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INDIAN CENTRE FOR PLASTICS IN THE ENVIRONMENT

Management of Plastics, Polymer wastes and Biopolymers and impact of Plastics on the Eco-system

Sponsored by
Ministry of Environment, Forests & Climate Change, Government of India

Eco-Echoes

Quarterly Publication of Envis Center ICPE

Volume 18 | Issue 2 | Apr. - June , 2017

IN THIS ISSUE

Envis Eco-Echoes

Volume 18 • Issue 2 • Apr. - June , 2017

Editorial

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Area of Activity

Capacity Enhancement Programme on Management of Plastics, Polymer Waste and Bio-Polymers, Impact of Plastics on Eco-System

World Plastics Consumption has reached 300 MMT figure. India has attained a modest figure of about 15 MMT in 2016 – 17 corresponding to about 14 KG per capita consumption compared to about 35 kg world average per capita consumption today. These figures correspond to consumption of virgin polymers. Consumption of plastics has increased manifolds over the past about 60 years due to all round superior properties of plastics over the alternate materials. Availability of plastics at a cheaper cost in most of the application sectors is considered an added benefit to the consumers. Polymer manufacturers as well as the downstream processing machinery manufacturers are continuously developing new technologies for offering the better-quality products at lower cost. However, this is not the last word. Taking advantage of the fact that plastics are 100% recyclable / recoverable, more emphasis is being given to recycling / recovering of the plastics waste. Indian plastics industry has been using recycled plastics in a large way for various non-food contact applications since the mid-sixties. This has resulted in achieving a figure of about 5.5 MMT of recycled / recovered plastics waste for useful applications while its virgin plastics consumption was about 15 MMT.

It is estimated that in 2020, Indian consumption of virgin plastics would reach a figure of about 20.0 MMT while recycled / recovered plastics would be about 7.0 MMT. This enhances the important position of recycling / recovery of the waste in the overall economy of plastics.
The above estimates are of course for the quantity of plastics recycled / recovered in India in the specific period and it reflects the optimal utilisation of plastics waste for value addition in the economy. However, the loss to the economy for not recycling / recovering of plastics waste remains to be substantial. As per ICPE study, for the 10.119 MMT consumption of thermoplastics in India during 2014 – 15, a quantity of 1.416 MMT plastics waste remained uncollected and hence not recycled / recovered. This clearly resulted in a huge loss to the economy apart from creating an environmental issue. It is, therefore, utmost important to attempt scientific recycling / recovery of all plastics waste that is generated. In this edition of the Newsletter, the Executive Summary of an important Report on New Plastics Economy, produced by Ellen MacArthur Foundation and submitted to World Economic Forum is reproduced for the benefit of the readers. Readers' attention is also drawn to the DATA SHEET published in the inner last cover of the Newsletter, which is sourced from a report of Denkstatt and Plastics Europe titled "The impact of plastics on life cycle energy consumption and greenhouse gas emissions in Europe in 2010". The report highlights the 'use benefits of plastics'. The findings of the Denkstatt Report is, in general, true for Indian perspective also.

Readers views are welcome.

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ICPE ENVIS Newsletter is sent free of cost to all those interested in the information on Plastics and Environment.

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Editor : Mr. T. K. Bandopadhyay

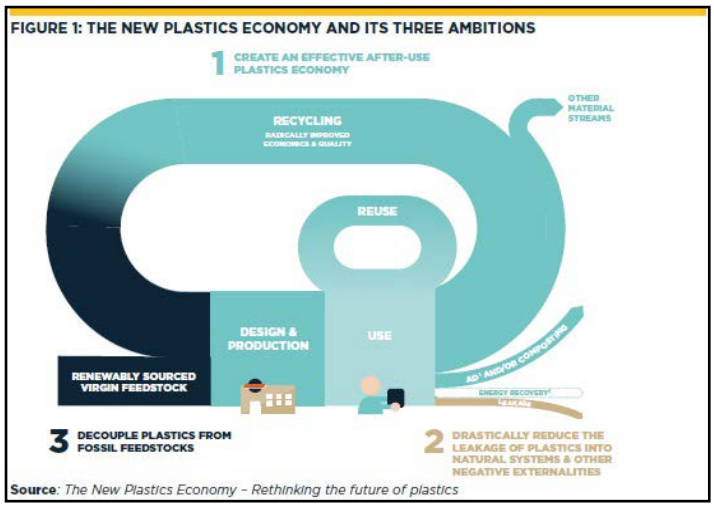
THE NEW PLASTICS ECONOMY
CATALYSING ACTION

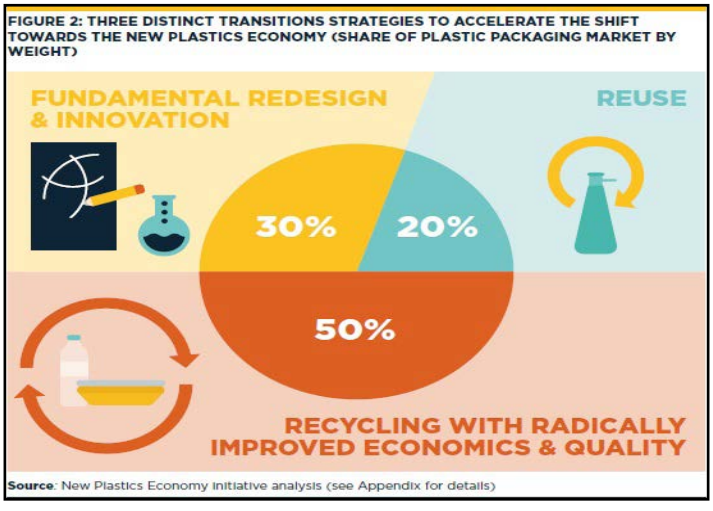
Preface

In January 2016, the World Economic Forum, the Ellen Mac Arthur Foundation and McKinsey & Company published the report The New Plastics Economy – Rethinking the future of plastics. It was produced as part of Main Stream – a multi-industry, global initiative which aims to accelerate business-driven innovations and help scale the circular economy. For the first time, the report provided transparency on global plastics material flows and associated economics.

It found that, while plastics and plastic packaging are a key part of the global economy, the current plastics economy has significant drawbacks that are becoming more apparent by the day. In addition, it presented a blueprint for a more effective plastics system based on circular economy principles – in effect, a New Plastics Economy. In May 2016, the Ellen Mac Arthur Foundation launched the New Plastics Economy initiative – a bold, three-year project to mobilise the report's recommendations, together with its Lead Philanthropic Partner – the Eric and Wendy Schmidt Fund for Strategic Innovation; its Philanthropic Funders – MAVA Foundation, Oak Foundation, and players of People's Postcode Lottery (GB); its Core Partners – Amcor, The Coca-Cola Company, Danone, MARS, Novamont, Unilever and Veolia; and a broad group of participant companies, cities and governments across the value chain. This new report is one of the first key deliverables of the New Plastics Economy initiative. It represents a logical next step to the 2016 report: from rethinking the future of plastics to catalysing action.

To trigger action, the report aims to make three original contributions to the transition towards the New Plastics Economy: Three distinct transition strategies for three plastic packaging categories covering the entire market (Redesign and innovate; Reuse; Recycle) based on a granular, segment-by- segment analysis and a quantification of the economic value creation potential for core aspects of the Reuse and Recycling categories A set of priority actions for each category, mobilising the strategies and setting a common direction for players across the global plastics packaging value chain A targeted plan for the New Plastics Economy initiative to carry out in 2017 to catalyse progress on the priority actions.





Reproduced from World Economic Forum and Ellen MacArthur Foundation, The New Plastics Economy – Catalysing action (2017, http://www.ellenmacarthurfoundation.org/publications).

ELLEN MACARTHUR FOUNDATION

NEW PLASTICS ECONOMY

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Executive Summary

Global momentum for a fundamental plastics rethink is greater than ever. Plastics have become the ubiquitous workhorse material of the modern economy: combining unrivalled functional properties with low cost, their use has increased twentyfold in the past half-century. While plastics and plastic packaging are an integral part of the global economy and deliver many benefits, their archetypically linear, take-make-dispose value chains entail significant economic and environmental drawbacks. It is only in the past few years that the true extent of these drawbacks has become clear. We now know, more than 40 years after the launch of the first universal recycling symbol, that only 14% of plastic packaging is collected for recycling globally.

Each year, USD 80-120 billion plastic packaging material value is lost to the economy. Given projected growth in production, in a business-as-usual scenario, by 2050 oceans could contain more plastics than fish (by weight). Across the entire range of plastic products, not just packaging, concerns are raised about the potential negative impact of certain substances on society and the economy. Businesses and governments are now, for the first time, recognising the need to fundamentally rethink the global plastics system.

This growing recognition is triggering action across the world. Policy-makers continue to broaden and refine regulations for plastics, introducing landmark legislation worldwide throughout 2016, such as restrictions and bans on single-use plastic (carrier) bags. The European Commission is planning to publish a strategy on plastics as part of its Circular Economy Action Plan by the end of 2017. NGOs and the wider public are increasingly calling for change, with movements such as the #break free from plastic campaign gaining traction.

Front-running businesses and industry groups are taking action. It is clear that the topic of plastics is coming to a head. The key question is, will societies gradually reject the material due to its negative effects and forgo its many benefits, or will they carve out a future for it characterised by innovation, redesign and harmonisation, based on circular economy principles?

The New Plastics Economy presents a bold and much-needed vision for a plastics system that works. It provides a new way of thinking about plastics as an effective global material flow, aligned with the principles of the circular economy. It aims to harness the benefits of plastics while addressing its drawbacks, delivering drastically better system-wide economic and environmental outcomes. This vision, laid out initially in the 2016 report, The New Plastics Economy – Rethinking the future of plastics, has inspired businesses, policy-makers and citizens worldwide. It forms the basis for the ambitious New Plastics Economy initiative, launched in May 2016 and supported by dozens of leading businesses, philanthropists, cities and governments.

This report is the first to provide a concrete set of actions to drive the transition, based on three strategies differentiated by market segment. Thorough analytical work, including a detailed segment-by-segment analysis of the plastic packaging market, numerous interactions with players across the plastics value chain and discussions with experts revealed that a programme of concerted action across three key areas could trigger an accelerated transition towards the New Plastics Economy. The three key transition strategies and related priority action areas are:

Without fundamental redesign and innovation, about 30% of plastic packaging will never be reused or recycled.

Today, these packaging applications – representing at least half of all plastic packaging items, or about 30% of the market by weight – are, by their very design, destined for landfill, incineration, or energy recovery, and are often likely to leak into the environment after a short single use. This segment includes small-format packaging, such as sachets, tear-offs, lids and sweet wrappers; multi-material packaging made of several materials stuck together to enhance packaging functionality; uncommon plastic packaging materials of which only relatively low volumes are put on the packaging market, such as polyvinyl chloride (PVC),

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polystyrene (PS) and expanded polystyrene (EPS, sometimes referred to under its brand names Styrofoam or Thermocol); and highly nutrient-contaminated packaging, such as fast-food packaging.

Their lack of a viable after-use pathway and often small size make these items particularly prone to escaping collection systems and ending up in the natural environment, especially in emerging economies where most of the leakage occurs. Even when collected, their after- use material value is hard or impossible to capture at scale. Fundamental redesign and innovation are required: for some segments, this means reinvention from scratch; for other categories, it means scaling existing solutions or accelerating progress made so far. As many of these packaging items have important functional benefits, their drawbacks should not be seen as arguments to remove all these applications from the market today; rather, they set the direction and focus for redesign and innovation. Priority actions for the global plastic packaging value chain include:

- Fundamentally redesign the packaging formats and delivery models (and after- use systems) for small-format plastic packaging, avoiding such small formats where relevant and possible
- Boost material innovation in recyclable or compostable alternatives to the currently un recyclable multi-material applications as described above
- Actively explore replacing PVC, PS and EPS as uncommon packaging materials with alternatives (converging to a few key materials being used across most of the market, while continuing to allow for innovation and entry of new materials into the market)
- Scale up compostable packaging and related infrastructure for targeted nutrient-contaminated applications
- Explore the potential as well as the limitations of chemical recycling and other technologies, to reprocess currently unrecyclable plastic packaging into new plastics feedstocks

For at least 20% of plastic packaging, reuse provides an economically attractive opportunity.

New, innovative delivery models and evolving use patterns are unlocking a reuse opportunity for at least 20% of plastic packaging (by weight), worth at least USD 9 billion. New models that effectively replace single-use packaging with reusable alternatives are already being demonstrated in the cleaning- and personal-care market by only shipping active ingredients in combination with reusable dispensers.

For other applications, recent policy developments have demonstrated societal acceptance of reusable alternatives, exemplified by large reductions in the usage of single-use bags after the introduction of relatively minor levies.

This societal acceptance could also reinvigorate tried and tested reuse systems, including returnable beverage bottles in cities. In addition, several companies have already successfully demonstrated the benefits of reusable packaging in the business-to-business market, where there remains significant room for scaling up.

As always, when evaluating the shift to, or scaling up of, reuse models, it is important to take a system perspective and understand the broad impact of each solution, including environmental and societal aspects. Priority actions in the area of reuse include:

- Innovate towards creative, new delivery models based on reusable packaging
- Replace single-use plastic carrier bags by reusable alternatives
- Scale-up reusable packaging in a business-to-business setting for both large rigid packaging and pallet wrap

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With concerted efforts on design and after-use systems, recycling would be economically attractive for the remaining 50% of plastic packaging.

Implementation of good practices and standards in packaging design and after- use processes as part of a Global Plastics Protocol, allowing for regional differences and continued innovation, would reinforce recycling as an economically attractive alternative to landfill, incineration and energy recovery. It would add an estimated USD 190-290 of value to every tonne of mixed plastic packaging collected, or USD 2-3 billion annually across OECD countries. In addition, it would improve resource productivity and reduce negative externalities, such as greenhouse gas emissions.

Even though it would lift average profitability into positive territory, certain technological and economic barriers would remain for specific packaging segments, such as flexible films. Given the current fragile economics of recycling, demand-pull for recycled plastics and other supporting policy measures could trigger progress in the near term. As part of the redesigned and reused packaging described above will also lead to recycling, the 50% mentioned here should not be interpreted as an upper limit for a recycling target. In regions with high levels of leakage into the natural environment, another critical short-term action is to deploy basic collection and management infrastructure – requiring dedicated and distinct efforts. This is already under way at the local level through, for example, the Mother Earth Foundation in the Philippines and, globally, through the Ocean Conservancy's Trash Free Seas Alliance. Priority actions for improving recycling economics, uptake and quality include:

- Implement design changes in plastic packaging to improve recycling quality and economics (e.g., choices of materials, additives and formats) as a first step towards a Global Plastics Protocol
- Harmonise and adopt best practices for collection and sorting systems, also as part of a Global Plastics Protocol
- Scale up high-quality recycling processes
- Explore the potential of material markers to increase sorting yields and quality
- Develop and deploy innovative sorting mechanisms for post-consumer flexible films
- Boost demand for recycled plastics through voluntary commitments or policy instruments, and explore other policy measures to support recycling
- Deploy adequate collection and sorting infrastructure where it is not yet in place

Design is essential to move ahead on all three categories above. To shift towards the New Plastics Economy, the entire plastic packaging value chain needs to be involved – from packaging designers at the beginning of the chain to recyclers at the end. The analysis in this report has revealed that design (of materials, packaging formats and delivery models) plays a particularly important role and is essential to mobilise the transition strategies for each of the plastic packaging categories, as reflected in the set of priority actions. In addition to the priority actions above, sourcing virgin feedstocks from renewable sources would accelerate the transition to the New Plastics Economy by helping decouple plastics from fossil feedstocks.

To catalyse the transition, the New Plastics Economy initiative has mobilised a systemic and collaborative approach across five building blocks – with a targeted action plan for 2017. In May 2016, the Ellen MacArthur Foundation launched the New Plastics Economy initiative – an ambitious global programme, which has secured over USD 10 million funding to date and involves over 40 key stakeholders across the value chain – to accelerate the shift to the New Plastics Economy. This report forms the basis for a catalytic action plan the initiative will use to tackle this complex issue from all relevant angles. These catalytic actions for 2017 fit the five interlinked and mutually reinforcing building blocks on which the New Plastics Economy initiative is set up. The following actions are

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planned for 2017 (the initiative will continue to explore other areas in 2018 and beyond):

- **Dialogue Mechanism:** Put cross-value chain collaboration at the heart of the initiative by convening a group of over 40 leading companies, cities and governments across the plastic packaging value chain twice a year, and continuously driving collaborative pioneer projects.

- **Global Plastics Protocol:** Take the next step towards a Global Plastics Protocol by collaboratively developing a cross- value chain perspective on the top opportunities for design shifts; this will allow the prioritisation of changes that would most enhance recycling economics and material health.

- **Innovation Moonshots:** Launch two innovation challenges to inspire a generation of material scientists and designers to develop solutions for the 30% of packaging that requires fundamental redesign and innovation.

- **Evidence Base:** Finalise the ongoing study with the Plymouth Marine Laboratory on the socio-economic impact of plastics in marine environments. Bridge other knowledge gaps such as, for example, the potential and limitations of material markers and chemical recycling.

- **Stakeholder Engagement:** Encourage the wider stakeholder group to work towards a system shift – designers, in particular, whose involvement is critical for successful action on each of the three transition strategies, and policy- makers, who can trigger progress in the near term. Launch and build on the Circular Design Guide – an online reference point on circular design – together with leading global design company IDEO, to inspire and support designers, innovators and change makers. Engage and inform policy- makers on the New Plastics Economy's vision and recommendations.

Through these actions, the New Plastics Economy initiative aims to set direction, inspire innovation and build momentum towards the vision of a plastics system that works, moving the plastics industry into a positive spiral of value capture, stronger economics and better environmental outcomes.

The New Plastics Economy Initiative: A Catalyst for Change

The New Plastics Economy is an ambitious, three-year initiative to build momentum towards a plastics system that works. Applying the principles of the circular economy, the initiative brings together key stakeholders to rethink and redesign the future of plastics, starting with packaging. Launched in May 2016, the initiative is spearheaded by the Ellen MacArthur Foundation, in collaboration with a broad group of leading companies, cities, philanthropists, policy-makers, designers, academics, students and NGOs.

The New Plastics Economy focuses on five interlinked and mutually reinforcing building blocks to create the enabling conditions for a transformative system shift. These building blocks are: Dialogue Mechanism; Global Plastics Protocol; Innovation Moonshots; Evidence Base; and Stakeholder Engagement. Since its inception, the initiative has made significant progress across all these key elements. Based on the analysis and insights from this report, the New Plastics Economy initiative has now defined a series of focus catalyst actions to drive further progress in 2017 (see Figure 8).

FIGURE 8: OVERVIEW OF THE NEW PLASTICS ECONOMY INITIATIVE'S FIVE BUILDING BLOCKS AND 2017 CATALYST ACTIONS

Source: New Plastics Economy Initiative analysis

The Dialogue Mechanism places cross-value chain collaboration at the heart of the New Plastics Economy initiative. It brings together a group of global consumer goods companies, retailers,plastics producers and packaging manufacturers, governments, cities and businesses involved in plastics collection, sorting and reprocessing. This group informs the other building blocks and the initiative's direction more broadly, together with the joint philanthropic-

business advisory board and a group of civil society representatives.

Concrete actions within the Dialogue Mechanism include biannual participant workshops and the implementation of collaborative pioneer projects. The first two participant workshops took place in May 2016 and December 2016, bringing together a group of about 40 participant organisations and initiating the first collaborative pioneer projects.

In 2017, the initiative will continue to host six-monthly participant workshops and drive implementation of the collaborative pioneer projects launched in 2016.

The Global Plastics Protocol aims to provide a common target, helping to overcome existing fragmentation and enable the creation of effective markets. Today's ineffective plastics economy is the result of decades of highly fragmented, uncoordinated and incremental innovation, which has not been able to make progress on economic value capture and negative externalities. By fundamentally rethinking the system and driving convergence, the Global Plastics Protocol enables the creation of effective markets.

In 2016, the potential economic impact of a Global Plastics Protocol was assessed and the analysis clearly indicated that the implementation of changes to design and after-use systems as part of such a protocol would improve the economics of plastic packaging recycling.

In 2017, the initiative will take the next step towards the concrete development of a Global Plastics Protocol. It will collaboratively determine the top opportunities for design changes to enhance recycling quality and economics, as well as material health.

The Innovation Moonshots programme aims to mobilise innovations that could redefine what is possible across the whole system and create the conditions for a new economy. The global economy is being rewired by digitisation, automation and artificial intelligence. Fields as disparate as biology, engineering and design are merging, making the time for such moonshots now.

In 2016, over 100 experts from academia, industry, start-ups and disruptive innovators, NGOs and emerging markets were engaged in exploring which areas of innovation could be mobilised as a priority and through which mechanisms. Three key insights emerged through these consultations:

- The Innovation Moonshots programme should initially focus primarily on the most challenging segment of the market; i.e. the 30% of plastic packaging for which currently there is no viable reuse or recycling pathway.

- Alongside innovations aimed at solving today's priority challenges, the initiative should explore the potential of more disruptive innovations, which, if successful, could redefine the entire plastics system in the future. Just a few examples of such innovations include: 3D printing and other additive manufacturing; a universal identification system for all (packaging) materials; high-quality chemical recycling of complex and contaminated material streams; and triggers for biodegradation (e.g., like a banana skin).

- There is no one silver bullet moonshot; multiple innovations are required to further accelerate the transition to the New Plastics Economy.

In 2017, the Innovation Moonshots programme will focus on the 30% of plastic packaging for which fundamental redesign and innovation are required. It will inspire a generation of material innovators by launching a challenge to find recyclable or compostable alternatives to materials for which there is no viable reuse or recycling pathway today. It will ignite a programme of redesign by launching a contest to redesign formats and delivery models that can address, for example, some of the most challenging small-format packaging.

The Evidence Base offers a robust foundation from which to guide improvement and inform the global debate. It closes critical knowledge gaps by building an economic and scientific knowledge base from which to draw insights. In 2016, the initiative has focused its Evidence Base efforts on the creation of this report. This included a granular, segment-by-segment analysis of the plastic packaging market to define an action plan for the global value chain that would accelerate the transition to the New Plastics Economy. This analytical

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work has been supported by SYSTEMIQ. In 2017, the initiative will drive progress on different knowledge pieces by:

- Finalising an ongoing study, together with Plymouth Marine Laboratory, to understand the socio-economic impact of plastics in marine environments – a large-scale literature review is ongoing to extract insights, understand existing knowledge gaps and determine research priorities

- Bridge other knowledge gaps such as, for example, the potential and limitations of material markers and chemical recycling

Stakeholder Engagement involves a wide set of key players across the system to learn from, to inform and to work with on amplifying solutions. Businesses, policy- makers, students, educators, academics, designers, citizens, NGOs, industry associations and other stakeholders all play a role in transitioning to a new system – the initiative learns from, informs and engages all these stakeholders. In 2016, insights and recommendations from The New Plastics Economy – Rethinking the future of plastics reached millions of people around the world. Thousands of news articles were published across five continents highlighting the report's insights, including coverage in in the Financial Times, USA Today, The Guardian, Times of India, CNN and Al Jazeera. High-powered individuals including US Secretary of State John Kerry, Academy Award-winning actor Leonardo DiCaprio, various Members of the European Parliament, and founder of The Huffington Post Arianna Huffington, have quoted the report publicly. Their recognition of the report indicates its contribution to raising awareness of plastics issues and – importantly – the need for solutions. The report was one of the most successful topics on social media to date of the World Economic Forum, with an estimated reach of millions of people. Members of the New Plastics Economy initiative team have presented the initiative's vision and recommendations at over 20 conferences and high-level meetings, including the World Economic Forum Annual Meeting 2016 in Davos-Klosters, the Our Ocean 2016 conference, the UN COP22 climate conference in Marrakech, and multiple high-level industry and policy-maker events. To understand how future generations of designers and innovators could be informed and inspired at scale, the initiative piloted in November a prototype workshop on redesigning plastic packaging specifically tailored to school pupils in Scotland, who learned about the New Plastics Economy and participated in an immersive plastics packaging redesign activity. In 2017, the initiative will continue to reach out to the wider stakeholder group, with a focus on designers, whose involvement is essential for successful action on each of the three transition strategies outlined in this report, and on policy-makers, who can trigger progress in the near term by setting the right enabling conditions. The initiative has partnered with IDEO, a leading design and innovation consultancy, to develop the Circular Design Guide – an inspiring, online reference point on circular design, to inspire and support designers, innovators and change-makers to rethink and redesign products, delivery models and the broader ecosystems. Being co-created and prototyped with leading universities, entrepreneurs and corporates, it is available as a freely accessible website featuring over 20 practical methods (circulardesignguide. com), which will be further developed in 2017. In parallel, the initiative will build on the prototype workshop piloted in Scotland to explore how to reach an entire next generation of designers at scale. Policy-makers will be further engaged and informed through sharing latest insights at various meetings and gatherings.

How to measure success? The success of these actions will be measured against the three ambitions of the New Plastics Economy. A key metric to measure success in creating an effective after-use plastics economy – the focus ambition of this update report – is the share of plastic packaging going into a circular after-use pathway (i.e. reuse, recycling or composting). Regarding drastically reducing leakage of plastics into natural systems and other negative externalities, a key metric could be volume (tonnes) of plastics leaked into the environment. Success in reducing other negative externalities, such as the impact of substances of concern on human health and the environment, would need separate metrics. For decoupling plastics from fossil feedstocks, a key metric could be the quantity of oil and gas used as virgin feedstocks for plastic packaging. Decreasing this volume could be realised by increasing reuse and recycling rates, reducing total production volumes, and exploring and adopting renewably sourced feedstocks. Taking the actions outlined in this report will contribute to achieving these ambitions, which together represent a systemic shift and the advent of an economically and environmentally effective plastics system – a New Plastics Economy.

Woman creates dress with 10,000 Starburst wrappers

POSTED 9:27 AM, MAY 19, 2017, BY THOMAS HILEY III

MOUNT JOY TOWNSHIP, Penn. -- A woman from Pennsylvania is taking DIY to a whole new level with a dress she made. Artist Emily Seilhamer, made a dress out of 10,000 used Starburst wrappers and it only took her five years to finish. It all started when her high school boyfriend - turned - husband gave her a pack of Starburst which was his favorite candy. She then decided after that to make a dress out of the wrappers, and that's when the journey began.

It took her four years to collect all the wrappers with the help of her husband, and one more year to put it together. After collecting and organizing all the wrappers, Seilhamer ironed them, folded them into links, and made candy wrapper chains to make the dress.

Source : http://wgntv.com/2017/05/19/woman-creates-dress-with-10000-starburst-wrappers/

GVMC Gears up to Tackle Plastic Pollution

Greater Visakhapatnam Municipal Corporation (GVMC) has joined hands with AP Pollution Control Board (AP-PCB) to combat plastic pollution in the city. The civic body with the help of other stakeholders such as the APPCB and several non governmental organizations will implement the Plastic Waste Management rules, 2016, to check the usage of plastic in the city. Nearly 30,000 traders of plastic, both retailers and wholesalers, will have to register with the GVMC by paying a fee of Rs 4,000 per month or Rs 48,000 per annum. The registered traders will have to purchase the plastic material of permitted thickness (more than 50 microns in thickness) from manufactures, who are registered with the APPCB. At present, the city has five plastic material manufactures permitted by the APPCB.

Source : http://timesofindia.indiatimes.com/city/visakhapatnam/civic-body-gears-up-to-tackle-plastic-pollution/articleshow/59274540.cms

DATA SHEET

Conclusions of the study - "The impact of plastics on life cycle energy consumption and greenhouse gas emissions in Europe" conducted by Denkstatt and Plastics Europe in 2010

- Plastic products used on the market today enable significant savings of energy and GHG emissions (the production and use phase are most important for savings of energy and GHG emissions).

- This study has investigated the influence of different materials on the total life-cycle energy demand. In this respect the results show that in most cases where plastics are used today, they help to use resources in a very energy efficient way (i.e. plastics enable resource efficient solutions).

- Substitution of plastic products by other materials will in most cases increase the consumption of energy and the emission of greenhouse gases.

- From the view of the total life cycle, plastics can therefore be considered as one of the most energy efficient materials.

- Plastics often facilitate reduced material consumption.

- The use of plastics for thermal insulation, for food packaging or to produce renewable energy results in extraordinary "use"-benefits.

- Polymers based on renewable resources are not per se better than conventional plastics based on fossil resources. The range of their GHG balance (due to feedstock selection and waste options) is much greater than the difference with conventional polymers

- Plastics from renewable resources could contribute to reduction of GHG emissions in the future, if the renewable sources as well as the waste management applied are chosen advantageous.

- A "carbon balance" of the total plastics market in the EU27+2 shows that the estimated use phase benefits (reduction of GHG emissions enabled by plastic products) were roughly 5 - 9 times higher than the emissions from production and recovery of all plastics in 2007. It should be noted that the list of examples for use benefits in the carbon balance is not complete but rather shows relevant applications where the benefits have been quantified so far.

- The potential for increasing use benefits up to 2020 is much higher than the additional emissions from the growth of plastics. In 2020 the estimated use-benefits could be 9-15 times higher than the emissions from production and waste management in 2020. • The main drivers for the increasing use-benefits as described in the carbon balance above will be targets to reduce energy consumption and GHG emissions in the building sector and automotive sectors, etc. and targets to increase the share of renewable energy production, as given in the EU action plan on energy and climate change up to 2020. But the use of plastics to preserve packed goods (especially food) and to substitute less energy/GHG-efficient materials will also provide important contributions to the reduction of GHG emissions throughout Europe.

Source: Denkstatt Report
(denkstatt GmbH Hietzinger Hauptstraße
E office@denkstatt.at W www.denkstatt.at)

Editor's comment: The trend in Indian scenario is also similar.

Do Not Litter
Keep Your Environment Clean

- Segregate and Throw Waste Only in Waste Bins.
- Use Two Bins - One for Wet Waste, One for Dry Waste

Plastics, Metals, Paper ...
Can be recycled into useful products

Waste Food and other Biodegradable Waste
Can be composted into manure

Indian Centre for Plastics in the Environment