

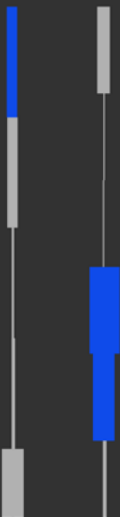


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Addressing plastic pollution in India

Background paper for the Stewart
Investors' Business Forum



About the partners

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Executive summary

Pollution is nothing but the resources we are not harvesting. We allow them to disperse because we've been ignorant of their value.

R Buckminster Fuller

Plastic pollution worldwide is increasing and creating significant ecological, social and economic impacts. Globally, in the absence of strong political leadership, businesses, in partnership with the not-for-profit sector, are driving change.

Plastics production globally has grown rapidly since the 1950s, and this trend is expected to continue. Approximately 8.3 billion tonnes of plastic have been produced since the 1950s, and 6.3 billion has become waste. Only around 9% of this waste was recycled, while 79% ended up in landfill or in the environment. Globally, around one-quarter of all plastics production is used for packaging.

Plastic pollution is widespread, with plastic litter found in all major ocean basins in the world. Between 5-13 million tonnes are estimated to enter the oceans each year. The problem in India is particularly acute. Leakage of plastic into the environment is a major issue due to the limited availability of formal waste management systems. The Ganges and the Indus are two of the ten rivers in the world that together contribute 90% of plastics that reach the ocean.

The plastics industry is an important part of the Indian economy, employing around 4 million people and plastics consumption in India is expected to increase significantly in the future with



the plastics packaging industry growing at an average annual rate of around 20%. A combination of high population growth, economic development, urbanisation and growing numbers of working women will continue to drive increasing consumption of packaged goods and associated packaging wastes.

With these growth trends, and as a country with heavy reliance on the informal waste sector, India has a substantial challenge ahead to tackle domestic plastic pollution.

The informal sector is essential to plastics recovery - it handles an estimated 4.7 Mt of plastics each year, compared to only 0.2 Mt handled by the public waste system. Action to solve the plastic pollution problem in India will need to address the role of the informal waste sector in future waste/circular economy systems, as has occurred in other emerging economies.

Proper management of plastics that are currently not recycled in India could create around 1.4 million jobs and ~US\$2 billion in income, but there are challenges with unreliable feedstock from the informal waste sector, a lack of awareness and technical knowledge of recycling, limited funding and accountability and inadequate implementation of solid waste laws and policies. A particular issue in India and other developing economies is the prevalence of low cost, small portion packaging. These packs – generally multi-layer bags and pouches – are among the least recyclable. Despite these challenges, India has the opportunity to innovate to ensure that any further growth in plastic consumption occurs within a circular economy and does not lead to more waste and pollution.

Promising initiatives are already underway at the national level, both through regulation and voluntary action. Prime Minister Narendra Modi has recently announced plans to eliminate single-use plastics by 2022. In 2011, the Ministry of Environment and Forests established the Plastic Waste (Management and Handling) Rules (updated in 2016 and 2018) to be enforced by States

and municipal authorities. However, to date most states have not implemented the majority of the rules.

At the voluntary level, India2022 is a business-led coalition, launched in March 2017, to develop new models for growth that combine commercial opportunity with reduced environmental impact and increased social benefit. The initiative has identified four priorities: clean energy; health care; waste and sanitation; and sustainable mining. Within waste and sanitation, there is a strong focus on plastics. Industry associations are also actively working to address plastic pollution. FICCI, for example, has an active circular economy working group, working with the Ellen MacArthur Foundation (EMF). There are numerous community groups, non-government organisations and social enterprises targeting solid waste management, recycling and cleaning public places.

Around the world, efforts by governments, business and the community to address the problem of plastic pollution are gaining momentum. The EMF has established the New Plastics Economy, a three-year initiative, based on circular economy principles, that brings together key stakeholders to rethink and redesign the future of plastics, starting with packaging. EMF recently launched *The Plastics Pact*, an initiative to implement the New Plastics Economy action plan. The first Pact, launched in April 2018, is led by UK charity WRAP and had 55 members by mid-2018. Significant national collaborations are happening in other countries such as the US, Chile and Australia.

Many global companies have committed to ambitious packaging targets. Under the auspices of the EMF, for example, thirteen major brands have committed to 'working towards' using 100% reusable, recyclable or compostable packaging by 2025 or earlier. Companies are also collaborating to solve specific problematic issues such as multi-material laminates. There are numerous resources available to assist companies trying to reduce the impact of plastic pollution associated with their operations, such as guidelines, tools and frameworks to improve packaging sustainability performance from material choice and design to end of life.

Although much is already happening to address plastic pollution, the pace and scale of change need to increase significantly. The business sector has a vital role to play in the transformation to a more sustainable, circular, plastics economy. Indian businesses have an opportunity to join collaborative initiatives at a global or national level to address plastic pollution such as EMF's New Plastic Economy or India2022. They can also take unilateral action to address plastic packaging sustainability within their own supply chains, in design and materials use.

The forum convened by Stewart Investors and the Institute for Sustainable Futures in July 2018 aims to further facilitate Indian business collaboration on this issue.

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1. Introduction

The accumulation of plastic pollution in the biosphere, particularly in the marine environment, is now widely acknowledged as one of the most significant global environmental issues. The problem in India is particularly acute. Positive change is happening, but the pace and scale of change is too slow. Globally, in the absence of strong political leadership, businesses, in partnership with the not-for-profit sector, are driving change. Prime Minister Narendra Modi has announced plans to eliminate single-use plastics by 2022¹. Achieving this ambitious target will require collaboration between all stakeholders and extraordinary leadership from the corporate sector.

Stewart Investors' Sustainable Funds Group invests in companies that contribute to and benefit from sustainable development. In addition to the environmental impacts, Stewart Investors sees plastic pollution as a key investment risk, due to changing consumer preferences and regulatory risks. Stewart Investors recognises the urgent need for transformation of the global plastics economy, and the vital role that business can and should play in leading this transformation.

On 25 July 2018 in Mumbai, India, Stewart Investors, in partnership with the Institute for Sustainable Futures at the University of Technology Sydney, will convene a forum of some of the largest local and multi-national consumer goods companies in India. Alongside industry and academic experts, business representatives will have the opportunity for meaningful discussion, to share knowledge and develop actions to reduce plastic packaging pollution in India.

This paper presents information on the plastic pollution problem and opportunities for Indian business to work together to address it. You are invited to read the paper in preparation for the 25 July forum.

2. The plastic/packaging pollution problem

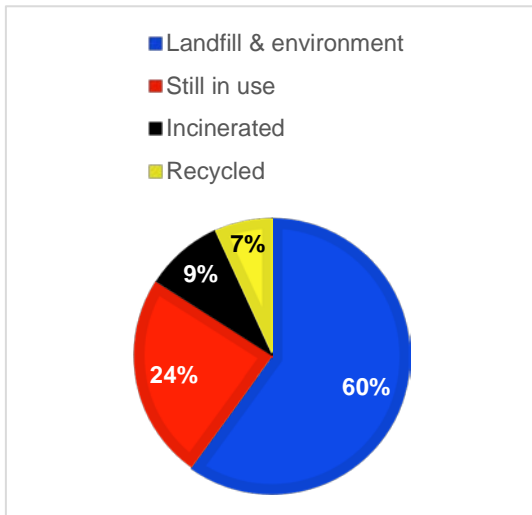
"We urgently need to transform global plastic packaging material flows if we are to continue to reap the benefits of this versatile material."

Paul Polman, CEO, Unilever²

The growth of plastic production and consumption globally since the mid twentieth century has led to exponential growth in plastic waste accumulating on land and in the oceans. Below is a brief overview of the scale of the issue globally and in India.

2.1 Global

Plastics production has grown rapidly since the 1950s, and this trend is expected to continue. Approximately 8.3 billion tonnes of plastic have been produced since the 1950s, and 6.3 billion of this has become waste³. **Figure 1: Fate of all plastics ever produced in million metric tons (Mt)³.** Of this waste, only around 9% was recycled, while 79% ended up in landfill or in the environment.



Of this waste, only around 9% was recycled, while 79% ended up in landfill or in the environment.

Plastic pollution is widespread, with plastic litter found in all major ocean basins in the world. Between 5-13 million tonnes are estimated to enter the oceans each year⁴. Common plastics are not biodegradable and therefore accumulate in the natural environment. They do break down into smaller fragments, however - "microplastics" - which pose a particular threat to marine life, as they can be confused as food and ingested. Consumption of plastics can cause birds and mammals to starve. Wildlife can also become entangled in plastics, restricting

their ability to move or eat. Plastic litter directly affects tourism and fishing industries and is likely to affect human health via accumulation in the food chain.

Globally around one-quarter of all plastics production is used for packaging⁵ⁱ. The Ellen MacArthur Foundation (EMF) has estimated that 78 Mt of plastics packaging is produced every year and, of this, only 14% is collected for recycling. Of the remainder, 14% is incinerated, 40% landfilled and 32% 'leaks' into the environment through littering or poor waste management⁶.

2.2 India

The issue of plastic pollution in India is substantial. Currently, approximately 8-11 kg of plastic is consumed per capita each year, which is relatively low by global standards (for comparison, consumption levels are 38 kg in China, 50-65 kg in Europe, and 68-109 kg in the US)ⁱⁱ. For plastics packaging, India's per capita consumption is only 4.3 kg, compared to 6 kg in China and 19 kg in Taiwan⁷. Plastics consumption is expected to increase significantly in the future, in line with population growth and economic development. The plastics industry is an important part of the Indian economy, employing around 4 million people⁸. India has the opportunity to innovate to ensure that any further growth in plastic consumption occurs within a circular economy and does not lead to more waste and pollution.

Around 5.6 Mt of plastic waste is generated annually across India⁹. It is estimated that 30% is dumped in the urban environment, and of the 70% which is collected, 87% is disposed in open dumps where waste pickers undertake sorting for recycling¹⁰. A major reason for leakage is the lack of segregation of municipal solid waste at source. Estimates indicate that only 0.033 MT out of 0.143 MT of municipal solid waste generated daily in India is treated and disposed of adequately¹¹. The Government of India through the Clean India Mission is encouraging waste segregation (dry and wet waste) at the housing community level and in commercial areas.

The recycling system relies on a chain of informal workers who contribute to resource recovery, including rubbish collectors, waste pickers and dealers, small shops and merchants¹². Along with householders, the informal waste sector in India recovers 30-60% of waste paper and cardboard, almost 100% of glass bottles and 50-80% of plastics¹². The informal sector is essential to plastics recovery: it handles an estimated 4.7 Mt of plastics each year compared to only 0.2 Mt by the public waste system¹³.

Leakage of plastic into the environment is a major issue in India, as it is globally. The Ganges and the Indus are two of the ten rivers in the world that together contribute 90% of plastics that reach the ocean¹⁴. A scientific study of beaches in Mumbai found an average of 69 plastic items per square metre, with 42% of these comprising harmful microplastics¹⁵. High concentrations of microplastics have also been found in lake sediments in Kerala (an average of 250 particles/m²). On land, animals, such as cows, buffalos, and stray dogs, have been found to suffer stomach infections from consuming plastic bags¹⁶.

3. Solving the plastic packaging pollution problem in India

3.1 Challenges and opportunities

India faces some specific challenges in solving the plastic packaging pollution problem. Below is a summary of a few of the most relevant issues for the forum.

Growing consumption of packaged goods

The Indian plastics packaging industry is growing at an average annual rate of around 20%¹⁷. A combination of high population growth, economic development, urbanization and growing

ⁱ Other major applications include construction; automotive; electrical and electronic products; household products and leisure; and agriculture

ⁱⁱ The range of data represents data from two sources: FICCI (2017), 3rd National conference on sustainable infrastructure with plastics: Knowledge paper on plastics industry for infrastructure, New Delhi; and Morgan Stanley (2018), Peak plastic: a focus on single use plastic

numbers of working women will continue to drive increasing consumption of packaged goods and associated packaging wastes. The population is forecast to increase from 1.34 billion in 2017 to 1.66 billion by 2050¹⁸. With an annualized economic growth rate of 7.5% between 2014 and 2016, India is also the fastest growing country in the G20¹⁹. These trends will continue to worsen the plastics pollution problem unless urgent action is taken.

Packaging sustainability in the FMCG sector

Plastics have become the 'material of choice' for fast moving consumer goods (FMCG), in India as well as globally, due to a range of benefits including cost, functionality and efficiency. A particular issue in India and other developing economies is the prevalence of low cost, small portion packaging (e.g. single-dose hair care products), that allow consumers to buy products at an affordable price. These packs – generally multi-layer bags and pouches – are among the least recyclable¹⁷.

India lags the global FMCG sector on use of recycled or renewable content. A survey of publicly reported sustainable packaging initiatives in 2014 concluded that only 15% of initiatives in India involved the use of recycled or renewable content, compared to 31% of global initiatives by FMCG companies²⁰, so there appears to be scope for improvement in this area.

There are signs that change is happening in the sector. While efficiency measures (e.g. light-weighting), driven by cost pressures, have previously dominated the market for sustainable packaging in India, companies are now exploring a wider range of strategies including recovery at end of life.

When the National Green Tribunal announced it was considering a ban on the use of plastic packaging for non-essential items in 2015, industry groups highlighted problems such as increased costs to customers and the potential disappearance of small, low cost packaged items. It could also impact on food safety if more food is distributed unpackaged. Economically, a ban is likely to have direct and flow-on impacts on the plastic manufacturing industry in India, as well as retailers, small shops and waste pickers¹⁷.

The informal waste sector

As noted above, the informal waste sector is a major part of India's waste management system and has a key role in extracting value from waste. There are an estimated 1.5 - 4 million waste pickers, who pick up, clean, sort and segregate recyclable plastic waste and sell it further up the value chain²¹. The waste picker community is the lowest in the hierarchy of the informal occupations with a significant percentage being women and children. In urban areas, many waste pickers live around landfills. They face many occupational hazards in addition to the lack of compensation and dignity of labour, for example they suffer from a high occurrence of respiratory and infectious diseases.²²

The informal sector contribute to India's relatively high plastic waste recovery rates - the recovery rate for PET bottles is estimated to be around 70%, one of the highest in the world¹⁷.

The informal sector also presents challenges. Waste pickers tend to focus on high value recyclable items and leave behind high volume, low value materials such as multi-layer plastic films and pouches where there is no financial incentive for collection¹³. Recyclers need a reliable flow of raw materials in order to establish recycling plants, and informal collection services tend to be less reliable than formal collection services²⁰.

Outsourcing municipal waste management to a single company, which tends to exclude independent waste pickers, can have significant social impacts by removing employment opportunities and income for these workers¹².

Action to solve the plastic pollution problem in India will need to address the role of the informal waste sector in future waste/circular economy systems, as has occurred in other emerging economiesⁱⁱⁱ. This could include more organisation of the sector to improve working conditions, reduce hazards, and improve wages and revenue¹⁰. There are also ways to integrate waste

ⁱⁱⁱ The PET recycling company in South Africa (PETCO), for example, has integrated the informal collection industry and places a high priority on the social benefits, e.g. 'We seek every opportunity to create work, entrepreneurship opportunities and hope for previously disadvantaged people, including women, for whom recovery of waste could be a lifeline' (<http://petco.co.za/who-we-are/>)

pickers while transitioning to better collection systems. In Pune, a union of waste pickers cooperates with the municipalities to provide contracted waste services, which include door-to-door collections and separation of organic and inorganic fractions¹³. This has resulted in higher wages for waste pickers and improved quality of collected materials¹³.

Bengaluru-based waste management services company Hasiru Dala Innovations is partnering with Canadian start-up Plastics for Change to encourage ethical sourcing of plastics and will attempt to create better livelihoods for waste pickers and scrap dealers²³.

In Bhopal, Madhya Pradesh, Sarthak's model of plastic waste management is a successful example. This is a collaborative initiative between UNDP and Hindustan Coca Cola Beverages Private Limited. Collection and segregation of all types of plastic waste is done by registered waste pickers in Swachhta Kendras i.e. Clean centres. The project has tied up with Madhya Pradesh Rural Road Development Corporation for use of plastic in road construction and 17 cement manufacturers for co-processing for non-recyclable plastics²⁴.

Recycling

The Federation of Indian Chambers of Commerce and Industry (FICCI) and Accenture estimate that proper management of plastics that are currently not recycled in India could create around 1.4 million jobs and ~US\$2 billion in income²⁵. A number of challenges would have to be overcome to achieve this outcome. In addition to the issues noted above with unreliable feedstock from the informal waste sector, recycling challenges in India include a lack of awareness and technical knowledge of recycling, limited funding and accountability and inadequate implementation of solid waste laws and policies¹⁰.

A successful example of source segregation for recycling is the zero-waste model of Ambikapur in the state of Chhattisgarh, which is now being replicated in other parts of the state. The town initiated behaviour change models and formally mobilized marginalized women and waste pickers in the town to enable segregation at source and further segregate the dry MSW into 156 separate categories. The state has now replicated the model and engages with 9,000 women waste pickers.²⁶

Flexible packaging makes up around 33% of the Indian packaging market²⁰. This is one of the more challenging categories for recycling due to the variety of polymers and widespread use of multi-material laminates. An industry report has warned that banning multi-layer packaging and replacing it with other types of lightweight plastics is unlikely to assist with recycling, as all lightweight plastic hold low value in the informal sector¹⁷. They propose a multi-pronged approach to recycling, firstly by segregating recyclable materials at source rather than collecting it in one commingled stream; government mandates or incentives for industries to use recycled plastics; industry investment in recycling technologies, and mass consumer education campaigns¹⁷.

The most common disposal method for flexible packaging is co-processing. It refers to the use of waste materials in industry processes such as cement and power stations or other large combustion plants. The Indian 2016 Solid Waste Management rules support scalability of co-processing by cement kilns for processing post-consumer flexible packaging. Cement kilns are required to substitute 5% of their fuel with refuse derived fuels. The state of Goa in India collects segregated waste from households and schools and supplies to cement plants for co-processing²⁷.

3.2 Current efforts to stem and reverse the growth in plastic pollution in India

In recognition of the scale and impact of the plastic pollution problem in India, governments, businesses and the community have begun to take action. Below is an overview of some of the most significant actions to date.

National and State regulations, policies and commitments

Addressing plastic pollution aligns with current government initiatives such as Swachh Bharat, a national campaign to clean India with a focus on sanitation and street cleanliness. It also aligns with the recent announcement by Prime Minister Modi (June 2018) that the government intends to eliminate single-use plastics by 2022¹.

The Chief Minister's Office, Government of Maharashtra and UN Environment Program, in partnership with the Confederation of Indian Industry (CII), convened a roundtable with chief executive officers on 31 May 2018 to explore the role of business in beating plastic pollution.

In 2011 the Ministry of Environment and Forests established rules relating to plastic waste that should be enforced by States and municipal authorities called the Plastic Waste (Management and Handling) Rules ²⁸, which were updated in March 2016. The measures include:

- producers are required to develop a waste collection system based on extended producer responsibility (EPR)
- primary responsibility for collection of used multi-layered plastic sachets or pouches or packaging is the producers, importers or brand owners who introduce them in the market, who must establish a collection system²⁹
- manufacture and use of non-recyclable multilayer plastic should be phased out within two years
- plastic sachets for storing, packing or selling gutkha, tobacco and pan masala are banned
- non-compostable carry bags are to be no less than 50 microns in thickness
- every local body is responsible for setting up infrastructure for segregation, collection, storage, transportation, processing and disposal of plastic waste, and shall 'seek assistance' of producers
- waste generators are required to segregate waste for recycling and not litter.

The Rules were amended again in 2018 to include energy recovery as well as material recovery as the preferred solution for end of life management of multi-layered plastic packaging. This in effect reverses the complete ban on these materials, which was supposed to take effect in March 2018.³⁰ The change was primarily due to a lack of large-scale solutions for recycling/reprocessing of multi-layer plastic waste.

However to date, most states have not implemented the majority of the rules³¹. EPR or deposit-refund schemes have not yet been introduced, although Maharashtra State is the first to notify its intention to implement them³⁰. On 23 March 2018 Maharashtra announced a ban on plastic bags and a range of other items including thermocol (polystyrene), disposable plastic plates, bowls, cups, straws, cutlery, and pouches, which came into force on 23 June. A notification dated 30 June introduced additional or amended requirements including an immediate ban on the use of non-recyclable multi-layer packaging; a ban on PET bottles less than 200 ml; manufacturers and retailers to introduce EPR programs for plastic packaging and polymer coated paperboard cartons (including coordination with existing waste pickers and scrap traders); and a deposit-refund system for PET bottles.

Seventeen states have already banned thin plastic bags due to their environmental impacts, such as air pollution from burning plastic wastes³² and impacts on infrastructure such as plastics clogging up drains and causing flooding during the wet season³¹. A ban in Himachal Pradesh on disposable plastic products such as plastic cups, drinking glasses and plates, introduced in 2011, has resulted in a significant decrease in plastic pollution³⁴.

New Delhi serves to illustrate how bans alone may not be sufficient to address the problem if not supported by enforcement. Although the government of Delhi banned the manufacture or sale of all plastic bags less than 40 microns in 2012, and had previously banned plastic shopping bags in 2009, they are still widely available³⁵. Challenges for enforcement include a lack of officials to issue fines and a lack of political will, which may be related to the significant investment and employment in plastic bag production³¹.

Business

At the voluntary level, India2022 is a business-led coalition, launched in March 2017, to develop new models for growth that combine commercial opportunity with reduced environmental impact and increased social benefit. The coalition is an initiative of Hindustan Unilever and Xynteo AS, a Norway-based environmental advisory and think tank. The coalition has identified four priorities: clean energy; health care; waste and sanitation; and sustainable mining. Within waste and sanitation, there is a strong focus on plastics. According to Hindustan Unilever CEO Sanjiv Mehta, their aim is to “create an ecosystem where there is segregation at source, collection, and a focus on reducing, recycling and reusing”³⁶. A roadmap for India2022 as a whole is being prepared for presentation in New Delhi in October 2018. This will highlight the progress made to date and will outline a set of new collaborative commitments to bolster India’s development over the next six years³⁷.

Industry associations are actively working to address plastic pollution. FICCI has an active circular economy working group, which is working with the Ellen MacArthur Foundation on projects including the new plastics economy. CII has developed an action plan for the management of post-consumer waste, which includes pilot recycling projects, an awareness campaign to encourage better segregation at sources, and government incentives for investment ³⁸.

Various companies have collaborated with waste management NGOs as implementation partners to meet their obligations under the Plastic Waste Management Rules. For example, Indian Pollution Control Association (IPCA) have taken a lead role by forming WECARE, a consortia of private companies that aims to develop a sustainable supply chain for management of multi-layered plastic waste ³⁹. Social enterprises such as Saahas, Let’s Recycle / NEPRA⁴⁰ and Waste Ventures have designed models to ensure financial viability of their end to end waste management initiatives. Producer Responsibility Organisations (PROs) like Karo Sambhav that function as for other types of waste i.e. e-waste, also see the plastic waste space as an opportunity. Similarly, new PRO organisations like India Recycling are offering a range of services to help large FMCG companies in India fulfil their EPR obligations. Individual businesses are also investing in innovation to address the plastics issue.

L’Oréal also developed an innovative partnership with the Indian cosmetics industry and a waste-pickers’ association to recover single dose plastic packaging, which is currently not recycled. Through this initiative, a team of 200 women recovered approximately 540 tonnes of this packaging in Mumbai. The waste was used to produce a fuel source. There are plans to gradually extend the initiative to all districts of Mumbai and possibly to other parts of India⁴². Other companies that have worked directly with waste pickers to improve recycling include Nestlé India^{iv}, Dabur India^v and Hindustan Unilever^{vi}.

These are just some examples of the kinds of actions that Indian businesses are already taking, independently or in collaboration with other businesses and stakeholders, to directly address the issue of plastic pollution. Many businesses are also taking action within their own operations, for example setting targets to reduce or recycle packaging, implementing sustainable procurement guidelines with packaging suppliers, incorporating recycled plastics, or by educating consumers about recycling.

Community/NGO sector

There are also numerous community groups, non-government organisations (NGOs) and social enterprises targeting solid waste management, recycling and cleaning public places, for example

^{iv} Nestlé India worked with Confederation of Indian Industry and the Indian Pollution Control Association in 2017 to educate waste pickers and consumers about the collection, segregation and disposal of plastic waste. https://www.nestle.com/asset-library/documents/library/documents/corporate_social_responsibility/nestle-csv-full-report-2017-en.pdf

^v Dabur India engages the informal sector to pick up Tetra Pak packaging waste from streets and city dumps for recycling, <https://economictimes.indiatimes.com/industry/cons-products/fmcg/fmcg-companies-like-hul-dabur-woo-ragpickers-to-clean-up-sachets-lighter-plastic-packaging/articleshow/18123985.cms>

^{vi} Hindustan Unilever have been involved in pilot projects to incentivise collection of flexible packaging by waste pickers, <https://www.hul.co.in/news/press-releases/2011/consumer-awareness-on-plastic-recycling.html>

SWACH, a waste picker cooperative offering door-to-door waste collection in Pune, that aims to be a self-sustaining social enterprise.

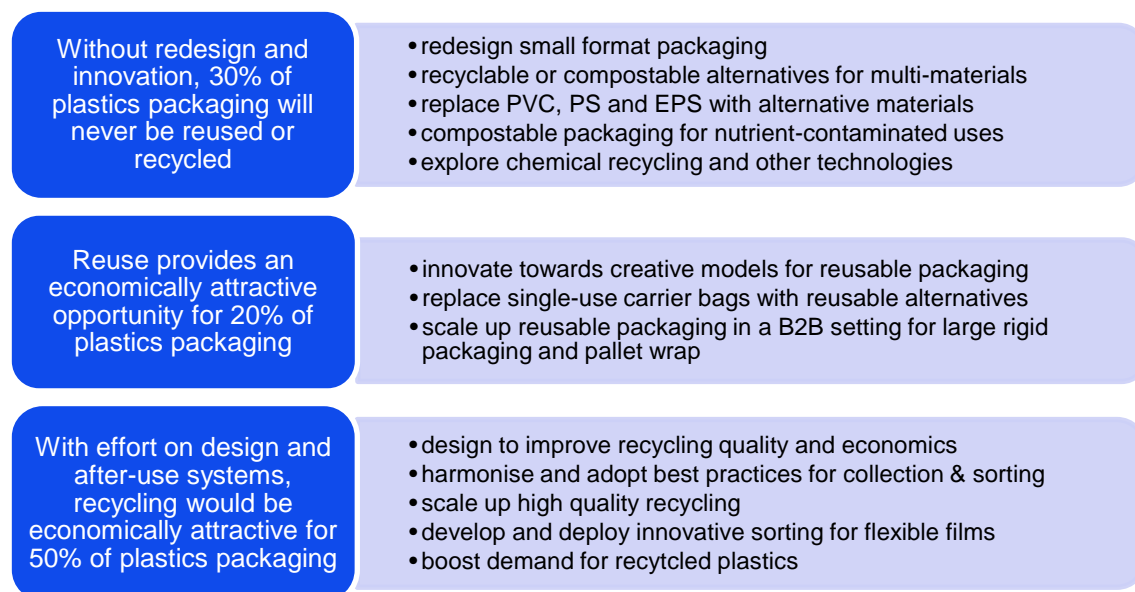
4. Current efforts globally to stem and reverse the growth in plastic pollution

Around the world, efforts by governments, business and the community to address the problem of plastic pollution are increasing. The following sections give an overview of significant initiatives, with a focus on major business initiatives that are having a proven impact.

4.1 Global or multi-lateral collaborations

The Ellen MacArthur Foundation (EMF) has established the New Plastics Economy, a three-year initiative, based on circular economy principles, that brings together key stakeholders to rethink and redesign the future of plastics, starting with packaging. The initiative includes companies, cities, philanthropists, policymakers, academics, students, NGOs, and citizens. EMF's research on plastics production and waste, published in 2016, has helped to galvanize global action by highlighting the extent of the problem and some potential solutions⁶. The New Plastics Economy report, *Catalysing action*, provides a clear transition strategy for the global plastics industry to design better packaging, increase recycling rates, and introduce new models for making better use of packaging². Its three key insights on the transition to a circular economy, and associated actions, are summarized in Figure 3 below.

Figure 2: Overview of the New Plastics Economy action plan: insights and actions



EMF recently launched a new initiative called *The Plastics Pact* to implement the New Plastics Economy action plan⁴³. The first pact, launched in April 2018, is being led by UK charity WRAP. By mid-2018 it had 55 members including local retailers and global brands such as Unilever and Nestlé.

A second pact is being developed in Chile in collaboration with local B Corp, TriCiclos. Each national pact will commit to achieving ambitious targets by 2025 in the following areas:

- eliminate unnecessary and problematic single-use plastic packaging through redesign and innovation
- ensure all plastic packaging is reusable, recyclable, or compostable
- increase the collection and recycling of plastic packaging

- increase recycled content in plastic packaging.

There are multiple initiatives between the European Union (EU) and India like the Resource Efficiency Initiative (EU-REI) for India⁴⁴. For example, the EU will support Indian business initiatives in India that will work to address plastic pollution⁴⁵.

4.2 National collaborations

There are several examples of national initiatives focused on packaging (Table 1).

Table 1: National collaborative models

Collaborative initiative	Description
Courtauld Commitment (UK)⁴⁶	Currently in its third phase, the Courtauld Commitment is a voluntary agreement aimed at improving resource efficiency and reducing waste within the UK grocery sector.
Australian Packaging Covenant (APC)⁴⁷	A voluntary agreement between companies in the packaging supply chain and all levels of government, to reduce the environmental impact of packaging. Companies commit to an action plan and annual reporting.
The Closed Loop Fund (USA)⁴⁸	The fund was established in 2014 with financial support from consumer goods manufacturers and retailers sector to improve the infrastructure for collection and recycling for packaging and food waste.
Sustainable Packaging Coalition (USA)⁴⁹	The SPC is a voluntary, member-based organization that encompasses the entire supply chain. Activities include conferences, training, guidelines and a labelling scheme to help consumers recycle.

4.3 Corporate strategy

Further to the examples presented above of businesses taking action in India, many global companies have committed to ambitious packaging targets. Under the auspices of the Ellen MacArthur Foundation, for example, thirteen brands have committed to 'working towards' using 100% reusable, recyclable or compostable packaging by 2025 or earlier: Amcor, Colgate-Palmolive, Ecover, Evian, L'Oréal, Mars, M&S, PepsiCo, the Coca-Cola Company, Unilever, Walmart, Werner & Mertz and Nestlé.

Strategies adopted by leading multinational companies, both globally and in India, include:

- improved design, for example to improve efficiency, design for recycling, or to integrate recycled or renewable materials
- collaboration with industry peers, NGOs or other stakeholders to improve the infrastructure for collection and recycling.

Some specific examples are provided in Appendix 1: Further Information Table 3: Examples of multinational corporate initiatives.

4.4 Plastics recycling

One of the most difficult packaging formats to recycle is multi-material laminates. This problem is being addressed through both design and recovery systems. Dow Chemical, for example, has developed a single-material stand-up pouch with improved recyclability versus the existing and compared to multi-material alternatives⁵⁰.

A European consortium of companies representing the entire value chain of flexible packaging is collaborating on a project called CEFLEX to improve recovery rates. CEFLEX aims to develop 'Design for a Circular Economy' guidelines for both flexible packaging and the end of cycle

infrastructure to collect, sort and recycle. By 2025, it aims to develop a collection, sorting and reprocessing infrastructure for post-consumer flexible packaging across Europe⁵¹.

Unilever has co-developed a new technology with the Fraunhofer Institute for Process Engineering and Packaging IVV in Germany to recover used multi-layer sachets. Called CreaSolv®, the technology is a chemical process that turns them into safe, high-quality polymers. The process will be trialled on a commercial scale at Unilever's Indonesian pilot plant in 2018⁵².

In 2015, Nestlé and Coca Cola supported a UK trial to collect and recycle laminated pouches using microwave-induced pyrolysis to recover the aluminium⁵³. The technology appears to be technically viable.

4.4 Non-government organisations

Innovative projects by NGOs to reduce plastics packaging pollution include:

- Hong Kong and California-based Ocean Recovery Alliance's Plastics Disclosure Project: helps companies to quantify and report on their use of plastic, to encourage efforts to reduce consumption and waste⁵⁴
- Australia-based Clean Up the World works in partnership with the United Nations Environment Program and has members in 130 countries. It undertakes litter clean-ups, recycling projects and other environmental activities⁵⁵
- Founded in Canada, the Plastic Bank works with people in impoverished areas to collect waste plastics, which are traded for cash, goods or services. Companies can become 'plastics neutral' by financing the collection of plastics equivalent to their use of plastics⁵⁶.

5. Opportunities for Indian businesses to solve the plastic packaging pollution problem

"Healthy oceans can support healthy people and healthy profits; if we let them. That means governments, business and individual citizens backing an inclusive, circular economy. It means using legislation, innovation and consumer choices to replace plastic related demand and pollution with better alternatives that create jobs and still look after our planet."

Erik Solheim Executive Director, UN Environment²

There are multiple opportunities for Indian consumer companies to take leadership on solving the issue of plastic packaging pollution in India, via engagement with global and/or national initiatives and at the individual organisation level.

5.1 Global engagement

The leading global initiative to reinvent the way we produce and consume plastics is EMF's New Plastics Economy². The initiative provides businesses with the opportunity to engage with sustainability leaders around the world, with the backing of the Foundation, to collectively tackle the problem.

5.2 National engagement

At the national level, there are a number of opportunities including:

- In collaboration with key stakeholders, establish an India Plastics Pact that aligns with the New Plastics Economy vision and that commits to achieving ambitious targets. This could be modelled on the UK Plastics Pact (modified to meet Indian goals and priorities) and incorporate targets for 2025 such as:
 - 100% of plastic packaging to be reusable, recyclable or compostable

- 70% of plastic packaging effectively recycled or composted
- take actions to eliminate problematic or unnecessary single-use packaging items through redesign, innovation or alternative (reuse) delivery modes
- 30% average recycled content across all plastic packaging
- Develop a national initiative for industry collaboration and performance improvement. This could be a wide-ranging, cross-sectoral initiative, similar to the Australian Packaging Covenant Organisation, or an initiative focused on addressing a particular issue, such as the British Retail Consortium's On Pack Recycling Label^{vii}
- Collaborate with other businesses to tackle plastics pollution through the waste and sanitation stream of India²⁰²²
- Develop a new, unique national collaboration model for India to address plastic pollution.

5.3 Individual company action

In addition to participating in collaborative activities at the national and/or global level as outlined above, companies can practice leadership on packaging sustainability by:

- exploring new business models that reflect responsibility for packaging at end of life (extended producer responsibility)
- supporting legislation or policy that supports packaging sustainability (at local, state or national level)
- sharing knowledge and experience with peer organisations, particularly those that are less advanced in packaging sustainability
- helping to negotiate an industry standard for packaging sustainability or recyclability
- undertaking R&D or pilot projects to improve recycling and create jobs
- informing and educating consumers to move towards recyclable packaging.

Companies can use frameworks such as the US-based Sustainable Packaging Coalition's (SPC) guidelines or the APCO Packaging Sustainability Framework to review packaging sustainability. The APCO framework⁵⁸ includes the following elements:

- setting packaging sustainability goals and targets and integrating these into corporate strategy. If India develops a Plastics Pact, corporate targets could be aligned with this
- incorporating sustainability into the design or procurement of packaging to help move away from a throw-away culture
- reducing the amount of material used in packaging to ensure that packaging has been 'optimised'
- increasing the amount of renewable or recycled material in packaging to ensure that recycled and renewable material in packaging has been 'optimised'
- improving the recovery of packaging at the end of its life
- labelling packaging to help consumers determine what to do with packaging at end of life
- reducing the impacts of packaging through innovation in product-packaging systems as a whole
- reducing the amount of material used in business-to-business packaging
- increasing the recovery of packaging waste generated on-site

^{vii} The British Retail Consortium (BRC), in partnership with WRAP developed the On Pack Recycling Label (OPRL) based on the Recycle Now icon, which provides information to consumers on the recyclability of packaging in the UK. The label is now used by almost 500 brands. <http://www.wrap.org.uk/content/pack-recycling-label>

- engaging with the supply chain to build support for, and capacity to achieve, packaging sustainability goals, for example through collaboration with supply chain partners to share knowledge and improve outcomes.

5.4 Getting started

Collaboration

- **Prioritise:** To help prioritise where action is most needed, the EMF report, *Catalysing Action*² provides a summary of priorities across the areas of fundamental redesign and innovation, reuse, and recycling with radically improved economics and quality. These could guide the focus for collaborative efforts to address packaging sustainability.
- **Learn from experience:** In designing a national collaborative initiative on packaging sustainability, Indian businesses can adapt knowledge and experience from current global collaborations on packaging sustainability and other sustainability issues, and from successful national collaboration initiatives.

Individual businesses

- **Use existing resources:** There are many resources available to provide guidance on packaging sustainability. These include frameworks for reviewing the product-packaging system, design guidelines and good practice guidance.
- **Engage specialists:** Guidance may be provided by specialist consultants or recruited staff to help the business develop a packaging sustainability strategy or provide specific advice on, for example, packaging design.
- **Learn from peers:** For those businesses with less experience in packaging sustainability, it may be helpful to engage in peer learning with businesses who are already advanced.

6. Conclusion

This paper has provided background information on the plastic pollution problem in India and some of the potential solutions. The wide range of initiatives already underway demonstrate the willingness of businesses, in collaboration with government and community organisations, to address the problem of plastics pollution to ensure that India's future growth is sustainable. The forum convened by Stewart Investors and the Institute for Sustainable Futures in July 2018 aims to further facilitate Indian business collaboration on this important issue.

Appendix 1: Further Information

Table 2: Examples of multinational corporate initiatives

Company	Packaging targets
Unilever⁵²	<p>Targets:</p> <ul style="list-style-type: none"> • reduce the weight of our packaging by one third by 2020 • 100% of our plastic packaging will be designed to be fully reusable, recyclable or compostable by 2025 • increase recycled plastic content in our packaging to at least 25% by 2025 <p>Unilever supports The Plastics Pact (UK), APCO (Australia), Closed Loop Fund (USA), CEFLEX (EU), New Plastics Economy</p> <p>Promoting the need for a Global Plastics Protocol.</p> <p>R&D on plastic sachet recycling (Indonesian pilot).</p>
P&G⁶⁶	<p>Targets by 2020:</p> <ul style="list-style-type: none"> • reduce packaging by 20% per consumer use • doubling use of recycled resin in plastic packaging • ensuring 90% of packaging is recyclable or there are programs in place to develop the ability to recycle it <p>Launched a plastic bottle with 10% recovered ocean plastics.</p> <p>Supports Closed Loop Fund (USA), APCO (Australia), The Plastics Pact (UK), New Plastics Economy.</p> <p>Funds post-back recycling program for bottles through Terracycle⁶⁷.</p>
Nestlé⁶⁸	<p>Targets:</p> <ul style="list-style-type: none"> • 100% of our packaging is recyclable or reusable by 2025 • reduce the amount of packaging we use by 140,000 tons by 2020 (on a 2015 baseline) <p>Undertakes Life cycle assessment (LCA) for all packaging.</p> <p>Working with other companies to improve packaging waste management in Indonesia.</p> <p>Supports CEFLEX (EU), The Plastics Pact (UK), Closed Loop Fund (USA), New Plastics Economy</p> <p>Nestlé Waters uses 100% recycled PET bottles, designed 100% bio-based bottle.</p> <p>In 2015 supported a pouch recycling trial in UK⁶⁹. The technology looks promising but challenges with collection and transport still need to be resolved⁷⁰.</p>
Colgate Palmolive⁷¹	<p>Targets:</p> <ul style="list-style-type: none"> • 100% of packaging for three of four product categories completely recyclable by 2020 and to work on a recyclable toothpaste tube • increase recycled content in our packaging to 50% by 2020 • exit PVC by 2020 <p>Support the Closed Loop Fund (USA), APCO (Australia), fund post-back recycling for oral care products through Terracycle⁶⁷</p>
GSK⁷²	<p>GSK does not use microbeads in products. Identified opportunities to reformulate products that use other inactive plastic ingredients. These initiatives will take approximately three years to complete and phase into the market.</p> <p>'Rightsizing' project to optimize the amount of packaging⁷².</p>

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