

11th October 2019

NATIONAL CONVENTION ON PLASTIC RECYCLING AND WASTE MANAGEMENT TECHNOLOGIES 2019

AIPMA 'National Convention on Plastic Recycling and Waste Management Technologies 2019' was organised so that it could give platform to the national-level Recyclers' to meet and interact on the subject of plastic waste management and latest technologies in the upcoming domain. The programme was held at the Silver Oaks, India Habitat Centre, New Delhi on the 11th October 2019 and witnessed a great number of attendees from the Government bodies, Municipal Corporations, Brands, Academia, Environmental Consultants, Entrepreneurs in Recycling, Plastic Processors and Scrap management organisations.



Snapshot: Lamp Lighting

After the lamp lighting by the inaugural speakers, there was a welcome address by Mr. Jagat Killawala, President, AIPMA. He began by addressing the esteemed panellists, speakers, our special guests and the delegates. He gathered everyone's attention by talking about the plastic industry gaining notable importance as the sphere of activity is flourishing and hence it contributes to the GDP and employment to about 5 million people of the country. He continued by saying that even though we are mostly MSMEs, our responsibilities are huge. Talking about the PM's announcement made on the 2nd October about phasing out Single Use Plastic, Mr. Jagat Killawala suggested that the industry is a bit relieved as the authorities have also asked for evidence to implement better recycling practises. According to Mr. Jagat Killawala, if the industry is available to ut into place waste management systems and best recycling practices, the task to tackle plastic would not be difficult and we would be able to follow circular economy and achieve our goal for a litter free India. On the other hand, the government and the industry

should join hands in order to create awareness amongst the citizen about segregation at source, collection and recycling. If this is achieved then there wouldn't be a need to phase out single use plastic by the year 2022. He welcomed everyone and informed that the conference is of immense importance and would be very helpful as it would help reduce the technological gap and make the industry people and delegates aware of the newest technology and practices that could be put into place by listening to the experiences and thoughts from the eminent speakers gathered. He ended his speech by saying that he believes that recycling and waste management are the most worthy solution to the ongoing plastic issue.



Snapshot: Mr. Jagat Killawala

Inaugural session

Mr. Yadhuvendra Mathur, Special Secretary, NITI Aayog, GOI

- Definitely, I am happy to present here with the industry joints and want to state that designing a 'Circular economy is a policy objective' of the government of India. This is not about only waste management at source but also from a resource point of view that NITI Aayog is considering 'plastic waste' to generate energy and recyclable products.
- As far as the corrective and respective compliances is concerned with SUP, the Ministry Environment upholds the rights to issue mandates of such nature. At NITI Aayog, however we talk about 'resource efficiency' & 'circular economy' and that is where I see the space for partnerships because only we together we have to derive and drive the goals to be achieved for the SDGs etc. The global companies, governments and trading partners etc all have to become circular, there's absolutely no option. Circularity does not mean destruction of value. We are trying to have a behavioural change, places like Ambikapur and Indore, are doing the level of segregation that we require. The Swachhta Survekshan data on households, I am sorry to say that in Delhi out of 216 wards, only 6-7 wards of the three municipal corporations, very little household segregation and collection at source is happening. We have huge landfill sites around Delhi, which are a national shame and so these are things we know and the municipal commissioners are committed and still something is missing.
- As we know the safai karamchhari whose numbers may vary in different cities, but there segment is loosely fragmented and informal category. We have to somehow cross that

barrier of informal cycle, and when the recycled material is picked up. Overall, the scope of our rules is large, some states have a particular type of framework. As far as my point of view is concerned, PM Modi has addressed the issue by taking into cognizance the environmental needs and we at NITI Aayog are also considering the other second half who are working behind this industry, the manufacturers, millions of small workers and livelihoods. I understand very deeply the new process that are coming into play, such as 'pyrolysis' and 'how much incineration is inefficient way'. We have been requesting IOC to be the change leader in using pyrolysis and also use the municipal waste to produce the thermal heat for gas stations. I am more concerned with the urban and rural planning of city. The municipality cannot be held responsible for your household waste that you are unable to sell-off. Also, there is already a huge problem for the municipality, they have to handle construction demolition waste. Fly ash from the power plants is used as a resource in the cement industry.



Snapshot: Mr. Yaduvendra Mathur

Mr. Vagish Dixit, Managing Director, ALPLA India

Alpla is the largest producers of plastic bottles in the world. Working since the last 63 years. Have over 178 production sites in 46 countries with 72 in house sites that means working inside the client's plant which gives an example of sustainability as there is no transportation, no packaging hence reduced carbon footprint.

E waste, concrete, bio waste are bigger problems as compared to plastics but just because we do not see them fallen on the roads nobody considers it a problem.

Plans to spend in vans for compression so that rag pickers who earn below than their minimum wages can use it, compress the waste, collect more waste and increase their wages. Structural issues need to be addressed:

- 1.) Address issues of ethical sourcing
- 2.) Ensure smeta 6 compliance
- 3.) Alleviate social issues related to the rag pickers for example providing them with gloves so they don't hurt while collection or sorting bio waste
- 4.) Create a safe eco system

The energy required for pet bottles is about 400 less than what it is required to recycle a glass material. Glass has 400 % more cumulative energy demand for recycling than plastic across all categories on average. Establish a recycling plant plant with a capacity of 10,000 tons facility by 2021 for recycling and social alleviation.



Snapshot: Mr. Vagish Dixit

Dr. G.S Kapur, Executive Director- R&D, Indian Oil Corporations Ltd:

According to Mr. Kapur, there should be steps for value from waste generation and most of the initiatives taken up by Indian Oil revolve around the same.

He made the audience aware that IOCL has been working in full swing and has developed certain technologies by putting in place the pilot research, executions, and the road construction initiative which gathered a lot of limelight from the news channels as well. At IOCL they mainly focus on mechanical, chemical and organic recycling. Further he added that at IOCL they do not believe in the word pyrolysis instead they use plasma gasification. Around 28 million tons of gasoline & about 83 million tons of diesel is consumed in India. People claiming of the use of for eg.using 5 million tons of plastic and converting it into fuel wouldn't help to overcome the demand. Also, the fuel produced is nothing but LDO type and can be best put to practice in generators, agricultural machinery etc. IOCL believes in chemical recycling synergising with their refining operations. IOCL as a company operates 11 out the 20 refineries

in India. Chemical recycling can create new outlet for the plastic waste recycling by producing high end products. There are three different processes by which chemical recycling is done namely process A, B & C. These processes are designed to take up plastics that 40% plastic which is not recycled, not using the materials which are already being recycled such a PET bottles. Process A can take care of these kind of plastics and produce speciality waxes such as polishing waxes, candle making, industrial waxes etc. Process B can take polythene, polyethylene, polypropylene, thermocol type of plastics these can be converted into high value products and petrochemical building blocks. We can also convert it into LPG, propylene and styrene. Whereas process C is more robust and can take care of any kind of plastic except for PVC giving very high yield distillate. He also shared the challenges faced during chemical recycling such as extensive optimisation of temperature and pressure needs to be carried out, there are feeding issues, transport lines, metallurgy of reactors in the tunnels. The final product generated should be in compliance with the BIS standards. Process A has been successfully implemented by IOCL & the yield was of the order of 85% and very high paraffinic content, the carbon range was controlled and the properties of the waxes produced was more or less similar to that of the waxes produced by other commercial processes. It was informed by Mr. Kapur that not even a single element of styrene is produced in India because of the non-availability of technology and all of it is imported. By process B these styrene and thermocols can be converted into other very valuable products with the liquid yield of about 70% and the rest is gas. The styrene is converted into its monomeric form which is a very valuable product. The process C is a versatile process and can take care of many different types of plastics. This technology is available at IOCL, Reliance industries etc , at 2% level, we can take care of around 1 million tons of plastic and at 5% level about 2.4 million tons of plastic waste on PAN India basis can be taken care of by this particular process. He also shared insights on the other two methods such as mechanical and organic recycling.



Snapshot: Dr. G.S Kapur

Mr. Vimal Kedia, CMD, Manjushree Technopack Ltd & President, PET Packaging Association for Clean Environment

Mr. Kedia began by referring to the speech by hon'ble Prime Minister Shri. Narendra Modi who urged the nation to take suitable steps and actions against single use plastics. Mr. Kedia continued by saying that we shouldn't use the word single use plastic but call it the non-essential packaging material. Plastic is not going its growing, as the usage and production of plastic has increased from 15 million tons in 1960 to 350 million tons today and it is expected to show a fourfold increase reaching about 1200 million tons by 2050. He continued by saying that plastic as a material is often misunderstood and faces problems due to the various misconceptions surrounding it, whereas we should try to resolve these misconceptions because they force the people to find alternatives which would deteriorate the environment further. Time has come that the plastic industry should organise themselves to manage plastic waste. All around the globe, about 70% plastic remains uncollected or unrecovered, only about 28% is collected out of which some are incinerated and as minimum as 2% is reused. Mr. Kedia also talked about the fact that the crude oil used during the plastic production is not an infinite but a finite fossil fuel and that gives us another reason to recycle plastic. He believes that people should be made aware of the importance of plastic packaging in food, pharma and healthcare. He also focused that we should take combined efforts and not only the government should be blamed alone or asked to manage the pollution caused by everyone. One could do that by promoting education related to goodness of plastics, way of segregation, recycling practices etc in the primary classes. Finding alternatives to plastic gives us an idea to use paper, glass etc. using paper as an alternative to plastic would cause destruction to the remaining forests. Therefore, rather than finding alternatives we should focus on redesigning plastic. He recommended that we should explore the limitations and potential of various types of plastics and hence use them meaningfully. He went on to add that reuse is the area where we should work more as the total reuse potential is about 20% in the case of packaging, personal and product bottles account for about 5% reuse if they are refilled, the plastic polythene bags if made with high thickness can be used multiple times just like the cotton bags. He further went on to talk about LOOP, which is an initiative taken up by companies like Nestle, Unilever, and P&G etc. It's a subscription based model where the customer after use retains the emptied bottles to the company, they clean it and refill it. This way the bottles and containers are used multiple times and not disposed off in the environment. Recycling should be another important step which should involve product design change for improving the recycling quality & economics. Also awareness about recycling, segregation should be done. They should be made aware of the recycling practises, behavioural changes, segregation at source and the 5R's should be adapted in personal life ie. Reuse, Recycle, Refuse, Reduce and Recover. Pace along with KARO SAMBHAV have come up with a project which is a collaborative approach with the targeted action plan. The members of pace have joined hands together to come up with Asia's largest Packaging waste management venture which aims at mobilising and converting assets and resources of over 1000 crore in a year with the vision to recycle all plastic waste packaging by 2020. This is a major initiative by PACE for achieving circular economy and closing the loop and has been joined by Coca Cola, Reliance Industries, Pepsico, Manjushree Plastics Etc.



Snapshot: Mr. Vimal Kedia

Shri. Raghavendra Rao, Secretary, DCPC, Ministry of Chemicals & Fertilizers

Began by sharing his experience from 2nd October 2019, when he visited a village somewhere in Haryana. As he walked across the village, his companions told him about a dump that existed there long back but has been cleared. When Mr. Rao went close by, he witnessed that there was some waste that still existed. The waste did not contain any PET Bottles or thick plastic material but 1000 & 1000s of plastic polythene bags. He felt that in reality the scenario is quite disturbing regarding the spread of the plastic waste. He specifically talked about 3 dates which have been referred by the as being important and with high significance, ie. 11 September, 2nd October & 27th October. He told that 11 September was selected by the Prime Minister to launch the “Swachata hi Sewa”. Mr. Rao shared that one of his senior officials was taking a meeting on the same and asked the other officials to share their views on how they plan to prepare themselves for the Swachata Hi Sewa. Mr. Rao was also asked the same and he replied that we frequently talk about Plastic Free India but can you imagine what the situation would be if there would be no plastic. Plastic is not a problem but the way we use and throw, the way we use and litter is the real problem. He recommended the senior officials not to talk about Plastic Free Delhi, or banning Single Use Plastic without even describing what we mean by those. He added that we should find other ways to tackle the problem. As here we are talking about plastic which should not be considered waste but a resource and a versatile, a wonder material. There's plastic everywhere in Food packaging, in the medical sector and there's no way we can live without plastic. The meeting then decided that the focus of the campaign should be not on all the plastics but only on the single use products that cause nuisance in the environment. Further talking about the report submitted by the SUP Committee he added that the report points out at tackling those products that have very minimal utility but cause a high end damage to the environment. The committee analysed and presented those products and

also presented their recommendations. Therefore, no further ban was seen apart from the one already existing. The rate of plastic recycling in India is amongst the highest in the world which is about 60% but the other 40% which is not recycled also makes a huge value for us. He suggested that people should begin at the source. He also added that if we look at plastic as the villain we are probably knocking on the wrong door, it is the behavioural change that is required to tackle the situation. He added that you should never deny that there is not a problem with plastics, we should accept the problem and come up with solutions related to it. By ending his talk he urged the people to try and come up with good ideas and that the government is going to support them in every way possible.



Snapshot: Mr. Raghavendra Rao

Mr. Rajesh Pahwa, Owner, 21st Century Polymer

“Plastics Recycling is a noble cause, and it has a lot of differences in the Greenhouse gasses that it produces. If we produce virgin plastics, the GHG we produce is a lot higher than if we produce recycled plastic goods. It cost-effective also, we all industrialist who trade in plastics know that, recycled plastics’ cost is on an average 50% to that of producing virgin plastics. Let’s talk about what it requires to get into the plastic recycling business: We need machines that can work with mixed plastic and segregated plastics. There are automated machines also. Now let us talk about the challenges of plastic recycling and the kind of products we can produce. For example- There is the car’s headlight that we can produce, even if we receive the mixed scrap, with a combination of Polycarbonate, PMM and ABS. Since, we have the technology, we can use the polymer-sorting machine. Sometimes, something also need manual recycling or sorting to make it a 100%. Then, it is very important to do colour sorting of this by-product in a colour sorting machine. We have a capacity of 700 tonnes as of now and we want to raise the capacity to 1000-1200 tonne. Even for the electric cars, which ideally need to

light-weight. Therefore, even for mixed-plastic recycling we can go for a new technology which is granulation but I suggest source segregation in the beginning. We believe in sustainability action. We are also of the vision that we work towards increasing the income of the rag-pickers. One of the ways is that, we have to work in tandem with the municipal corporations. And make certain small changes in our lifestyle- like we should always cover the used razor with the package of the new razor at home, so that the rag-pickers do not get hurt. Also, we should rinse the milk-plastic that we get at home so that the segregators do not have to stay in nauseous conditions due to smelly milk-plastic bags. Reduce, reuse, Recycle and Repurpose should be our motto. Post- industrial and post-consumer plastics we are recycling. EPR Compliance coverage for brand owners we are doing.”



Snapshot: Mr. Rajesh Pahwa



Panel discussion 1: Definition of Single Use Plastics

Session Chairperson-Shri. Indrajit Pal, IAS, Ex-Secretary,DCPC, Ministry of Chemicals and Fertilizers, Government of India & Chairman- SUP Expert Committee

Mr. Pal began by sharing his experience as the chairperson of the SUP Expert Committee which was set up by Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilisers, Government of India and that the committee has submitted their reports with issues and recommendations. Also, saying that the further action is to be taken by the higher officials of the department. He further shared that there was a need of a definition for the SUP all across the country and MOEFCC shared the definition with all the states not as a definition but as a guideline. He also added that being a guideline it may be adopted as a definition or may not be. The definition is similar to the UNEP definition of SUP except that grocery bags have been replaced by the carry bags in the Indian context. Different countries have adopted different definitions but they are more or else similar in meaning. He focused on the fact that when we talk about Single Use Plastics we are actually talking about the Single Use Plastic Products and these are the products that may be subjected to different bans and restrictions depending upon the decisions taken by the government. He ended by saying that no polymer or resin is single use, it is the product that is single use in nature.



Snapshot: Shri. Indrajit Pal

Mr. Prabhjot Singh Sodhi, Head-Circular Economy, United Nation Development Program

Mr. Sodhi started by referring to the FICCI report 2013, which stated that the packaging consumption of Single use Plastics in India is 43% as against the world average consumption of 35%. So, the packaging industry across India uses the largest chunk of Single Use plastic. Sharing his experience he further added how while travelling he saw that all the food, beverages are served in plastic, but are just thrown away like that. He suggested that this is where the packaging industry should focus on. Coca Cola, Hindustan Unilever, HDFC, IOCL have been partnering with UNDP. He added that is the duty of the municipal commissioners to look into the matter and get on with the tasks and that's where UNDP helps them to pave the way by setting up Waste Recovery Centres in the states which are in need. With their partnership with the Coca Cola beverage Ltd, the packaging arm of Coca Cola they have collected 20,000 tons with traceability in one year, all partnered with the government, with the municipalities and the municipal commissioners. He believes that plastic is a wonder material and the problem is us littering everywhere with plastics. He ended his talk by saying that banning is not an option but banning certain products should be. There is a lot that can be done and should be done. He also urged the recyclers present to collaborate with UNDP as they collect a lot of plastic waste but are unavailable to provide it to the registered recyclers for the recycling processes. There are about 6 million waste collectors whose livelihood should also be taken into account, he added.



Snapshot: Mr. P.S Sodhi

Mr. Shailendra Singh

Mr. Shailendra said that the recyclers are the only ones who never refer to Plastic waste as a resource for his business. He also added that he agrees to the statement given by Mr. Sodhi saying that the issues should be tackled by looking at both aspects such as that is Technology Upgradation and Recycling Advancements. Continuing by appreciating Japan he added that during a UN discussion Japan was the only country that stood up to say that we cannot imagine our lives without Single Use Plastic. Japan is one of the few countries which have their collection and segregation systems sorted and probably the only country which has 7-8 bins in their household. Ended his talk by saying that the recycling technologies are clearly available around us they just need to be put into place.



Snapshot: Mr. Shailendra Singh



Panel Discussion 2: Challenges in Collection & Segregation of Plastic Waste

Session Chairperson- Ms. Divya Tiwari, CEO, Saahas Foundation

Tiwari said, “The thing with the segregation is that people who are house-maids and who segregate the waste at source, see that it is getting mixed later and all their efforts going in vain. So, it’s very discouraging. Also, I suggest that we should all stay away from any single-use products or wrapping material, not only plastic but also single-use wood, paper and glass materials as consumer or material. Especially, if you want to achieve the large level of segregation by huge number of people, a colony or a layout of 1000 people, if 90% of the people are segregating and 10% of the people are not, the whole effort goes for a toss. Also, source segregation is not about awareness, it is about proper implementation, following a colour coding and trained cleaning/ sanitation staff. Saahas, is working with a few apartments/residential colonies, we are redesigning the housing contract. We have to go about it very systematically, and with a large number of communities across the country.” She also spoke about a movement called, “Alag Karo”, which defined three kinds of waste that should be separated, which are colour coded also. One is ‘Green Bins’, which contains ‘Wet and Organic Waste’, ‘Blue Bins’ which contains ‘Dry and Recyclable Waste’ and the ‘Red ones’ the rejected waste and Bio-medical waste. As consumers and producers, we should think about reducing all sorts of waste. If the government is following a circular economy, then single-use has no place.



Snapshot: Ms. Divya Tiwari

Mr. Sandeep Patel, CEO, Let's Recycle- NEPRA

Waste Management is not an easy task, it needs to be arithmetically coordinated with everyone. It is a complex problem, because it has five to six steps that are not profitable for business, you are doing:

1. Awareness
2. Collection
3. Segregation
4. Processing
5. Selling the Recyclers

With 500 Smart Cities coming up, there is a huge opportunity for a lot of applications. Collection, material recovery facilities. We have realized that we all are responsible and we all have to take care. The problem is not plastic at all, it is the behaviour. We all see plastic because anything, Collection centres, recycling infrastructure, consumption of the products created from them and the whole circularity needs to be created. Various awareness programmes, with the urban local bodies and more things like the 'reverse vending machines' and 'smart dustbins' (about 140 of them we have installed near the Karkaria Lake in Gujarat). Incentivize schools and households to create that value chain, because people would like a certain type of value. Some material recovery facility, as the biggest challenge has been in the area of 'Polymer-sorting'. Large-scale collection, segregation and processing is possible. Washing and drying at scale and specific application at large-scale and trade/marketplace as well. What happens with the films and packaging and tarpaulins etc. 'Dry Waste Sorting machine using- AI'.



Snapshot: Mr. Sandeep Patel

Dr. Praveen Aggarwal, CEO, Action Alliance for Recycling

Mr. Aggarwal began by talking about the objectives of AARC which are- developing an ecosystem for recycling and collection, contribute to policy making and to impact positively the waste management community. AARC is particularly focused on the paper based cartons and these cartons are 75% paper, 20 % plastic and 5% aluminium. They are 100% recyclable and most widely used and save food packaging material. He suggested that there are regulatory challenges that are faced by the industry. Since the state thinks in another way as the central, they come up with their own rules and regulations. There is a need for a framework that can be followed across all the states. He added that better than doing EPR we should be focused on improving the waste management systems and come up with better recycling practices. Sharing his experience he said that way back pet was not recycled enough because the households never received an amount out of the, the kabadiwala did not earn enough money out of it and nobody was aware of the PET recycling potential. But after some years they worked to build up a self-sustainable, economically viable solution by collaborating with the rag pickers and educating them that there are various plastic products that could be collected for an economic value, therefore a self-sustainable system has been created wherein about 70-80% of PET is now recycled. He also questioned the policy makers who promote the ban on Single Use plastic by saying that they do not look at the recyclability of these products, end of lifecycle products, ease and convenience and the utility for the consumers. They have also been working with the government to give their recommendations on development of the EPR guidelines draft which provides clear responsibilities at the consumer, producer, manufacturers, urban local bodies and municipalities. They have also tried to differentiate producers of the brand from the producers of the packaging material. The producers of the brand would be responsible from the material recovery centre to the resource recovery centre and that of the producers of the packaging are responsible to find end life solutions, betterment in the recycling infrastructure etc. as an alliance they worked by first mapping down locations with high consumption of packaged beverages. They then established collection centres through waste management companies. The cartons and straws are collected and processed together. These are then recycled into roofing sheets, tiles etc. ended his talk by saying that these steps are not enough to tackle the current situation and that such initiatives should be promoted and increased many folds. Also it is the joint responsibility of each one in the chain and we should work to create an ecosystem where everyone takes the responsibility.



Snapshot: Mr. Praveen Aggarwal

Ms. Anuradha Bhonsle, Vice Chairman, AVANI

I have an NGO based on working with the waste -pickers near Mumbai, and I can tell you by my experience that all the waste-pickers we work with are handling enormous amounts of unsegregated and waste and the huge amounts of health hazards they face each day. After continuous segregation of the dry and wet waste for 8-10 hours each day, she earn about Rs. 100-200. It is a back-breaking job and majority of the waste pickers are not working for any municipality and are working on a contract basis, they have to work on the dumping ground and under immensely dirty & unhygienic conditions. So what 'Avani' does is that they organize 940 waste-pickers and they are dedicated to Avani in a way that we can take their voice to the government of India. The central government had set up a committee that evaluated 'the contribution of the waste -pickers' in the environment. And it was found that the waste -pickers are contributing 25% towards the environment. And considering that we have a waste-management organisation of our own, we organize our own 'Waste-Management Programme' of over 3000 people. Once a week they collect, tonnes of waste from 1000 households and without getting their hands dirty in the dump yards, they can recycle the collected waste and sell and earn a livelihood from that and whatever is below 50 microns, that goes to our sorting units. Therefore, they have the opportunities to work with us in at least some kind of dignified conditions. We are also trying to get more of the facilities from the government and they went on to sell scrap. They collect in such a way that not all wet waste has to go on the dumping ground and we have developed wards and outside each ward, for Monday to Saturday we developed waste bins separately for wet waste and dry waste. The residential welfare associations call us, when the waste is collected and the waste pickers earn good money. We are working with 3000 households as a pilot project.

1. Wet Waste we are turning into compost and if the government supports us with such type of machine such as given to the municipal organisation. They have to buy very heavy technology. We also have shredding machines, so whatever is below 50 microns, we are shredding that plastic. It also creates a kind of employment opportunity for them. We are also requesting the PWD dept. In the govt. that they should such plastic on the road. Since 1 and a half years we have collected 500 tonnes of plastic
2. I want to mention it here at this platform that many people come and criticize us and say why you are again making them work on this this job role again. The point is that, we provide dignified conditions, training them, giving the unskilled workers a means of livelihood, day by day waste is increasing. So, we have so much manpower and we have to utilize us smartly. That's the way we are working in Kolhapur right now.



Snapshot: Ms. Anuradha Bhosale



Panel Discussion 3: Creating a Vibrant Market for Plastic Recyclate

Session Chairperson-Prof. N.C. Saha, Vice President- Asian Packaging Federation (APF), Chairman, Sectional Committees- Bureau of Indian Standards, GOI & Former Director- Indian Institute of Packaging

I personally feel that when we talk about the other Asian nations, for example in Indonesia, 90% of the waste is burnt down and even in Thailand, the only solution is burning. But India is a country with 60% material is being recycled. Even the statistics say that even the PET bottles which are very much in high demand, are being collected 60% and recycled. And once you collect it and make it the recyclable material, we have made a colour palette according to the material that we have recycled, so that any member of the industry can view it and ask for a certain type of recycled product in that colour. MLP and the aluminium foils etc. Dollplast has already made the benchmark for creating the recycled furniture etc. Earlier everybody was fearing that from October 2nd onwards, it is the banning of the SUP, but now we know clearly that we have at least 2 years' time to phase out the SUP. In this timeline, we can also think about converting the three layers of MLP to a single coveted layer of protection.



Snapshot: Mr. N.C Saha

Ms. Seema Athreya, Vice President QA and R&D-BikanerVala Foods

I am going to tell us all a story, where in ourselves have demonized plastic and are not able to clearly think of the solution to go forward. For the manufacturers, users and the solution providers, in the past 90 years or so, since the first polymer or nylon molecule was created, the plastic industry has evolved many times. It is like the technology has moved very very fast. We have primary demand for application of primary packaging, which can accommodate from hot-fills to dry-fills. We have products which have a long shelf-life, and even frozen products. Apart from the primary packaging, we have to certainly add a few more layers of secondary and tertiary packaging and we use a lot of cling films which may be functional and non-functional. There are so many different polymers. Takeaway delivery containers and all which reach the consumers has been banned, the delivery containers banning possess and much much larger challenge for us because 'How do we make the food' with spillage if we are not putting it in a spill proof container, which the alternatives paper and wood pose quite a challenge. We are trying to shift to biodegradable packaging/ well, if you see this you have beverages and a lot of types of different compositions to which plastic has responded very well. We don't have to worry about the plastic reacting to it and all the plastic additives that go in at every stage here. Health scares has been created around plastic use. Various types of cancers, nerves and brain damage has been associated with it, kidney diseases and this is what it has been claimed and disseminated in the media, which has some factual data as well. We cannot rule out the likelihood of plastic being some kind

of endocrine disruptors, especially being in the food industry keep hearing this but how is it that we shift to something else? It is helping us maintain the shelf life, protective layer.

What we can do now:

1. Have sensible usage of plastic and evaluate our usage, if a certain type of layer is necessary. And have enough knowledge about what kind of plastic has to be used where?

2. If we talk about the food industry specifically, there are certain risks that we run in our country food containers are used for all different kinds of products, such as kerosene and acidic materials, even if we collect them for recycling or reuse, we run certain risks in the food contamination aspect.
3. Then we have certain compliances of using recycled plastic. This is the key concerns for us, specifically in the food industry. BIS & FSSAI is putting certain standards in the F&B industry, but it is more of a guideline on using the plastic coming out of the recycling kilns. We have China, which contributes to more than 50% of the recyclates, in the whole world. North America is also committed to using PET Bottles. Scandinavian countries are recycling plastic at 97%. And Norway is a winner, recycling the plastic up to 50 times.
4. So, plastic is something, we cannot do away with completely, it is required in the F&B industry at least and Pharma industry. We can plan ahead for 'clean plastic'; from the manufacturers to the consumers, the primary consumers to secondary consumers everybody needs to be informed about the correct way of its disposal. And the standards for recycled polymers have exist, which our country currently do not exist. Plastic seals for medicines etc as primary packaging, and plastic packaging at a secondary level do not any value to the product and plus the cartons etc which are the third level of packaging - they are all also not getting recycled and adding to problem.



Snapshot: Ms. Seema Atreya

Mr. Rajiv Kumar, Sr. GM (Business Development), Reliance Industries Ltd

Mr. Kumar began by recalling an incident that occurred during the Environment day, sharing that there were pamphlets and booklets being distributed explaining on how oceans are littered and affected due to the presence of plastic in it, but these were also distributed in plastic bags. He thus indicated that no matter how much we try but we cannot do without plastic. According

to him, banning is not the solution but preventing littered and better collection and segregation mechanism are. He further added, that PET was invented in 1941 and came into the beverage industry in 1973. According to him, PET has always played an important role in any discussions concerned with environmental issues. In a drive to reduce carbon credit and carbon emissions which took place from 2000-2010 PET played a significant role and the major privileged industry shifted from glass to PET. PET thus contributed to reduction in water borne diseases and on being recycled it would also contribute to circular economy. The number solution is to have a proper recycling system in place and PET already has one in place as 90% of PET is getting recycled. He also added that plastic packaging is not a waste, it is actually a resource for the recycling industry. PET is one of the most recycled plastic items and helps to produce fibres, jackets, footwear etc from it. There are about 45 recycled producers. According to the geography, Mr. Kumar indicated that there are more recyclers in the north zone and there is scope of improvement for the south and east zones. About 1.6 lakhs ton of PET bottles are imported in India for the production of granules, to make the industry efficient and the government should look into it. Reliance industries is also investing into three plants, two of which produce fibre and the third is in its advanced stage and does bottle to bottle recycling. PET also promotes the 17 sustainable goals out of which 8 are filled by PET. **Challenges in the PET** industry is clarity on SUV is required, banning of bottles below 200 ml in some states, import of PET granules, rag picker incentivisation, recycling industry demand. Reliance industries has installed about 75 machines of RVM at the Reliance Retail store to make the consumers aware. They have made a brand out of fibres produced by the recycling of PET bottles and these are supplied to different brands including Raymonds etc. Reliance has also been collaborating with different organisations and institutions to recycle and create awareness about recycling processes and new technologies available in India amongst the people for eg. Polyester tee shirts by Anita Dongre, which was made of recycled plastic bottles. Mechanical recycling is also followed. The main thing to take care during mechanical recycling is that the products and materials should be least contaminated. He also mentioned other processes to recycle polyester fibre that are glycolysis, methanolysis, and hydrolysis. Glycolysis is the conversion of the polyester into the oligomer stage, methanolysis converts it into the raw material used to produce PET again. But mechanical recycling is more preferred in terms of economy and other factors.



Snapshot: Mr. Rajiv Kumar

Mr. N. Siva Shankaran, Head- Technical Organization, Vice President Business Development, UFLEX Ltd

Began by talking about the challenges in the recycling of the multi layered plastic packaging unlike polyester that can be recycled easily. He suggested that the solution should be holistic to the consumer, producer, government bodies and other concerned with multi layered packaging. He indicated towards the need for better waste management practises and the increasing amount and number of landfills in each city. He shared that at UFLEX, they are dealing with the problem by 100% recycling all the multi-layered packaging produce and converting them into 75-80 useful products such as usage in road construction, road dividers etc. The benefit here is that the waste collected in house is uncontaminated so the processes are simpler and much easier. One solution available is the aerobic compostable, under ISO 17088 and is notified by the government. A lot of polythene bags are made under 17088 but it is completely wastage of resources as the resource is completely being composted and you cannot recover it. To follow this composting you need high temperature for composting as well as an industrial composter. Another process discussed by Mr. Shankaran is the Oxo biodegradable, the catalyst used for its production has already been banned by the European Union. Another one is the anaerobic biodegradation comes under ISO 15985, done by anaerobic digestion condition and it produces gas. Therefore there's a lot of methane coming out and methane is harmful to the environment as it is a greenhouse gas and therefore it could have an effect on the climate, hence not considered a very good method. The most implementable and viable aerobic solution, essentially the solution is based on adding enzymes on the polymers and UFLEX has been successful in adding enzymes to different polymers on polyester, polyethylene, polypropylene which are the material that are used in 90% of FMCG products. This is an effective approach because the enzymes remain on the film and the materials

containing this film can still be recycled and if it remains uncollected or littered the enzymes on the film would attract the bacterial colons and begin with breaking down of the material.



Snapshot: Mr. N. Siva Shankaran



Panel Discussion 4: Resolving Key Barriers to Recycling Capacity Building & Improving the Quality of Recycling

Mr. Anup Patel, Managing Director, DollPlast Machinery Ltd

Mr. Patel believes that a person uses plastic items almost every time during their daily schedule and there is no life without plastic. He believes there is no such material like plastic as it helps keep the food fresh, is a thin material idea for packaging and is lightweight which help in reduction of the transportation and storage cost. He added that the environmental issues due to plastics arise because of the common littering problem. Door to door collected plastic waste contains 8-10% of plastic and if not properly recycled this waste ends up in landfills. According to the Plastic Waste Management Rules, it is the responsibility of each municipality to collect, segregate and do proper disposal of plastic waste collected from households. But segregating different grades of plastic poses a huge challenge and financial constraints. The major challenge is the recycling of mixed plastics. He then presented the solution of mixed waste recycling as its conversion into wooden products. He ended his talk by requesting support from the public, industry and the government that no waste should be burnt and send to the landfills instead it should be sent for recycling.