



An independent Scientific Committee on Plastic Pollution (SCOPP)

Mary George^{a,b}, Mohammed Rizman-Idid^{b,*}, Wee Cheah^b, Kishneth Palaniveloo^b,
Siti Aisyah Alias^{b,c}

^a Faculty of Law, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

^b Institute of Ocean and Earth Sciences, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

^c National Antarctic Research Centre, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

ARTICLE INFO

Keywords:

Plastics
Pollution
Scientific advice
Science-policy interface
Governance
UNEA

ABSTRACT

The Intergovernmental Negotiating Committee on Plastic Pollution seeks to address, among other issues, the science-policy interface of plastic pollution in the forthcoming international legally binding instrument on plastic pollution, including in the marine environment (ILBI) to be finalised in 2024 by the United Nations Environment Assembly (UNEA). Given the importance of protecting the marine environment from plastic pollution, this paper reviews ILBI and argues that the UNEA should by Resolution establish an independent scientific committee. The committee should have an overarching global, regional, and local presence with institutional openness and accessibility to elucidate the science behind plastic pollution. This paper proposes that an independent scientific approach is preferable to a combined science-policy institution seen in Secretariats and Conference of Parties in some conventions. The latter often exhibit numerous weaknesses. Establishing an independent scientific committee will ensure the science behind plastic pollution is robust, credible, and effectively informs policy decisions.

1. Introduction

It is currently agreed that the gargantuan global rate of plastic production has now surpassed that of carbon emissions where plastic is found even in the Antarctic (Varvastian, 2023). Plastics enter the oceans from anthropogenic activities through land-based sources, from vessels, offshore installations, tourism and via oceanic transboundary movements. Plastics and other floating marine debris are transported by wind and ocean currents across national boundaries and eventually accumulate at the centre of large current systems called gyres (Tekman et al., 2022). The accumulated plastics in the ocean basins can be broadly classified into four levels based on their sizes: megaplastics, macroplastics, mesoplastics, and microplastics (Thushari and Senevirathna, 2020). Mistakenly ingested plastics by marine organisms may cause digestive tract obstruction, malnutrition or even lead to reproductive problems and death. Furthermore, these toxic compounds can accumulate in tissues and potentially enter the human food chain through seafood consumption. In humans, the presence of plastics will be able to induce complications such as the gastrointestinal and respiratory systems. However, chemical exposures would be able to cause cellular level damages such as oxidative stress and apoptosis, to impacts on

reproduction, development, metabolism, and even intergenerational effects through epigenetic modifications (World Health Organisation, 2022). Plastic exposure has been associated with increased respiratory conditions such as asthma, dyspnea, decreased lung capacity and coughing phlegm, and more chronic conditions such as cardiovascular disease and cancer (Wright and Kelly, 2017; Karbalaei et al., 2018; World Health Organisation, 2022). It has also been linked to obesity, inflammation, immune dysfunction, neurotoxicity, neoplasia, and changes in metabolism (Wang et al., 2022; Banerjee and Shelver, 2021; Coffin et al., 2022; World Health Organisation, 2022). Plastics also impacts the gut microbiota, resulting in gut inflammation, intestinal leakage as well as reduction in intestinal mucus layer (Yong et al., 2020; Huang et al., 2023). The United Nations Environment Assembly (UNEA) Resolution 5.2 paved the way for the development of the first international legally binding instrument on plastic pollution, including in the marine environment (ILBI) by 2024 'based on a comprehensive approach that addresses the full life cycle of plastic' (Varvastian, 2023). A Revised Draft Text of the ILBI (United Nations Environment Programme, 2023a) that delivers a mixed message, as it refers to both binding and voluntary approaches, is now available. Under the overall theme, 'Innovative Solutions for Environmental Challenges and

* Corresponding author.

E-mail address: rizman@um.edu.my (M. Rizman-Idid).

<https://doi.org/10.1016/j.marpolbul.2024.117041>

Received 6 August 2024; Received in revised form 21 September 2024; Accepted 21 September 2024

Available online 3 October 2024

0025-326X/© 2024 Elsevier Ltd. All rights reserved, including those for text and data mining, AI training, and similar technologies.