FSLCI Forum for Sustainability through Life Cycle Innovation

Statement on the issue of Marine Litter for the G7 Environment Ministers Meeting 2018

Taking a resource efficiency and life cycle perspective will help identify better solutions to the issue of marine litter

Marine litter is a global concern of significant proportions. A study by Jambeck et al. (2015) estimated that up to 12.7 million tonnes of plastic waste entered the oceans in 2010. This is partly due to the fact that less than 10 % of global plastics are currently recycled (Geyer et al. 2017), causing valuable material to end up as waste and marine litter. Marine litter is thus not only a critical environmental but also a social and economic issue which requires immediate action among scientists, researchers and decision-makers in industry and politics. We thus reaffirm the messages outlined within the G20 Action Plan on Marine Litter (2017), the GESAMP reports (2015, 2016) as well as the Call for Action by the UN Ocean Conference (2017).

In addition, we call on the G7 Environment Ministers to:

Foster the implementation of science-based policies and decision making that considers marine litter from a resource efficiency and life cycle perspective

In order to successfully address the issue of marine litter, decisions should be taken based on a sound scientific information basis. A holistic assessment of various materials enables the identification of solutions that are aligned to the concept of circular economy. For instance, plastic is a material that can have numerous benefits when used appropriately, but also creates challenges when it ends up as litter. Hence, there is a need to close material cycles e.g. through better waste management infrastructure not only to decrease impacts by marine litter, but also to avoid the significant loss of material value. In addition, global policy agendas on marine litter, resource efficiency and waste management should be aligned to ensure a coherent approach to marine litter.

Support initiatives and projects that seek to fill knowledge gaps and develop scientifically sound assessment methodologies

Clean-up projects and activities are necessary, yet will be futile if products and product parts continue to end up as marine litter. In order to enable a better understanding of potential sustainability challenges, it is critical to assess the life cycle of plastics already during product design, identifying sources of plastic leakage in product use and waste flows, as well as the quantity that ends up as marine litter, and its impacts on our ecosystems and human health. This knowledge needs to be developed on a global level, yet with a focus on regional differences. To this end, open access to relevant data and information is key to drive sustainable innovation.

In addition, more research activities and projects are needed that enable holistic environmental assessment methodologies like Life Cycle Assessment to include the issue of marine litter within their assessment frameworks as highlighted in last year's Medellin Declaration (Sonnemann and Valdivia, 2017). Furthermore, research is needed to develop methods for assessing social and economic impacts along supply chains.

Ensure that impacts from alternative solutions are understood before being applied on a large scale

Considering the full life cycle and ensuring the most sustainable use of materials is a key aspect when determining alternative and more sustainable solutions to the marine litter challenge. Understanding the advantages and disadvantages of applying e.g. bio-plastics or alternative materials from a holistic sustainability perspective is crucial to ensure that these solutions address the issues and do not cause other impacts on the ecosystem and human health through a shift of burdens to / unwanted impacts in other life cycle stages or regions.

About the FSLCI

The FSLCI is a multi-stakeholder and membership-based community organization for professionals working in business, science and policy organizations who are interested in and working with Life Cycle approaches to enhance the sustainability of economic activities. In 2017 the FSLCI launched the *Medellin Declaration on Marine Litter in Life Cycle Assessment and Management* (Sonnemann and Valdivia 2017) and has been working on the issue of addressing Marine Litter within LCA and LCM since then.

References

Geyer R, Jambeck JR, Law KL (2017) Production, use, and fate of all plastics ever made, Science Advances 19 Jul 2017, Vol. 3, no. 7, e1700782

GESAMP (2015) Sources, fate and effects of microplastics in the marine environment (Part 1), http://www.gesamp.org/site/assets/files/1272/reports-and-studies-no-90-en.pdf

GESAMP (2016) Sources, Fate and Effects of Microplastics in the Marine Environment (Part 2), http://www.gesamp.org/site/assets/files/1275/sources-fate-and-effects-of-microplastics-in-the-marine-environment-part-2-of-a-global-assessment-en.pdf

G20 (2017) Annex to G20 Leaders Declaration G20 Action Plan on Marine Litter, https://www.g20germany.de/Content/DE/_Anlagen/G7_G20/2017-g20-marine-litter-en.pdf?__blob=publicationFile&v=4

Jambeck JR, Geyer R, Wilcox C, Siegler TR, Perryman M, Andrady, Narayan AR, Lavender Law K (2015) Plastic Waste inputs from land into the ocean, Science, 347(6223): 768-771

Schmidt C, Krauth T, Wagner S (2017) Export of Plastic Debris by Rivers into the Sea, Environmental Science and Technology, 51 (21), pp 12246–12253

Sonnemann G and Valdivia S (2017) Medellin Declaration on Marine Litter in Life Cycle Assessment and Management, Int J Life Cycle Assess (2017) 22:1637–1639

United Nations (2017), Our Ocean, Our Future: Call for Action, New York, https://oceanconference.un.org/callforaction