

Microplastics in the Environment Biomonitoring Issues and Socio-Ecological Challenges for Public Decision

Summary of the chairs

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Plastics have a wide range of uses in 21st century societies. Despite collection and recycling efforts, they accumulate in the environment and gradually fragment and disperse into the air, land and water. Plastics are known to affect many animals and their ecosystems. Their impact on human health, biota, and ecosystems is less well known. Scientists focus on the role of microplastics¹ and their constituents, which are likely to accumulate in the environment, to be ingested by a large number of organisms and spread in the food chain. Regulatory measures have been or are being taken in a number of jurisdictions to address the risks posed by microplastics to human health and the environment.

Following the workshop on 13 February 2019 organised in Washington by Canada and the European Commission, and in accordance with the recommendation of the G7 Environment Ministers' meeting held in May 2019 under the French Presidency in Metz, France organised a round table entitled: "Microplastics: biomonitoring issues and socio-ecological challenges in relation with public decision". This round table, which was held under the patronage of Mrs Frédérique Vidal, Minister of Higher Education, Research and Innovation, was co-chaired by Mr Roger Genet, Director General of ANSES, the French Agency for Food, Environment and Occupational Health & Safety, and Mr Pascal Lamy, President emeritus of the Jacques Delors Institute, chair of the mission board for the EU mission on "Healthy Oceans, Seas, Coastal and Inland Waters".

Two scientific workshops were held to review our current knowledge of microplastics and discuss the main research questions that still need to be addressed:

- ✓ Scientists report detection of airborne, water and soil based microplastics pollution, which needs to be better assessed. It is both necessary to monitor environmental contamination by these microplastics more effectively and to better understand their potential transfer into the food chain. To this end, they recommend developing standardized measurement protocols with focus on biomonitoring and sharing data in open databases. In addition, the short- and long-term impacts associated with microplastics ingestion are still poorly understood and require more research efforts. In particular, scientists recommend that microplastics breakdowns and the life-cycle of their by-products be considered. They also propose to further study the behaviour of microplastics in living organisms. They consider these to be priority research questions in the continuing effort to strengthen environmental

and human health risk assessments. They invite researchers to study the risks of both current microplastic materials and potential alternatives.

- ✓ From a societal viewpoint, plastic waste, particularly macro-waste, has a major impact on the quality of living spaces. It also has impacts on natural environments, whether in terms of resources or landscapes. Plastic waste is likely to alter both the cultural and natural world heritage of humanity. Scientists recommend that research efforts be directed towards the study of individual and collective behaviour: production methods, consumption habits, and representations and communication of risks associated with plastics. Evidence from these studies would help support public policies, including prevention, and the evolution of practices. This would also facilitate the identification of societal barriers and levers of action.

Roundtable participants invited their governments to support research in these areas and mobilize the scientific communities to provide evidence on plastics cycle management practices that are sustainable. The data produced by scientists will help to better define individual and collective responsibilities in terms of environmental pollution and propose actions to prevent health risks for humans and ecosystems.