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Strategising Plastic Governance

Policy brief *

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A serious discussion about the *upstream* side of plastics is needed and should be brought to the centre of attention of plastic governance. This includes the fossil fuel dependency, plastics climate impact, structural political and economic aspects of the petrochemical industry, and the growth trajectory of conventional plastics [1-3]. Instead, the political discussion and public debate on plastics is foremost committed to the *downstream* aspects of plastics, namely the mismanagement of plastic waste and the consequences thereof. While upstream aspects of plastics production are closely related to, and underpin the downstream problems of plastics, they are rarely brought into the limelight. Plastic production is expanding rapidly and is expected to grow for decades to come [4]. This will, if unchecked, worsen downstream problems of plastic such as marine pollution and waste accumulation, as well as exacerbate the problem of fossil resource use and greenhouse gas emissions which has led to a discussion about a crisis for plastics [5].

KEY MESSAGES

- **Europe could gain from a push towards sustainable alternatives**
  Due to limited access to nearby fossil feedstock, Europe is deemed to be in a disadvantaged position under a status quo scenario but could benefit from a change
- **EU ETS reform is crucial to drive the plastic system towards sustainability**
  An overhaul of the free allocations to the petrochemical industry is important to realise a circular economy and create the business case for alternative pathways as well as following the polluter pays principle.
- **Alliances with competing actors and less vested interests**
  It will be crucial to create global alliances and public-private partnerships with actors that are less vested in a status quo scenario, e.g. governments, industries and organisations that are less inclined to support fossil fuel interests.

* This policy brief is based on discussions at a workshop on *Upstream Plastic Governance: Challenges and Opportunities* held in Lund 4 February 2020 as well as published and ongoing research in STEPS. The views expressed in this text are the views of the authors and do not represent the opinions of all partners in the STEPS consortium.

The curse of cheap fossil feedstocks

Virgin fossil feedstocks such as naphtha and ethane are so cheap that outcompeting them is impossible for alternatives in most applications. The scale of the production together with an inability or unwillingness of authorities to strictly regulate, tax, or otherwise include the externalities into the price of fossil feedstock [2] have resulted in a world filled with inexpensive products made from them and currently expansions are primarily being planned based on cheap crude oil and natural gas liquids. As these fossil feedstocks are used both as energy and materials in the production, the pressure to move away from them must be related to both types of use. Paying for GHG emissions in the production stage, e.g. through reforming the EU ETS, will not be enough to deliver a transformation of the use of fossil feedstocks but is an important signal and supporting driver for change. There is a need for a profitable business case for alternatives, but under current conditions it is very difficult for alternatives such as bio-based or recycled feedstocks and materials to compete with virgin fossil ones [6].

Lack of vision

Despite the fact that plastics are now discussed more intensely than perhaps ever, many large industrial actors lack a vision of what a system change would entail. This could be compared to the energy sector, in which a fully renewable energy system is discussed as a real possibility, albeit with issues that need to be resolved. Several ambitious initiatives have been launched, e.g. the EU Circular Plastics Alliance and the global Plastics Pact, but these initiatives yet fall short in pushing ahead the development of alternative pathways. Other initiatives fail to scale as they are not supported by or aligned with the globally dominant logics in the sector [8]. There is still a widespread belief within the plastic sector of the undisputable benefits of plastics along with a short-sighted misjudgement of the scale of the problems that plastics present. These problems will escalate if the current structures and development trajectories are not changed. Pilot projects, small-scale alternative niches, and other minor "solutions" that effectively cannot challenge conventional plastic production will not be sufficient to avoid a deepening of the plastic problems that we are facing. Policy must be put into place to ensure that key actors work on solutions that can meet the present problems at a scale that is relevant, i.e. roadmaps and technologies that show how individual firms and the industry as a whole can and reach close to zero emissions of greenhouse gases [6].

Divide and conquer

The plastics industry can seem homogenous, but when General Motors, SC Johnson & Son, PepsiCo and Coca-Cola cut their ties with the US Plastics Industry Association in 2019 it was an important indication of how strong interests along the value chains of plastics can diverge [7]. It is important to create alliances and challenge incumbent interests by convincing and creating networks with stakeholders who have less vested interest in a status quo of the current plastic industry structures. Such actors could be brand owners – as the example above shows – manufacturing industries that are closer to consumer pressure, competing material and feedstock producers, and recyclers who would gain from a transition away from fossil plastics. Policy could support the formation of such "coalitions of the willing" which could lead the way towards more sustainable material use. Europe, with its decreasing access to fossil feedstocks, is in a position where relative gains could be expected for frontrunners. It is thus important to convince actors to accept

and promote a new material reality in which alternative materials, reuse and reduce principles, as well as bio-based and recycled feedstocks become stronger than the current virgin fossil feedstock based plastic economy [9].

Energy and Plastics

Energy, chemicals, and materials are deeply and inseparably connected. Climate policy has however to a large degree ignored this connection and focused exclusively on energy and fuels. This has led to weak or non-existent incentives for the petrochemical industry to develop alternatives to fossil resource use in their production processes. Furthermore, it has twisted downstream management so that large fractions of plastics end up as energy via incineration, and that the recent developments in chemical recycling of plastics focus on producing fuels instead of new plastics. These processes are examples of an inefficient material resource use and contribute to fossil GHG emissions. Inspiration for plastic policymaking to address this issue can be picked up from and integrated with the governance of the energy sector where promotion, tax incentives and benchmark targets for renewable energy have paved the way for its success [10]. Similar tax incentives and benchmarks will be important measures to address climate and pollution impacts of materials, including plastics.

Policy options

- Overhaul of free allocations under the EU ETS. Subsidising the plastics and petrochemical industries with free allocations hinders innovation and the development of sustainable niches. Possible solutions to avoid carbon leakage are border carbon adjustments or other carbon tariffs.
- Taxation of virgin plastic pellets. An EU-wide tax or fee on the production or use of virgin fossil-based materials could support alternatives. Environmental customs on similar products imported into the EU could level the playing field, although such a system is complex in terms of demarcations.
- Recycled and bio-based feedstock quota requirements in new plastic products. Current regulation even prohibits the use of recycled material in specific products, but do not acknowledge chemically recycled material which can be of virgin quality.
- Demand firm and industry level roadmaps that show paths to zero emissions and decoupling from fossil resource dependency.
- Acknowledge and support mass-balance approaches for bio-based and recycled feedstocks in primary production, with an increasing minimum level of bio-based or recycled input to drive progressive change.

STEPS goal is to facilitate a sustainable plastic transition by sharing innovation, knowledge and findings between academia, industry and society. STEPS partners include Lund University, Swedish Agricultural University, RISE, 18 industrial partners and regional council of Scania County of Sweden representing the entire value chains in a sustainable plastics system.

STEPS is looking for sustainable solutions throughout the value chain from renewable feedstock, conversion and design to post-consumer plastic waste handling. STEPS concept is to design sustainable plastics with desired material properties and life-cycle by matching suitable carbon-neutral building blocks.

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