

A new roadmap for plastics

To address the issue of plastics, the international conference “*STEPS Towards Sustainable Plastics*” took place in Lund, Sweden, on October 7–9.

The conference brought together industry, research, and policymakers and marked the conclusion of the eight-year STEPS project – a collaboration between researchers and industrial partners (including Lund University, the University of Copenhagen, RISE, IVL, 22 industrial partners, and Region Skåne). The project focused on developing biobased polymers, methods for plastic recycling, and proposing transition strategies for a sustainable plastic system.

Over the past decade, the plastics issue has garnered increasing attention. A key step toward greater sustainability and circularity in plastics involves reconsidering when and why plastics are used. Reducing unnecessary plastic use, redesigning plastic-containing products, and extending the lifespan of existing plastics are essential steps. However, clearer guidelines are needed to achieve these goals.



Regulations for sustainable and circular plastic use

Some regulations regarding plastics are already in place. The EU has made significant strides toward a more circular and resilient economy through the *European Green Deal*. The focus is on creating sustainable and circular production processes, phasing out fossil-based materials, and maximizing the use of existing resources or renewable materials when necessary. Numerous other national and international organizations, including the Nordic Council and OECD, have issued recommendations and policies on

plastics. For instance, in 2022, Sweden adopted a new action plan for plastics as part of a sustainable and circular economy.

Globally, the UN Environment Assembly is negotiating a legally binding international agreement on plastics. The goals are to end plastic pollution, reduce plastic production, improve recycling, and protect human health and biodiversity by preventing plastic from entering nature. All UN member states are participating in these negotiations, with the aim of finalizing the agreement by the end of 2024.

While a global plastics agreement is urgent, Rajni Hatti Kaul from Lund University and part of the STEPS project emphasizes that realizing the vision of a sustainable, circular plastics system will take time. More research, as well as new methods of producing, using, and recycling plastics, is needed. "We should focus on plastic production and design. We need to reduce plastic-related problems and address the entire system. The solution lies in a systems perspective," says Hatti Kaul.

There is an ongoing need for greater knowledge about plastics. Currently, 16,000 chemicals are used in plastics, of which 5,000 are known to be hazardous. Alarmingly, data is missing for 10,000 of these substances. Large data gaps also exist regarding plastic flows within the EU and globally, according to the European Environment Agency. Greater transparency, comprehensive regulations, and data analysis are necessary, as only 1% of today's chemicals are regulated.



Nordic Countries as Pioneers

Policies play a crucial role in driving change in plastic production and management. A panel featuring representatives from Sweden's Environmental Protection Agency, Denmark's Environmental Protection

Agency, and Norway's Environment Directorate discussed the Nordic countries' contributions to European and global plastic transitions.

"We have developed a roadmap for making Sweden more sustainable when it comes to plastics," said Åsa Stenmarck from the Swedish Environmental Protection Agency. Sweden, with its extensive incineration infrastructure, burns much of its plastic waste. However, initiatives like Site Zero in Motala – the world's largest and most efficient sorting facility for plastic packaging – now enable high-quality recycling for Swedish and Finnish households. Efforts are also increasingly addressing upstream challenges, such as plastic production. According to Stenmarck, Swedish companies aim to be pioneers in product and material development.

Silje Rem from Norway's Environment Directorate highlighted the shift toward focusing upstream on production issues and establishing new value chains. "We need better product design, better materials with less chemical complexity, and more renewable raw materials. Achieving this requires new regulations and laws that are enforced," says Rem.

Denmark's Rasmus Eisted stressed that economic interests often overshadow decision-making despite progressive initiatives. Solutions such as reusable take-out packaging are emerging, but more testing and financial incentives are needed alongside regulations. He emphasized the EU's critical role: "It's important that we work together. Collaboration between Nordic and European countries is essential."

A long road ahead

The plastics issue remains highly complex. "The changes we see are due to new legislation," said Anette Munch-Elmér from the plastics company Polykemi, emphasizing the need for authorities to continue enforcing change. Lars Fogh Mortensen of the European Environment Agency noted the challenges ahead: "We're just starting, and in some cases, moving in the wrong direction. Recycling alone won't be enough. The UN agreement is crucial, but how ambitious will it be? The process has raised awareness, with more researchers investigating unsustainable plastic use. However, large industries, driven by the agenda to produce more, still influence policymakers."

Despite growing concerns among consumers and decision-makers, substantial progress is still needed. Mortensen expressed hope for the EU to take the lead, stating, "The agreement is a starting point but won't solve the problem. The more we learn, the greater our impact."

For further reading on plastics and regulations:

- European Environment Agency: [Circularity in Plastics](#)
- Swedish Environmental Protection Agency: [Roadmap for Sustainable Plastic Use](#)
- OECD: [Policy Scenarios for Eliminating Plastics by 2040](#)
- Nordic Council of Ministers: [Towards Ending Plastic Pollution](#)