

Nordic programme to reduce the environmental impact of plastic



NORDIC PROGRAMME TO REDUCE THE ENVIRONMENTAL IMPACT OF PLASTIC

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Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland, and Åland.

Nordic co-operation has firm traditions in politics, the economy, and culture. It plays an important role in European and international collaboration, and aims at creating a strong Nordic community in a strong Europe.

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Nordic ministerial declaration on reducing the environmental impact of plastic

We, the Nordic Ministers for the Environment have today, 2 May 2017, taken the decision to launch a Nordic programme to reduce the environmental impact of plastic.

The adverse effects of plastic on the environment are of great concern to the Nordic countries. Plastic is the type of litter found most often and in the largest volumes in marine environments. Marine plastic debris and microplastics are rapidly increasing and pose serious threats to the marine environment, ecosystems and ecosystem services at national, Nordic, EU and global level. Problematic substances in plastics can affect human health and the environment, and can present challenges for a safe and circular plastic economy. The production and ultimate disposal

via incineration of oil-based plastic is a factor that contributes to climate change.

The Nordic countries aspire to be driving forces in efforts to promote a sustainable approach to the production, use, waste management and recycling of plastics. Our shared vision for the future is one in which plastic is produced, used and recycled without affecting the climate or causing risks to human health or the environment, and plastic litter and microplastics are prevented from entering the marine environment, lakes and rivers.

Plastic is durable and flexible and is used in everything from clothes to cars. For example, as a light-weight material it can save energy and as packaging

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material it can protect food and other valuable products. However the serious negative environmental consequences associated with the production, use and disposal of plastic are equally obvious.

In order to ensure the sustainable production, use and recycling of plastics, the Nordic Ministers for the Environment are calling for action at global, EU, Nordic and national levels. The Nordic programme will be a strategic tool for enhancing knowledge, drawing up measures and building awareness in Nordic networks. The Nordic programme to reduce the environmental impact of plastic will contribute to our long-term vision in multiple strategic areas, including the prevention of plastic waste, marine plastic debris and microplastics in the environment, greater recycling, assessment of the environmental impacts of alternatives to plastics and biodegradable plastics, as well enhancing knowledge of chemicals in plastics.

The Programme is designed primarily for the co-operation between the Nordic countries and will be under the auspices of the Nordic Council of Ministers. It will also contribute to related processes beyond our Region, starting with the ambitious implementation of the UN Sustainable Development goals 12 and 14, including target 14.1 on marine debris. The Programme also demonstrates the commitment of the Nordic countries to the implementation of the United Nations Environment Assembly (UNEA) Resolution 1/6 ("Marine plastic debris and microplastics") and Resolution 2/11 ("Marine plastic litter and microplastics") and initiatives under relevant regional agreements. The Programme also represents a Nordic contribution to the UNEP Clean Seas campaign.

1. Introduction

The Nordic programme to reduce the environmental impact of plastic is a strategic tool designed to enhance knowledge, draw up measures, and to enhance synergies, networks and awareness at Nordic level. The programme covers 2017–18 and will be implemented within the framework of the Nordic Council of Ministers.

The Nordic Council of Ministers has a long history of co-operation on plastics, which aims to enhance knowledge of sorting, collection and recycling methods and systems, and to carry out value-chain improvements. Another important area for Nordic co-operation has been plastic waste in the marine environment, including microplastics. The Programme to reduce the environmental impact of plastic will build on the results of these previous efforts.

The Programme will support the Nordic countries in their efforts to prevent plastic waste, increase the reuse and recycling of plastics, accelerate the circular economy and minimise marine plastic litter and microplastics. Furthermore, the Nordic programme to reduce the environmental impact of plastic is being launched alongside – and contributes to – a number of ongoing international initiatives in this area.

The programme includes six strategic areas for Nordic co-operation on the sustainable use of plastic. Relevant objectives have been set for all six. The strategic areas are:

- 1) **Prevention of plastic waste and support for design that promotes greater reuse, longer lifetime and recycling**
- 2) **Effective waste-management systems and increased recycling of plastic waste**
- 3) **Co-operation on measures to stop plastic waste in the seas and find cost-effective clean-up solutions**
- 4) **Advancing knowledge of microplastics and identifying measures to cut emissions of microplastics to the environment**
- 5) **Advancing knowledge of the environmental impacts of bio-based alternatives to plastic and biodegradable plastics**
- 6) **Advancing knowledge of problematic substances in recycling of plastic**



Each objective under the strategic areas for co-operation will be addressed via one project or other initiative, at minimum.

Implementation

The activities and projects to be included in the Plastics Programme will primarily be funded by the Nordic Council of Ministers and implemented under its auspices. The Nordic Committee of

Senior Officials for Environmental Affairs will carry the overall responsibility for the programme. The implementation of the programme activities will be anchored in the Nordic working groups. However, the programme will also involve external partners, such as national agencies, research institutions, industry bodies and NGOs.

2. Prevention of plastic waste and support for design that promotes greater reuse, longer lifetime and recycling

Much of today's plastic waste comes from single-use plastic articles, low-quality plastic products, or products with plastic components that cannot readily be recycled. Single-use plastics are also a source of marine debris. The emphasis must, therefore, be on preventing the creation of plastic waste in the first place.

In terms of preventing plastic waste, there is considerable potential for replacing single-use products with reusable ones, e.g. through new patterns of procurement and consumption. Means and measures at the appropriate levels should be identified to reduce the use of single-use plastic items and prevent them from entering the environment.

OBJECTIVE 1:

The Nordic programme to reduce the environmental impact of plastic enhances knowledge of single-use plastic items and plastic products with very short lifetimes in order to help us define measures promoting changes

to behaviour and production and to prevent plastic litter.

Focusing on waste prevention, reuse, multi-use and longer lifetime during the design phase of plastic products, products including plastic components and product systems, can significantly reduce levels of plastic waste. In order to increase recyclability, as part of the transition towards a circular economy, attention must be paid to optimising material separation through product design, combinations of types of plastics, and combinations of plastics and other materials. Plastic materials, additives and fillers must be selected on the basis of their recyclability. In addition, relevant information, e.g. related to types of plastic and the additives and fillers they contain, should be made available in order to facilitate recycling.

OBJECTIVE 2:

The Nordic programme to reduce the environmental impact of plastic enhances knowledge of how the



Focusing on waste prevention, reuse, multi-use and longer lifetime during the design phase of plastic products, products including plastic components and product systems, can significantly reduce levels of plastic waste.

prevention of plastic waste can be better incorporated into the design phase of specific products, and of how to promote circular business models that support reuse, longer lifetime and recycling.

OBJECTIVE 3:

The Nordic programme to reduce the environmental impact of plastic will contribute to the development of a framework for eco-design with focus on inclusion of aspects related to prevention and recycling of plastic waste.

Plastic is often used in products and packaging because of its functionality.

Despite the adverse environmental effects involved in production and waste handling, use of plastic can also have positive effects, i.e. due to its light weight and ability to protect packaged items. However, in many product categories, plastic waste can be prevented by replacing plastics with other suitable materials. For instance, many cosmetics and personal care products use plastic microbeads, where alternative materials with less environmental impact could be used instead. The Nordic Swan Ecolabel already indicates the absence of plastic microbeads in personal care products.

3. Effective waste-management systems and increased recycling of plastic waste

The Nordic countries see greater recycling of plastic waste and the use of recycled materials as necessities. Closing the loop on plastic in a circular economy, and ensuring that plastic is a recyclable resource, reduce both the likelihood of it littering the environment and the environmental effects related to its use and production.

However, even though the Nordic countries have systems for the collection and recycling of plastic waste, only a relatively low proportion of the plastic on the Nordic market is recycled. There is still large untapped potential in recycling plastic from plastic products and packaging. It is estimated that up to 700,000 tonnes of plastic could be recycled from mixed municipal waste alone in the Nordic Region.

It is essential to enhance competencies and improve technical infrastructure in order to develop the current waste-management systems for increased volume of recycling of plastic.

The volume of recycling may be increased by means of more efficient collection and grading systems. This will also require efforts to design products and product systems that e.g. allow for the disassembly of plastic components, including in more complex products, and to establish systems characterised by low levels of material use and waste generation. Recycling can also be promoted via the certification of recycled plastic material, by developing and funding innovative sorting and recycling technologies, and by enhancing collaboration and improving communication throughout the plastic value chain. In short, measures must be developed throughout all parts of the value chain in order to facilitate the flow of dependable, high-quality, well-defined, recycled plastic materials to future users. Here, the involvement of market players, e.g. industry bodies, is essential.



It is estimated that up to 700,000 tonnes of plastic could be recycled from mixed municipal waste alone in the Nordic Region.

OBJECTIVE 4:

The Nordic programme to reduce the environmental impact of plastic promotes exchange of knowledge and information about experiences between the Nordic countries and promotes measures designed to support effective waste-management systems and markets for recycled plastic materials.

The future architecture of the markets for recycled plastics will be highly dependent on developments at EU level. Plastic is one of the five priority areas in the EU Action Plan for the Circular Economy. The Action Plan includes

a review of the Waste Framework Directive and the Packaging Directive, which addresses the issues of separate collection and targets for recycling of plastic waste. The upcoming EU strategy on plastics will consist of measures and activities aimed at increasing recycling and reducing pollution. The Nordic programme on sustainable approach to plastics will contribute to this focus on plastics in the circular economy at EU level.

4. Co-operation on measures to stop plastic waste in the seas and find cost-effective clean-up solutions

In 2010, it was estimated that between 4.8 and 12.7 million metric tonnes of plastic ended up in the sea. The level of production and use of plastics is on the rise, which means that the amount of plastics and microplastics in the environment are likely to increase if we do not take action. The amount of plastic in the sea is expected to double by 2030 and quadruple by 2050. Research shows that plastic debris of all sizes is found in waters everywhere – from the remote Arctic to the coastal waters around big cities. Marine plastic debris does not respect national borders.

The adverse effects of large pieces of plastic debris in the seas are clearly visible. It wounds, disables and even kills birds, fish and mammals; it pollutes recreational areas used by residents of coastal areas and tourists; and it can even hinder the navigation of ships and smaller vessels. Animals get trapped in discarded fishing gear, which continues to ghost fish. Floating plastic may transport harmful and alien organisms. The degradation of large plastic debris is believed to be among the most

significant sources of microplastics in the marine environment.

The high quality of Nordic waste-management systems keeps most of the plastic waste out of our seas and natural areas. However, we still have plastic debris in our coastal and marine areas. Plastic debris in Nordic waters stems both from consumers and from industry (both land-based and marine). It also travels long distances on ocean currents. We currently lack detailed knowledge of the sources of and how plastic waste enters the seas and aquatic environment.

OBJECTIVE 5:

The Nordic programme to reduce the environmental impact of plastic contributes to the enhancement of knowledge of sources of plastic waste in the seas and aquatic environments, in order to create a basis for targeted preventive measures for plastic litter in marine and aquatic environments.

The Nordic countries are coastal nations with long experience of fishing,

shipping and other maritime industries. Measures to stop fishing equipment being discarded and ghost fishing are increasingly relevant issues for Nordic co-operation.

Plastic waste ends up on the shorelines, on the ocean floor, in sediment, in the water column and in the marine biota. Marine debris is more concentrated along shorelines than in open waters. In addition to reducing the amount of waste, and ensuring effective waste management, removing debris along coastlines is a cost-effective way to reduce debris and microplastics in the oceans in general. Increasingly, Nordic civil society organisations do an important job in coordinating voluntary action and with support from official agencies substantial results can be achieved. Clean-up efforts and initiatives, as well as new technologies and methods for cleaning up, should focus on cost-effectiveness, based on the best-available knowledge, and seek to avoid unintended negative environmental consequences.

Measures for clean-up and for preventing plastic leakage are needed at all levels.

OBJECTIVE 6:

The Nordic programme to reduce the environmental impact of plastic enhances knowledge of cost-effective and environmentally sound clean-up solutions for marine debris, and supports the cleaning up of Nordic coastal areas by civil society organisations, local authorities and maritime industries.

OBJECTIVE 7:

The Nordic programme to reduce the environmental impact of plastic enhances knowledge and encourages exchanges of information on experiences related to the prevention of plastic littering by maritime industries, and does so in co-operation with the maritime industries.

The UN sustainable development agenda includes a set of goals aimed at ending poverty, protecting the planet and ensuring prosperity for all,

Research shows that plastic debris of all sizes is found in waters everywhere – from the remote Arctic to the coastal waters around big cities.

including Sustainable Development Goal 14 ("Life below water"). Goal 14.1 calls for prevention and significant reduction of marine pollution of all kinds, including marine debris, by 2025. The UN Environment Assembly resolutions from 2014 and 2016 on marine plastic debris and microplastics provide guidance on how to cut the proportion of both in the marine environment.

Both HELCOM (the Baltic Sea Area region) and OSPAR (the Northeast Atlantic region) conventions have drawn up marine litter action plans that enable and guide development of common indicators and associated targets, as well as tangible measures for the prevention and reduction of marine

debris from the main sources of it. The work done under these conventions will also help to fulfil the EU Marine Strategy Framework Directive.

OBJECTIVE 8:

Through the Nordic programme to reduce the environmental impact of plastic, the Nordic countries express their support for and their will to work together on the implementation of international and regional decisions and action plans aimed at reducing plastic debris in seas and aquatic environments, including those adopted by the UN, HELCOM, Osmar, the Arctic Council and the EU, as appropriate.



5. Advancing knowledge of microplastics and identifying measures to cut emissions of microplastics to the environment

Microplastics are widespread in the environment, including in the soil and in marine and aquatic environments. They are released into the environment through the use of, and wear and tear on, products such as tyres, paint, and textiles, and are also intentionally added to certain products. In the marine environment, the rapid fragmentation of larger plastic into microplastics might explain the discrepancy between the large amount of plastic debris that ends up in marine and aquatic environments, and the far smaller volumes of plastics that monitoring activities have been able to detect in the oceans. Further monitoring will enhance knowledge on the amount, distribution and degradation of microplastics in the seas and aquatic environments, and enable action to be targeted accordingly.

OBJECTIVE 9:

The Nordic programme to reduce the environmental impact of plastic enhances knowledge of the occurrence and fate of microplastics in the environment.

We know that microplastics could be harmful to the environment, but we lack knowledge about the effects on human beings and predators at the top of the food chain. There are concerns that very small microplastic particles may pass through cell membranes and enter the blood and tissue of animals with potentially harmful effects. However, studies conducted so far have not documented significant increased exposure to harmful chemicals in animals that have ingested plastics. Numerous international research projects are rapidly generating knowledge of these issues, but more information is needed.

Fisheries and aquaculture are highly dependent on the availability of clean and healthy raw materials. The increasing volume of marine plastic debris fragmenting into microplastics and being consumed by marine organisms may have a considerable economic and cultural impact on the Nordic countries, where the blue economy is important to current and future growth potential.

Even though knowledge of the occurrence and effects of microplastics in the environment and on marine biota is lacking in depth, it is nevertheless sufficient to underline the seriousness of the current trend. The precautionary principle obliges us to act.

OBJECTIVE 10:

The Nordic programme to reduce the environmental impact of plastic enhances the growing body of knowledge on microplastics' effects on the marine biota, aquatic environment, human health and marine industries.

Even though knowledge of the occurrence and effects of microplastics in the environment and on marine biota is lacking in depth, it is nevertheless sufficient to underline the seriousness of the current trend. The precautionary principle obliges us to act. The Nordic countries' efficient waste-collection systems help to minimise the amount of plastic that finds its way to the lakes and seas. However, in all of the Nordic countries, studies have shown that microplastics also stem from land-based sources, e.g. car tyres, artificial pitches and training grounds, granular materials, washing of textiles, littering, paint products, cosmetic products and waste deposits. Microplastics from these sources enter the seas and the aquatic environment e.g. via waste-water treatment plants and storm water. This means that we must also focus on measures aimed at cutting emissions of microplastics from known land-based sources.

OBJECTIVE 11:

The Nordic programme to reduce the environmental impact of plastic promotes measures and exchange of information about experiences between the Nordic countries about cutting emissions from land-based sources of microplastics.

There are at present no internationally harmonised definitions of microplastics and marine debris, nor has agreement been reached on measurement and monitoring methods or environmental indicators. This represents a barrier to the effective monitoring and implementation of regulations at global, regional and national level.

OBJECTIVE 12:

Through the Nordic programme to reduce the environmental impact of plastic the Nordic countries support the development of globally harmonised definitions, terminology and methods for measuring and monitoring the impact of, and trends in, plastic litter and microplastics in the environment.

6. Advancing knowledge of the environmental impacts of bio-based alternatives to plastic and biodegradable plastics

The production of plastic generates approximately 400 million tonnes of greenhouse gas emissions p.a. (2012). More than 90% of plastics is produced from fossil feedstock. In the long term, we need to decouple plastic production from virgin fossil feedstock. The environmental impact of fossil-based plastic waste can be reduced by substituting plastic with alternative materials, such as paper and metals. Bioplastics – plastic made from bio-based raw materials – are also potential alternatives, the sustainability of which needs to be assessed. The EU Commission's "Roadmap for a Strategy on Plastics in a Circular Economy" calls for greater prevention and recycling, but also requests an assessment of the viability and environmental impacts of biomass and CO₂ as potential sources of primary feedstock.

The Nordic countries wish to help enhance knowledge of bio-based plastics, in order to ascertain whether these alternatives to oil-based products yield greater overall environmental

benefits, based on important parameters such as CO₂ emissions, biodiversity and chemical pollution. The evaluation must also take into account the whole life cycle of the product, to ensure that measures are not counterproductive in the long term.

Multiple stakeholders are currently conducting life-cycle assessments of various types of bio-based plastics. When collated, the findings will inform future work on bio-based alternatives to plastic.

OBJECTIVE 13:

The Nordic programme to reduce the environmental impact of plastic contributes to knowledge compilation and assessment regarding the environmental impact of bio-based plastics.

Some parts of bio-based and oil-based plastics are biodegradable under certain conditions. Biodegradable plastics might be appropriate for a small range of products that are intended



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to be disposed of in nature rather than collected or for other types of products, e.g. some medical applications. However, when mixed with traditional plastics, biodegradable plastics hinder recycling of the plastic. It should also be emphasised that uniform definitions and standards are needed in order to ensure that biodegradable plastic fully degrades under natural conditions.

OBJECTIVE 14:

The Nordic programme to reduce the environmental impact of plastic enhances knowledge of the impact of biodegradable plastics on the environment, on waste management and on recycling.

7. Advancing knowledge of problematic substances in recycling of plastic

Plastic products and packaging may contain substances that are harmful to human health and to the environment, and that may be forbidden in specific products, e.g. food packaging or children's toys. These substances or additives comprise flame-retardants, pigments, fillers, UV-resistant chemicals, plasticisers and stabilisers that are used to attain or improve the product's properties and reduce costs. Even if these substances are not substances of very high concern in an environmental perspective, they may still hinder the recycling of plastics.

These harmful additives and restrictions related to their use must be taken into account in order to ensure that efforts to increase the volume of recycling of plastic do not cause unintentional exposure through the use of secondary plastic materials in new products. Dealing with problematic substances,

therefore, is a significant challenge for a circular economy based on high-quality materials and non-toxic material cycles.

OBJECTIVE 15:

The Nordic programme to reduce the environmental impact of plastic helps produce information about problematic substances in plastics in order to support the development of focused and cost-effective measures for dealing with problematic substances in a circular plastic economy.

OBJECTIVE 16:

The Nordic programme to reduce the environmental impact of plastic promote solutions to ensure that plastics considered unsuitable for recycling because they contain problematic substances are processed in a proper and safe manner.

Dealing with problematic substances, therefore, is a significant challenge for a circular economy based on high-quality materials and non-toxic material cycles.





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The Nordic programme on a sustainable approach to plastics is a strategic tool for developing knowledge and measures, as well as enhancing synergies, networks and awareness at the Nordic level. The programme will support the ambitions of the Nordic countries in reaching their goals in relation to prevention of plastic waste, re-use and recycling of plastics, circular economy and minimizing marine plastic litter and microplastics. The program runs over 2017-18 and will be implemented through various projects and activities within the framework of the Nordic Council of Ministers or projects financed by the Nordic Council of Minister.

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