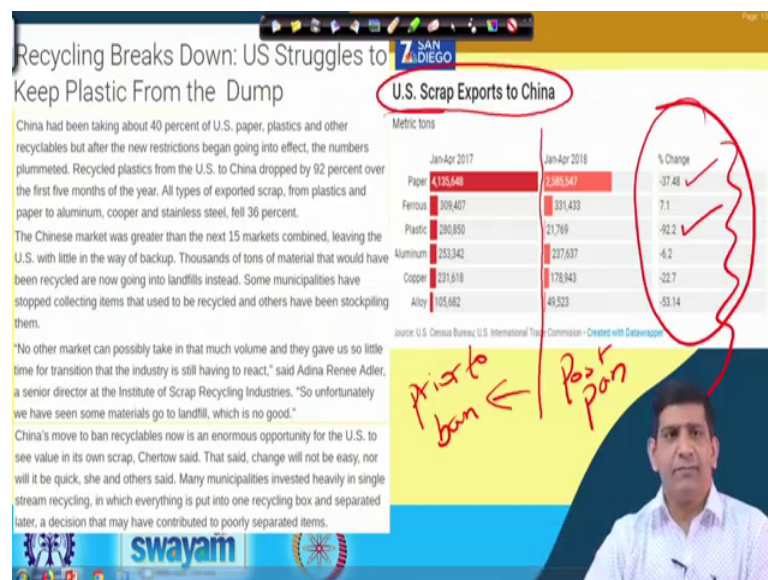


Plastic Waste Management
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Lecture - 20
Plastic bans - Impact on Global Plastic Waste Management

So welcome back. So, we are in the last module, the last video for the week 4, were in week 4 we have been discussing on plastic ban especially, we had discussed about the Indian scenario and some global scenario and then where our focus was more on China plastic ban and its impact on global plastic waste management. So, we will continue that discussion and we will start from exactly, where we left in the previous video.

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We were, if you remember, we were looking at this particular table as well as this discussion on in terms of the US scrap export to China where that what is the impact of the ban. So, the plastic ban came somewhere in the middle over here and. So, this is kind of this is prior to ban.

So, my prior to ban and then we have this is post ban and as you can see these numbers kind of speaks for themselves, if you kind of look at carefully, there is a drop of nearly 37.48 percent for paper 92 percent for plastic. So, after this China ban that has been drop of 92 percent of plastic waste is not going to earlier, what I was going to China for the same period in 2017.

If you compare that with same period 2018 there was a drop of 92 percent of the plastic waste going to China and that is not only plastic, there are other waste components as well. Since, the ban is not only on plastic it is on other waste, but in our process this course is focused on plastic. We are talking about that.

And then, there is of course, lot of anxiety in the US market. Similar anxiety is there in Australia, all those developing countries, which were relying a lot on China's, in terms of managing their waste and with this China sword ban that has become a problem. So, what we will do is, we will have a quick look at a video, which was done by CNBC on in terms of the impact of this China banned explains it very clearly in for the US market, but the similar, similar things are there for Australia and other countries as I said earlier and you can find several videos on YouTube, discussing that these days, because this is a very-very hot topic in terms of how to manage the garbage now.

Since, the Chinese will not take it and so, let us look at that video, then we will discuss that and then we will try to conclude this particular lecture on bans and impact on global plastic waste management. So, we will get started and I will let you, watch this video first and then we will have some discussion on it into the market.

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So, now, that China is not taking those recycled bans, buyers have fewer options and where they can even send these materials? That just means that buyers are being more

selective on what they buy and recycling centers are left with stock piled bales of recyclables.

Well, for recyclers its been kind of a horror story actually, because you know, we have limited budgets and limited labor to put at these sorting programs. So, because brokers and buyers of scrap materials are not buying these things, if we do not meet standards, we have been looking for alternative markets, where they will accept the purity that we can financially create. We used to send to China now, we go to Indonesia, Vietnam, Korea, but those smaller countries, with smaller markets are filling up.

Since, national soared the Burbank recycle center has had some real problems with materials accumulating and with the price that we can actually get for materials. So, in January, we got rid of 500 tons of paper that we got absolutely no payment for we cannot get rid of plastic clam shells, the kinds of things. It might be around produce salads, berries, we cannot get rid of those, we have no market for those.

We used to generate about dollar 50000 a month on scrap materials and now, it is almost in the opposite direction, where were paying about 40 you know between 40 and 50000 dollars a month in processing fees, that are not made up for by scrap commodity sales.

In the entire US recycled plastic scrap exports to China have dropped 92 percent over the first five months of 2018. Well, if China does not take this material, we do not have any choice either, we give it away to someone that has space to say warehouse it, until markets change or until they find a market to sell it into or we just have to bury it and you know I hope not, but there may come a day when we have to burn this stuff, I do not know. It is this is a big problem, the way that this could play out for consumers is and it is already happening.

Some cities are reducing the list of materials accepted in the recycling carts and in the programs, I think, were going to see higher potentially higher prices, in what it costs to process wastes into you know create recycling programs at work and its you know, we focus on China and the change of policies, but quite honestly what has happened is well the United States has lost control of consumption. We are in some trouble, because we have become so accustomed to so many products and packaging's that are short lived.

So, we're going to have to as US citizens were going to have to be very cognizant of who we are as consumers and what the effect of that is going to be. To help the situation, handle things change needs to be made in manufacturing, but there are some things that everyone can do to help by bulk, buy the biggest container that you can, do not buy the single serve, you know multiply wrapped products that you know everything has another piece of plastic around it. Secondly, use all the reusable that you can, if you are a frequent drinker of beverages, bring your own container and refill it. You know that bottled water is, it is a real problem.

With its packaging the other things you can do is, you know bring your own bags shop locally at the farmers market, where you are getting fresh produce and food. Looking forward it is very unstable you, we just do not know how this is going to play out. It is a big ask to change things very quickly in the United States about our consumption habits. It is a big ask to find other countries and other mills and processors to take the amount of waste that we generate in the US every year and try to get it into reuse programs or recycling programs. So, it's I wish I had a crystal ball to predict the future and I just do not.

So, as you saw in this particular video you, but what was presented to you was a mixed stream recycling, it was a mixed stream recycling where what does the mixed stream means that you take all the recyclables and put it together in one container and that one container gets loaded into the recyclable truck, the recycling truck and then the recycling truck brings it to the material recycling facility.

So, since it is single stream recycling where all the different waste recyclables are mixed together, the chances of contamination is much higher and since, the chances of contamination is much higher. It is not meeting the standard prescribed by the China ban now, which ah, if you remember which we discussed earlier is 0.5 percent. So, if we go for multi stream recycling I, it may we will probably do better, but the thing is that if you go for multi more and more multi stream recycling; that means, more and more trucks are required, you the infrastructure gets complex and that requires a lot of money to be invested a lot of manpower to be invested there. So, there has to be an economic techno economic feasibility analysis of whether, we should go for multi stream or a single stream.

Earlier many municipalities in North America or other places in the world were going for multi stream recycling and then they actually moved back to single stream recycling, because that was easier to do it and the China was ready to take those dirty recyclables. Now, since China does not want those dirty recyclables.

When I say China, I am also talking about other countries, which imports garbage from overseas, other countries will follow, show to other countries will also start putting those similar standard as China has done having less and less contamination, pretty much having a clean recyclables.

So, what does that mean in terms of the waste management, from a plastic waste management say, from an Indian point of view. We will start seeing lot of these plastic, dirty plastic recyclables trying to come to India, because since the market is China is not there anymore. So, they will try to send it to a country like India and which is already happening. So, of course, that will become a problem that is a challenge as well as an opportunity challenge, if it goes into the informal recyclers, where it is not managed properly.

It becomes a challenge and with the level of contamination coming in opportunity, if we can take this opportunity and develop our old recycling industry. What China did is they imported all these dirty recyclables from overseas for almost two decade and they developed their own recycling industry. Now, they are and they also started recycling within their own country. So, there are a lot of recycling programs in place in many cities, in China now.

So, they are had, they have a good recyclable material coming from within the country. So, they do not have to rely on the recyclables coming from overseas. See they were not doing it for charity; it is for, because they wanted those recyclables, they wanted those material so that it can go to their factories for manufacturing.

Similarly, in the contest in Indian contest, if you think about if we have to, when they set up a lot of factories in India with making India and all those things that is we need to do, if you really build things in India, we need material and recyclable is a good source of material, secondary material source and so we do rather than relying on the virgin material, we can use this recyclable material and that is a good source of material, but at

the same time, it has to be clean, then only you can use it, if its not clean you cannot use it.

So, that is the reason, why it either has to be cleaned, you accept the clean material as China's is doing now or you take the dirty material and clean it within your own country and but of course, it will have the impact on environment, but you can set systems in place where you can do that and at the same time try to develop the recycling market within the country.

So, those are the issues that this particular video was wrestling about and it talked about not only plastic, it talked about the other waste stream as well, which is which was going to China and now, the countries are struggling to what to do with particular waste. So, this is just an example video, you will find several videos like this on YouTube and other sources on looking at the impact on recyclable impact on in tarp waste recycling industry, because of this china sword policy or China ban, which we popularly known as.

So, that is what we wanted to kind of give you a an idea, there are as I said this is a very fluid situation in waste management sector right now. Things keep on changing. So, again if you find something interesting stuff, share it with the discussion board with your other friends and that is will help us to talk about in terms of the waster in terms of the waste like plastic waste management stuff that is happening around the world.

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So, now to really make the ban work, we need to talk about since that whole week we have been discussing on plastic ban, we looked at the issues of plastic ban in different countries around the world. So, if really to make this ban work there are laws has there are laws are being made, but the laws needs to be enforced. So, laws are not enforced appropriately, then the your compliance is reduced or eliminated. So, in this particular pie chart which you can see behind me or in the diagram. There are different aspect, we are looking at; we are looking at the enforcement we are looking at the collection and disposal.

We are looking at loopholes, we are looking at black markets and we are also looking at the alternatives. So, for it is just really this plastic ban to work this the multi strategy has to be incorporated, where we have to look at the enforcement, where the laws are implemented. First of all laws needs to be practical oriented to say, if you start banning too many stuff and without giving the alternatives to the market alternatives at the reasonable price, not too costly not to practically challenged like it has to be similar material, easier to use material and then the laws will be could potentially be enforced.

So, laws are not enforced appropriately then compliance is reduced. And if the plastic bag ban is there, but the worse disposal have to be, it has to collect those plastic bags, because the plastic will be there in the waste stream there will be loopholes. It is crucial to identify the loopholes and try to work on that there is always be black market issues, black market emerging in place where plastic has been banned.

So, if the plastic is banned, there will be black market selling, those plastic there also be like people trying to make money, out of those black market stuff and then we have to provide sustainable alternative for a successful plastic ban.

So, this is a, as we if we look at this particular weeks content, we started with talking about the ban, we have been to working on ban in Indian context, in terms of mostly single, use plastic those less than 50 micron size, plastic bags single use plastic bags those black color plastic that you get for the grocery or chicken, or fish store, the thin plastic, the transparent thin plastic, that you get for the vegetable market or even when you go for some small snacks and other places like jalebi, samosas and all that you get those plastic bags.

So, there and those plastic bags were pretty convenient, you have seen people even using it for say, if you go for buying idly and then chutney and the sambar and all that they will put it on those plastic bag. It is putting anything hot on those plastic bags actually is not good for health, but it still it is convenient, people used to do that and but we are banning all of those stuff, which is kind of a welcome move, because those are the new senses stuff which creates a problem. The question is having a proper alternative is in place so, which people can use and the alternative should be since, we see our lifestyle has become of a convenience lifestyle.

So, we started rather than creating our own container for taking all those like sambar chutney and other stuff that we used to do as a kid. Now, people take in those plastic pouches, which is a not at all good for health, but it still we do it, because we do not have to carry, those material, you can do it along the way back from your office to the home, you pick those material and go home and eat.

So, those things will go away, but there has to be some alternatives in place, which can be used and then only these things will actually go away. There will be otherwise, you will have a still like I see that in many-many states, where the plastic ban has been in place for the single use plastic, is still those plastic bags are being given to the consumer from like below the table or some in a illegal way, but it is still happening, because there is no proper alternative in place and it is part of it is behavioral issue part of it also is a technical issue and practical issue. Its not that plastic has made our life.

So, comfortable to some many extent that it is, it becomes kind of part of life from morning to evening we are using different plastic materials and when we are, when we are telling somebody to stop using it, all of a sudden without providing proper alternative, in many times it does not really work.

So, and then we also looked at some places where they have made it work by forcefully ah, putting some policies in place in Africa one country, does it have a wonderful job a lot of fine in place and that financial penalty, is always kind of works, better than the other source of penalty and then we looked at the overall in terms of having this ban effect.

Especially, when in terms of plastic waste management how could the China banned, we discussed that in more-more detail and its impact on plastic waste coming from across

the globe into China and its impact for possible aftermath of plastic go into other countries and also coming to India and its impact in India.

So, from an Indian perspective plastic waste is a huge deal presently, we have around 10 to 12 percent of our municipal solid waste is plastic waste, which the reports are suggesting including some of the field study done by our research lab as well. And so, that is a substantial quantity of waste out of 100 kg of 12 kg is plastic. So, that is and if you think about the volume it will be much-much higher, because plastic is a lighter material.

So, we have to deal with this in an effective way. So, from now we so far in this particular course, we talked about, what is plastic. We even looked at what is the plastic, we talked about the plastic waste management issues a little bit, we talked about the policies plastic waste management policy of India and some global policies. So, a little bit of EPR concept, we discussed that and then we talked about this big China ban issue.

So, this now we have finished 50 percent of the course in the rest 50 percent our focus will go more into looking at what are the environmental and human health aspect, if we do not manage this plastic waste properly, what is how to manage this plastic waste? What are the technologies out there? How to deal with those, what are the pros and cons of different technologies and how to implement those different technologies?

And then we also talked about the whole concept of the resource recovery circular economy and all. So, hope you are enjoying this course so far and we have been as I said in the very beginning of this course. There is no text book for this particular course. So, we have been trying to collect material from different sources and putting it together to have an interesting course, at the same time in course, which can provide you some knowledge.

So, that you can help the society in this particular aspect of plastic waste management, wherever in whatever way you can, but again any material that you find, that we should have talked about in the class or any discussion, that you think should have happened in the class, but has not happened in this and it on a particular topic, put it on the discussion board. We will be more than happy that to have a lively discussion over there. So, thank you and continue congratulations for finishing 50 percent of the course. So, looking

forward to have a similar input from you and similar enthusiasm from you, in the next 50 percent.

Thanks.