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CLIMATE AND CIRCULARITY PLASTICS

Connecting SWITCH-Asia activities and sharing our insights

The Critical Impact of the Plastics Industry

A world without plastics seems unimaginable today, yet large-scale plastic production and use dates back only to the 1950s. The rapid growth in plastics production is extraordinary, surpassing that of most other human-made materials. This is because of their versatility and usefulness in day-to-day life. But this material is also problematic, as most plastic items end up being 'leaked' out of the production and consumption system, where they become dangerous for humans and the environment. This current linear production and consumption system results in an ongoing need for new plastics to be produced from fossil sources – mostly oil – and it perpetuates constant demand.

None of the commonly used plastics are biodegradable. As a result, plastics accumulate rather than decompose in landfills or in the natural environment. Alternatively, they are incinerated or burnt in an uncontrolled manner, which is the only way to permanently eliminate plastic waste. Despite being a recyclable material, less than 10% of plastics actually does get recycled, and most often through downgrading – for example, plastic bottles become outdoor carpets. Near-continuous contamination of the natural environment with plastic waste has thus always been of concern, with the industry stating its first commitment to recycling decades ago. However, plastics production during this time increased nearly 8-fold from 50 million mt to 390 million mt in 2021 (Statista, 2022), while recycling has remained at low levels. The economic viability of plastic recycling remains a challenge, often because of the design of plastic materials. While effective recycling relies on well-designed products, existing legal frameworks and market dynamics often discourage such plastic design practices. Because of the continued proliferation of plastics, especially in the form of single-use packaging, textiles, and business-to-business use, plastic has become a grave environmental and health problem.

Plastic debris in the form of microplastic accumulations, fragments of synthetic fibres, and tire wear particles have been found in every ocean basin on the planet (IUCN, 2021). Such waste is also present on marine beaches, polluting freshwater systems and terrestrial habitats. As a consequence, plastic particles and potentially toxic additives are now detectable in plants, animals, and humans. We daily inhale and ingest microplastics and nanoparticles, and take them up through our skin as well (CIEL, 2023).

Climate Change and Plastics

The plastics and fossil fuel industries are deeply linked. A large majority of conventional consumer plastics originate from fossil fuels (European Commission, 2022), and many fossil fuel companies own, operate or invest in plastic production infrastructure. ExxonMobil (USA), Sinopec (China), Total (France) and Saudi Aramco (Saudi Arabia) are among the top plastics producers worldwide. Many other producers have recently invested in or plan to invest in ever larger production facilities.

Plastics result in greenhouse gas (GHG) emissions at every stage of their life cycle. Plastic pollutes the planet from the extraction and transport of fossil fuels, to energy- and emissions-intensive refining processes, to the waste management of plastic. The UN Environment Programme estimates that greenhouse gas emissions from the production, use and disposal of plastics could account for 19% of total global carbon emissions by 2040, when the energy sector itself will have finally shifted away from fossil fuels. If emissions from plastics production continue unchecked, they will potentially threaten our ability to meet global climate targets.

Circularity and the Plastics Sector

The prevailing linear model of production needs to be replaced by **changing to a circular plastics economy.** In a circular model, the reduction of plastics and reuse of products take priority over recycling. Furthermore, a circular plastics economy would require that products be designed for recycling in more than one cycle, and that raw material used for the production of plastic would not come predominantly from fossil sources. Materials with similar characteristics to plastics could also be produced from renewable sources such as wood fibre or algae – but more investment into Research and Development (R&D) is required.

This move to alternative materials and implementing measures to prevent leakages from the system while increasing the efficiency of the production/consumption system (including caps, phase-outs, innovation programmes, and market-based instruments like taxes) is urgently needed.

It is only by shifting the current plastics system to alternative materials and making the remaining plastics cycle within an efficient and closed system, that negative plastics impacts can be reduced.

A circular plastics economy will require that plastic material loss be minimised by implementing cleaner production methods and efficient logistics to mitigate waste. Moreover, it will necessitate comprehensive attention with regard to all accompanying materials such as water and energy to create a truly sustainable system. Collection of secondary plastic materials (waste plastic), coupled with tracing and quality assurance measures, will both play pivotal roles in reintegrating plastics back into supply chains.

The shift towards a circular plastics economy will not come about by itself. It will require an extensive, systemic and societal change to tackle the way products are designed, produced and used. To do so effectively, it is important to understand the distinction between fossil companies and polymer producers on the one hand, and plastic product manufacturers on the other hand: the former rely on the continuity of the prevailing linear system where increase in production and economic growth is 'coupled' with material use, i.e. fossil fuel consumption, and associated greenhouse gas (GHG) emissions. However, many product manufacturers can forge new business models centred around alternative materials and products. This distinction makes the exploration of innovative pathways possible for different companies whose goal is to uncouple from entrenched reliance on the existing system.

While the shift to a circular economy presents its own challenges, the long-term costs of maintaining our current linear plastics production model have been estimated to be substantially higher. These costs are not just financial in terms of clean-up costs. They include significant environmental, health and socio-economic repercussions as well as missing out on the economic advantages such as formal employment that are offered by the circular economy model (SWITCH-Asia, 2022).At the fifth UN Environment Assembly, 175 nations agreed to begin negotiations on a **legally binding UN treaty on plastic pollution to address the full life cycle of plastic**. This historic agreement could help create the necessary accountability and transparency to transform the way we produce, consume and dispose of plastics. The official negotiations for this legal instrument began in November 2022 and are set to wrap up in 2024.

A case in point:
Quick system-level actions that can curb the further proliferation of plastics

(Pew Trust, 2020; SWITCH-Asia 2021-2023)

Legislation towards the following objectives hold the key for an effective reduction of plastics waste generated:

Reducing excesses: By cutting down on superfluous items and excessive packaging, there is potential to achieve a significant reduction in plastic use. This approach targets unnecessary plastics that do not serve a functional purpose, and could involve bans, caps, taxes and import duties.

Promoting reusability: Implementing and expanding reusable alternatives to take the place of single-use plastics offers a significant opportunity; for example, local takeback systems for glass water bottles (as demonstrated by a SWITCH-Asia grant in Laos).

Strengthening innovation systems: Incentivising and supporting private sector investment into research and development for identifying material alternatives that enable plastic production in a circular economic model

Innovative delivery models and market transformation: Shifting towards refill systems and other innovative delivery methods could lead to a meaningful reduction in everyday plastic use. These models would rethink how products are provided to consumers, emphasising sustainability. For example, they could be applied to the food delivery sector. Other options to spur market transformation could be through various financial and policy instruments; these would also have to integrate plastic waste collection, sorting, and management.

Prolonging the Lifespan of Household Goods: Extending the durability and usability of household items will reduce the need for frequent replacements, thereby reducing waste and consumption.

It is important to start these interventions quickly. In prior interventions worldwide, the focus has been on household items like straws or plastic bags. These interventions often had a piloting character, and were therefore not monitored or sanctioned after initial attempts, leading to de facto transgressions quickly. But there are many other options where a system-level intervention by a ban or phase-out would lead to significant reduction of plastics use. The most problematic plastic use cases currently include multi-material packaging, for example in the convenience food sector; sachets, for example for water; business-to-business packaging; textiles; and plastic bottles for beverages, as well as household products and cosmetics.

SWITCH-Asia activities

The European Union (EU) SWITCH-Asia Programme provides a platform for partnerships and networks between Europe and Asia, supporting the implementation of national strategies and action plans on Sustainable Consumption and Production (SCP) practices. With the assistance of the European Commission, Asian countries are supported to transition towards low-carbon, resource-efficient and more circular economies that contribute to poverty reduction. This briefing connects the SWITCH-Asia activities on climate and circularity for the plastics sector.

The EU in general and its SWITCH-Asia Programme in particular have recognised the critical importance of this sector to further promote sustainability through SCP, making the plastics cluster a major pillar of their activities. Technical assistance is provided by the Policy Support Component (PSC) at government level and through the Grants Programme to support the SCP-relevant entrepreneurs and small and medium-sized enterprises (SMEs) in the regions. Since 2007, the SWITCH-Asia Programme has implemented more than ten grant projects in South Asia, Southeast Asia and East Asia where plastics played an important role. The Programme has also provided technical assistance to the Maldives through an Action Plan in their phaseout of single-use plastics, to Pakistan through policy recommendations on plastics waste management, and to Lao PDR through a National Plastics Action Plan, as well as to Mongolia and Kazakhstan through studies on recycling and extended producer responsibility (EPR), respectively.

A **Plastics Governance Engagement** was also launched in 2023 by the Policy Support Component of Switch-Asia (PSC) with the aim of providing countries in the Asia-Pacific region with the technical knowledge and advisory support necessary to develop their perspectives and raise awareness about the importance of national involvement in the Plastics Treaty negotiations.

The plastic industry is still seen by many governments as a source of economic growth and job creation and there is support provided to this industry. It is important to acknowledge that plastic alternatives, materials as well as systems – such as the circular economy approach – are also creating employment, and they don't have negative environmental, climate, and health impacts.

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A case in point:
Developing plastics projects that go beyond recycling

(SWITCH-Asia, 2022)

SWITCH-Asia grant projects have been tackling the plastics challenge for more than a decade. However, many Switch-Asia and other plastics projects focus on 'end-of-life' solutions, or else target the post-consumption stage. Some projects, on the other hand, work with sales and marketing by promoting plastic waste recycling and focusing on how to reposition recycled products in the market. While these approaches are valid, it is important to target the entire life cycle stages of plastics. This would make it possible to analyse the impact of plastics on the economy, the environment (climate, ecosystem) and society (jobs, gender) throughout the life cycle of plastics, as well as to find end solutions.

Thinking outside the box, using cross-sectoral approaches, emphasising cooperation and an understanding of how innovation works will be required for a more comprehensive view of plastics in order to broaden the focus of action plans beyond an end-of-life waste management perspective.

Projects integrating the entire life cycle of plastic should introduce the following points at the development and implementation phases of planning:

1. Support for national/regional action plans for plastics with the involvement of stakeholders in the plastics value chain, which could include dialogue to assess the needs, challenges and ideas for future processes across the value chain

2. Combining various instruments and incentives to create an enabling environment for the Circular Economy, including cooperation to enable financing for CE

3. Assuring compliance with waste management rules by developing sanctioning mechanisms and other types of implementation-enforcing processes within the plastics industry

4. Building capacity among policymakers, while promoting consumer education

5. Integrating finance and investment for CE and plastics, flagging plastics risks to investors; strengthening their considerations of risks resulting from negative plastics impacts through reporting (including Environmental, Social, and Governance factors).

EU Priorities: Plastics

The EU is taking action to tackle plastic pollution and marine litter to accelerate the transition to a circular and resource-efficient plastics economy. The **European Green Deal** was adopted in December 2019 and aims to reduce by 2030 European CO_2 emissions by 55% ('Fit for 55') compared to 1990 levels. To achieve this goal, the second **Circular Economy Action Plan** (CEAP) was released in 2020, setting out measures for building a future-oriented economy based on circular economy principles. Among other value chains, the CEAP prioritizes reducing and redesigning packaging, regulatory measures for labelling, source sorting and safe recycling, and microplastics. The CEAP also aims for a more sustainable use of plastic by setting mandatory requirements on recycled plastic content in certain new plastic products. The objective of the CEAP regarding packaging is to 'ensure that all packaging on the EU market is reusable or recyclable in an economically viable way by 2030'.

The **Plastic Bags Directive** adopted in 2015 aims to reduce the consumption of lightweight plastic carrier bags, while the **Single-Use Plastics Directive** (SUPD) was introduced in 2019 to limit the circulation of plastic products that are used only once before being discarded. Both directives focus on the upstream stage of the life cycle of plastic products by limiting production in the first place.

In November 2022, the European Commission announced a draft revision of the EU legislation on **packaging and packaging waste**, and the new framework is now being considered by the European Parliament and Council. The proposed targets include making all packaging in the European Union recyclable by 2030, a 15% packaging waste reduction per Member State per capita by 2040, and mandatory rates for recycled content in new plastic packaging. The proposed legislation also clarifies the taxonomy around bio-based, biodegradable and compostable plastics.

Important insights for policymakers

- Plastic need to be recognised as a climate-change relevant material. In addition, because it is produced using fossil oil and gas, it should be considered essential in climate negotiations and national climate mitigation strategies. Because the external costs like environmental pollution are currently not being priced in, plastics will always be a cheap option for materials. More policy coherence from national governments committed to curbing emissions is necessary, and it is urgently needed to include plastics.
- There must be an acknowledgement of the importance of sector circularity for achieving climate commitments, as well as a system-approach regarding the sector policies, financing, and supply-chain regulations needed for fast results and the scaling up of long-lasting, sustainable solutions.
- One of the root causes of the exponential growth of plastic is that the fossil fuel industry has recognized the market's growth potential in the absence of government intervention in a context of gradual phase-out of fossil fuels. It needs to be acknowledged that the plastics and fossil industry is a heavyweight and an indefatigable lobbyist for its own interests, and whose goal is to maintain profits and keep producing fossil-fuel based plastics.
- Asset and financial instrument managers have heavily invested in polymer producers, and it is important to take into consideration that these managers generally do not engage with polymer producers or consumer goods companies about the potential material risks regarding liabilities for clean-up and restitution. These players will rethink investment strategies only if there are clear and evident economic disincentives for them, or if their businesses are threatened.
- Plastics is a trans-boundary issue because both production and pollution are global in nature. Thus national, regional and municipal action is needed, but a global agreement on plastics is important to allow for alignment at the international level.

- Regulations that place the responsibility for waste production on polymer producers, plastics manufacturers, and brands and sellers can create a more equitable environment for emerging business models and solutions that eliminate packaging, which should include initiatives such as taxes on single-use plastics and charges for landfill usage or incineration.

- Extended Producer Responsibility (EPR) is popular and can be effective, but only under specific circumstances where, among other conditions, there is a high level of transparency and strict government oversight. The EPR concept in general is helpful, but only as part of a panoply of measures carried out at different levels to tackle the plastics problem. Government commitment to coherently and comprehensively deal with plastics along the entire value chain is necessary.

Actions to be taken by companies that manufacture or use plastic products

- Allocate resources towards research on and development of alternative materials to replace plastics. These alternatives should be biodegradable, recyclable, and/or made from sustainable sources. Investing in innovation will not only prepare your company for a future that will be less reliant on traditional plastics, but also position it as a leader in sustainable practices.

- Adopt Circular Economy Principles by designing products that are easy to recycle or reuse, thus reducing waste. Such action involves rethinking product design, manufacturing processes, and end-of-life management to ensure that materials can be continuously cycled back into the economy.

- Improve resource efficiency at all production stages by re-evaluating production efficiency and by determining where excessive use of fossil feedstocks can be reduced.

- Plan for an internalisation of external costs associated with plastic pollution, such as environmental clean-up and effects on human health. Actions could involve setting aside funds for environmental remediation projects, or contributing to global initiatives aimed at mitigating the impact of plastic pollution. By accounting for these costs in financial planning, your company will also be more incentivized to reduce its plastic footprint.

- Work closely with clients and suppliers to reduce reliance on plastics throughout the supply chain. This could involve setting sustainability standards for suppliers, encouraging the use of recycled materials, and exploring innovative packaging solutions that minimise plastic use.

- Create a collaborative platform or consortium that would bring together competitors, academia, start-ups, and government bodies to co-create plastic alternatives. This ecosystem would function as an 'innovation incubator' focusing on developing new materials and technologies to replace plastics in various applications. By pooling resources, knowledge and expertise, the consortium could accelerate the development of viable alternatives to plastics. A collaborative approach like this would also help share the risks and costs of research and development, making it more feasible for individual companies, especially smaller ones, to contribute to and benefit from sustainable innovations.

- While your company is successfully transitioning to a circular plastics approach, you should actively engage in policy advocacy to support legislation that encourages a shift away from plastics and promotes the internalisation of environmental costs. By supporting policies that favour sustainable materials and practices, you can help shape a regulatory environment that would align with long-term environmental goals, eventually putting your company in a strategically advantageous position.

Actions to be taken by you and your family

- The current system is designed to encourage the wasteful use of plastic, and you are not responsible for this. At the same time, do not rely on others to solve the plastics challenge which has gotten more problematic for decades, with a growth trajectory even now picking up speed. Be critical of voluntary commitments or 'pilot projects' by companies, as these have also been promoted for decades, while plastics production and pollution have not diminished. But do celebrate those companies that really do contribute to finding solutions.
- Engage with others on this topic. Look for local groups that are raising awareness or building competence on the plastics challenge. If you cannot find one, create a project or group for one – there are many global and local environmental organisations that can support your project or group.
- Together with your group, lobby for organisations that you connect with (workplace, school, university, etc.) to replace single-use plastic items. Encourage and support legislative actions that aim to reduce plastic production and pollution. This could include advocating for bans on single-use plastics, supporting policies that mandate recycling and sustainable packaging, or even participating in public consultations on environmental issues.
- Share your knowledge with others. Educating friends and family about the environmental and health impact of plastic products and demonstrating alternatives is vital for creating momentum. Recommend websites, documentaries, books, social media, and any other sources that you found helpful to educate yourself.
- Keep an eye out for and support innovations in biodegradable materials and plastic alternatives. Supporting start-ups or companies that are developing sustainable alternatives to plastic can help bring these products into the mainstream market.