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3s2 Monitoring and modelling the transition from linear to circular production chain in the bio-economy

Risk Governance in the Transition towards Sustainability

The Case of Bio-based Plastic Food Packaging Materials

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In the transition to a sustainable society, many new technologies and materials are developed. These often have disadvantages, examples thereof with a sustainability claim that entailed risks to public health are identified. Risk Governance should ideally address and deal with those potential risks. However, governance mechanisms to efficiently deal with these risks seem to be lacking. In this study, the Risk Governance in the lifecycle of three innovative bio-based plastic food contact materials (FCMs) were evaluated. Interviews were conducted with representatives of all stages in the lifecycle to identify risk management strategies to prevent or control public health risk. Experts were asked to share their views on the identified strategies. Nineteen different risk management strategies have been identified from the three case studies and compared with the principles of the International Risk Governance Council (IRGC) framework and showed that less than 50% corresponded to those of the IRGC framework. In addition, eighteen randomly sampled bio-based FCMs were chemically analysed to get insight in the presence of potentially hazardous substances. The presence of hazardous chemicals in the bio-based FCMs provide indications of potential chemical health risks. Apparently, there is no structural application of risk governance in the three bio-based FCM studied. Strategies are applied to manage public health risks, but these are usually implemented too limited to effectively manage the identified risks.

Keywords: Bio-based plastics, Public Health, Risk Governance, Risk Migration, Sustainability.