

Plastic Marine Litter

One big market failure

A systemic look at plastic waste in the light of plastic marine litter

George Worpel, Janneke Pors, Arthur ten Wolde

Prins Hendriklaan 15, 1075 AX Amsterdam, The Netherlands, George.worpel@imsa.nl

Introduction

- In 2011, the Plastic Marine Litter Programme (PML) initiated was started by IMSA Amsterdam to develop an integral approach and concrete projects aimed at a plastic-free North Sea.
- Science based, aiming at win-win solutions, beneficial to all stakeholders who contribute to sustainable developments.
- First project was completed in the Netherlands in 2011 with the publication of a report.
- Main conclusions were that plastic marine litter causes substantial damage to nature as well as economical sectors and forms a serious problem in the North Sea. The unsustainable life cycle of plastics forms a major cause and action is required at all levels of the plastics life cycle.
- It proposed an integral approach and concrete projects aimed at a plastic-free North Sea. Now, 3 projects are running.

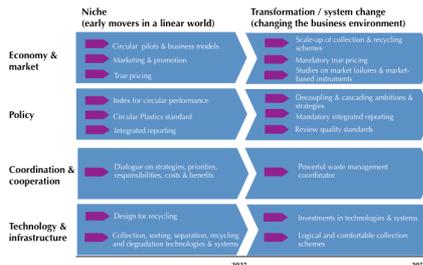
Main conclusions

- Besides causing substantial damage to the North Sea animal life and costs for economical sectors, plastic marine litter (PML) has also entered our food chain.
- Apart from microplastics, it is mainly caused by littering. Litter mainly consists of short-cyclic packaging materials, which should be a priority area for plastic marine litter policies.
- The government policies currently developed are not expected to achieve an absolute reduction of PML in the North Sea.
- Most business do not accept producer responsibility for littering or pursue waste prevention.
- More action on plastic marine litter is needed to:
 1. Reduce littering
 2. Accelerate Circular Plastics Value Chains
 3. Achieve absolute decoupling between plastics use and its environmental impact through remaining leaks.
- Waste management around the North Sea, and especially in the Netherlands, is relatively outstanding. Still, littering is substantial.
- Improving plastic waste management systems here will have little impact on marine litter, but offers substantial other ecological and economical benefits. A revolution in waste management seems upcoming. Unleashing this potential requires measures to tackle the barriers identified.
- Reduced littering is expected as a small indirect effect of improved waste management.
- Measures on the waste management of other sources than packaging, such as microplastics in cosmetics, are needed to tackle the issue of PML as a whole.
- To boost action against PML it is essential to couple it to the concepts of Circular Economy and Resource Efficiency.
- The CE philosophy is inherently appealing as it is positively framed in terms of ecological benefits, economical benefits and enhanced cooperation.
- Market failures at several levels need to be addressed to accelerate the development of circular value chains for plastics applications.

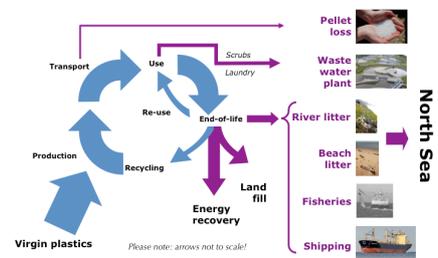
1. Prevent littering

- Make marine litter a priority of existing littering reduction campaigns and prevention schemes.
- Apply new insights in influencing behaviour of citizens to littering prevention schemes.
- Make waste disposal logical, consistent and enabling automatic behaviour.
- Develop additional incentives for consumers to separate and recycle their waste, e.g. innovative pay-back schemes.
- Encourage clean-up of street litter, e.g. voluntary clean-up campaigns and structural schemes.
- Share best practices in littering approaches.
- Improve and extend monitoring schemes of general litter and land-based marine litter.

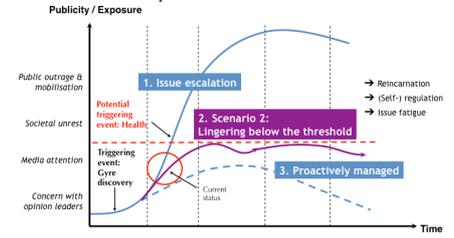
2. Accelerate circular chains



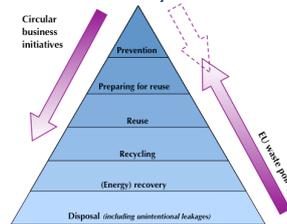
Main source in the North Sea



The issue life cycle



Waste hierarchy



3. Decouple economic growth from plastic use

