN WISE'. A small video feed of a man in a white shirt is visible in the bottom right corner.

Israel another big not a big country from a size, but pretty much big country in terms of the world power and the way in terms of the technology, in terms of technology that they use for different stuff. And the Israel tries to have 70 percent of his beaches clean and 70 percent of the time of this year a ban on certain types of plastic bag. Denmark, Finland, Iceland, Sweden are implemented “Nordic programme”, those are called Nordic countries on a sustainable approach to plastic by preventing plastic ways, encouraging recycling and promoting a circular economy. Circular economy is where you take there you try to bring it back so, its like a circle.

So, that is why its a circle right now, the most of the economy is linear. So, we try to go from linear economy to circular economy and New Zealand again they have a lot of tourism, they want to keep everything clean. So, they have banned products containing plastic micro beads from June of last year and is developing options to get rid of single use plastic bags. So, New Zealand is has banned the products containing plastic micro beads from June of 2018 and is developing options to get rid of single use plastic bags so, that is another example.

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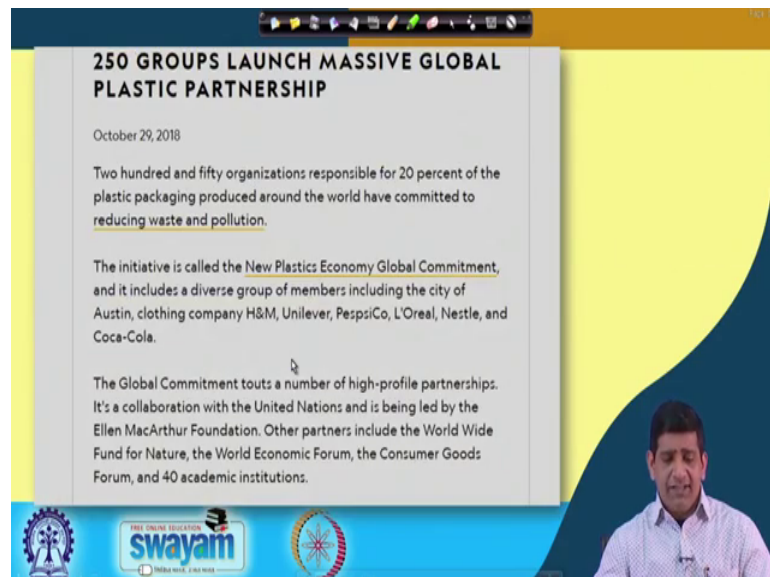
Other global initiatives for plastic waste management

- EU member states have different national policies in place to limit the consumption of plastic bags. On 29 April 2015, the European Parliament and the Council adopted Directive (EU) 2015/720 amending the Packaging and Packaging Waste Directive with regard to reducing the consumption of lightweight plastic carrier bags.

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EU member states policy they have a policy in terms of limiting the consumption of plastic bag. In April 2015 European Parliament passed amending the packaging and pack of waste directive reducing the consumption of lightweight plastic carrier bag which are mostly single used ones.

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250 GROUPS LAUNCH MASSIVE GLOBAL PLASTIC PARTNERSHIP

October 29, 2018

Two hundred and fifty organizations responsible for 20 percent of the plastic packaging produced around the world have committed to reducing waste and pollution.

The initiative is called the New Plastics Economy Global Commitment, and it includes a diverse group of members including the city of Austin, clothing company H&M, Unilever, PepsiCo, L'Oreal, Nestle, and Coca-Cola.

The Global Commitment touts a number of high-profile partnerships. It's a collaboration with the United Nations and is being led by the Ellen MacArthur Foundation. Other partners include the World Wide Fund for Nature, the World Economic Forum, the Consumer Goods Forum, and 40 academic institutions.

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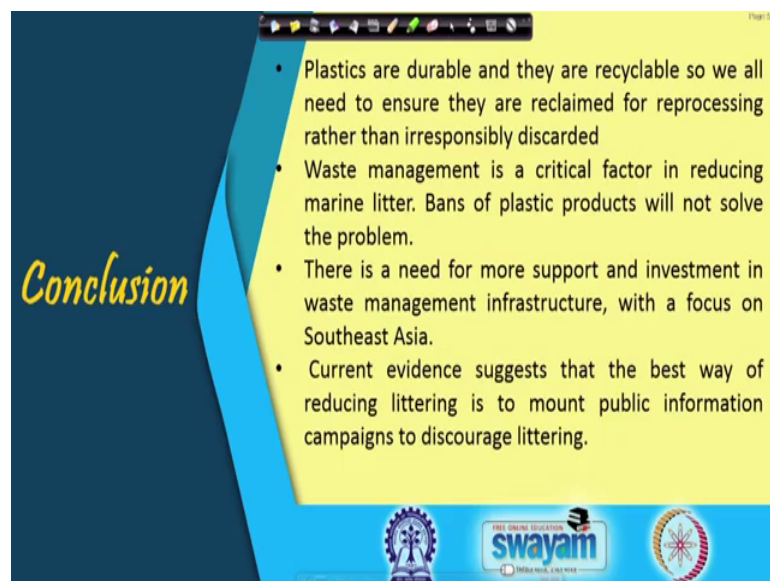
So, that is they are. Just few months back 20 250 groups launched massive global plastic partnership. So, they have 250 organizations responsible for 20 percent of the plastic packaging of the world. So, they got around and committed to reducing waste and

pollution. So, waste and pollution from plastic, this initiative has been named as New Plastic Economy Global Commitment and, includes diverse group of members including the city of Austin, clothing company H and M which is a big chain in US. And, I think I saw that in Australia too; Unilever, PepsiCo, L'Oreal, Nestle, a Coca-Cola so, and then there are several other companies so, these are the big ones.

So, this global commitment thoughts a high profile partnership, it partner it is partnership with United Nations and also led by Ellen MacArthur foundation. If you are those of you are not familiar with that Google Ellen MacArthur and this is they are doing a lot of good stuff for in terms of waste management, environmental protection. And also talking about the circular economy and all consumer goods forum and 40 academic institutions.

So, they have a partnership with academic institution in terms of doing research and teaching. So, academic institutions are also academic partnership is also very important which is one thing we do not that much our that culture is again missing in India academics institutions and industries interaction is very low compared to what is I have seen abroad during my work abroad, but unfortunately with there is a mistrust on both sides. So, hopefully that gradually it is getting better, but again it is pretty low in Indian contest.

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Conclusion

- Plastics are durable and they are recyclable so we all need to ensure they are reclaimed for reprocessing rather than irresponsibly discarded
- Waste management is a critical factor in reducing marine litter. Bans of plastic products will not solve the problem.
- There is a need for more support and investment in waste management infrastructure, with a focus on Southeast Asia.
- Current evidence suggests that the best way of reducing littering is to mount public information campaigns to discourage littering.

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Ministry of Education
swayam
Central Board of Secondary Education (CBSE)

So, being said that we looked at plastic waste management rules of India, we also looked at plastic global plastic waste management rules. So, in terms of to summarize if we want

to summarize into what we have done in this particular week. So, and also in a big picture we all know that plastic are they are durable stuff, they are durable that is the reason why they are used that much and they are recyclables, many of the plastics are recyclable. So, all what we need to ensure that plastic is reclaimed and reprocessed rather than irresponsibly discarded.

And as you look at any of this plastic bottle or plastic product you will see a triangle with a number in there. So, number 1 2 3 4 then they mean different type of plastic. So, most of the number 1 through 5 there is they are recyclable. Number 1, is p t 2 is HDPE and then rest on and they are pretty much recyclables technology is out there. So, they can be recycled only thing is that we have to collect it properly and use it properly. Waste management proper waste management will make one of the major issue in terms of plastic is the marine litter; the plastic that is getting into our ocean.

And that can happen even from the plastic that you and I are using at our home, if we do not manage in our municipality those plastic properly it will get into the surface water, from surface water from a stream it will get to go to your river, from the river finally, it will go to the ocean. And that is what is happening and by the time it reaches ocean and in the ocean it gets broken down into smaller pieces and it kind of becomes those smaller pieces becomes more dangerous so, that is those things should be avoided.

There is a need for more support and investment in the waste management infrastructure with a focus on Southeast Asia especially in this part of the world, our waste management system needs a lot of focus. And, one of the thing is that if you really want to reduce the litter you have to do lot of capacity building. We have to have a lot of training programs for our municipal workers, lot of communication outreach to people in general. And, as I doing my solid waste class I have given that example, that in if you are in New Zealand they will give you so, much information regarding recycling of waste.

That within if you stay there for 3-4 months you will get it, you cannot really make a further mistake. It will be in the newspaper every Sunday with a big in India we usually will have a big product being sold, but there at least one page just on how to sort the garbage. And many of the newspaper publicity for free for them actually and then there will be booths at community events and other places there will be a booth which will

teach you how to sort the garbage. So, there is schools they give that information on the TV in between the TV program they give the information.

So, you are getting the information and its a same message, its not the especially if you have multiple message, we are confusing my chess is not there that messaging is also very very important; you need to keep it New Zealand is a small country. So, they have they can do that in India we have a we will win in a different language, but again we have to make sure that the message is clear, is simple and easily understood and no ambiguity. So, that people should not be able to interpret in a different way; make it as simple as clear as possible. Doing things simply making things simple is the most hardest thing to do. So, we that is you do we want to make it something very simple that is one of the hardest thing and which those of you walk in those areas you know that.

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Conclusion

- The government should work with industry to improve and simplify the waste management infrastructure, as well as exploring behavior change campaigns for those who do not recycle.
- Further investment should be made in the recycling infrastructure to develop a circular economy, ensuring that plastics can be recycled as close to market as possible and remain within a well-developed waste management infrastructure.
- The shipping industry and fishing industry should continue work to minimize plastic waste entering the sea from ships and shipping containers.

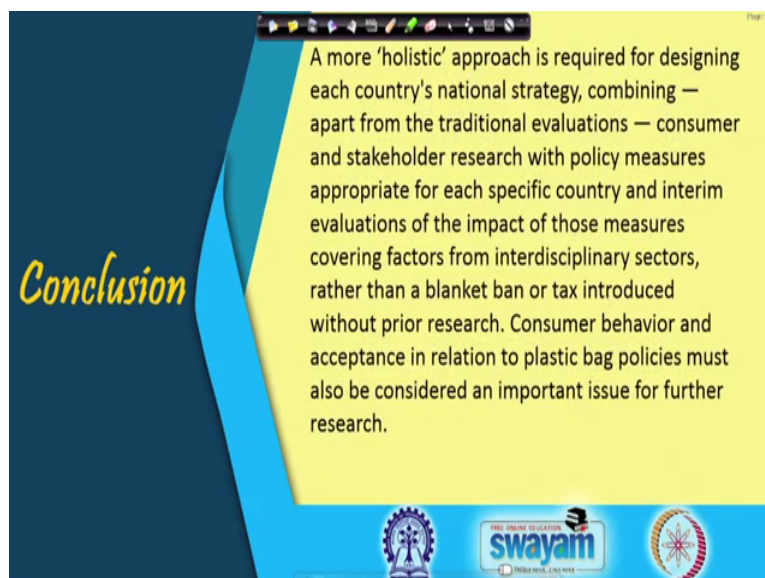
swayam
INDIA'S SKILL DEVELOPMENT

Government and industry has to start talking to each other like and there has to be a behavior change campaign, look at the reason they improve the recycling infrastructure develop a circular economy concept rather than in ensuring the plastic can be recycled; as close to the generation point as possible.

Because, if you are taking the plastic waste and taking it to several 100 kilometres the amount of the transportation fuel and other things that you will end up using you may not be doing really good to the environment. Because, you it will there will be an environmental footprint associated with that. Shipping industries and the fishing industry

should continue to work on minimize the waste entering the sea from the ships and shipping containers so, that is also important.

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And overall what we need is a more holistic approach in designing our nationalist strategy in terms of like a implementation of the plastic waste management or in general the waste management. Different stakeholders needs to be brought in board, where we talk to each other making a policy which cannot be implemented because, we do not have the infrastructure. Coming up with a policy which our industry is not ready to adopt, it is not really going to solve the problem.

When we want to solve the problem we need to have a practical policy which should be discussed with all the stakeholders including the industry partners, including those people who has to follow this policy. And then you make it something simple and then add layer of complexities later on. Do not start with something very complex and which you cannot really implement and then since you cannot implement you already violated the rule, people think that I violated 1 rule now, if I violate 10 rule how does it matter.

So, that things has to be done we have to look at the interdisciplinary sector rather than having a blanket ban or a tax introduced without prior research, without having alternative that is really not going to work. Consumer behavior and acceptance needs to be lift into account in terms of plastic bag policy and that is the important issue for further research and other things as well. So, those of you are interested from a policy

perspective, there is a lot of work that can be done those of a background in law or management and other areas those, even engineering students I would encourage them to look at that as well.

From a policy point of view this plastic waste management policy right now is itself is a hot area to look at. Because, how with different countries are looking at their policy and why the policies are different in different countries and what angle they are looking at what are the pros and cons of different policies. What are the things that other countries which are doing it better can be taken we can adopt that in Indian context. So, and I said adopt do not copy so, there is a different you take it, but you have to make it from an Indian perspective. We can learn from others, but we just cannot just copy and because our situation is very different then what is there in the other countries.

So, with that we will be wrapping this particular week, I hope this is the end of the 3rd week. So, we have 5 more weeks to go and we will I hope you are enjoying the course. If you have any feedback, any suggestions feel free to put it on the discussion forum and we will be trying to address those as much as possible. Again all the reading materials for the every week, we will we have several a set of reading materials which is there on the on NPTEL platform. You have the details there and as soon as I also this set of slides for each week is also available to you.

So, slides certain reading materials, background materials, rules and other stuff which would be all weekly we have a weekly module for reading materials as well. So, you should refer to it and look at the quiz; you already have done 2 quizzes, 3 quizzes if you have done the quiz 0 as well. So, this will be your now quiz 3 and then so, as you know every week will have a quiz and then finally, we will have an exam. If you have not registered for an exam, you need to register if you want to get a certificate.

So, with that I would say thank you for continuing with this course and hence I hope you are enjoying it. We are trying our best to deliver the best content; again this is an evolving course, lot of material is out there. There may be certain aspect which we may miss because, we can things are I said things are evolving every day things are changing in this area. So, if there is anything new and interesting share with us.

Thank you.