POLICY BRIEF

Accountability for source-to-sea action on plastic pollution

The issue of plastic pollution in freshwater bodies and the ocean is demanding increasing global attention as we come to better understand the extent of the impacts of plastics and microplastics on the environment, economy, biodiversity, and human health. Coordination across sectors throughout the plastic value chain, and cooperation between upstream and downstream stakeholders, are needed urgently to prevent further plastic pollution. For benefits to accrue across the source-to-sea system, government, private sector, and civil society actors must share responsibility for delivering a range of different and complementary actions. The source-to-sea framework for accountability in preventing plastic pollution can be used to facilitate collaborative action toward this goal.

Authors

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Path to sustainable development

The 2022 Sustainable Development Report (Sachs et al., 2022) confirmed that many countries are not on track to meet the Sustainable Development Goal (SDG) targets by 2030. A focus on achieving individual targets has been hampering progress, since many of the goals are interlinked. This can be clearly seen with SDGs 6: Clean Water and Sanitation, 11: Sustainable Cities and Communities, and 14: Life Below Water. Access to clean drinking water and the health of water-related ecosystems are threatened by the ways in which solid waste and wastewater are treated in urban and rural areas, and by pollution entering waterways and flowing down to the coast and into the ocean.

The main sources of marine pollution are land based, with plastic pollution, untreated wastewater, and agricultural run-off being the primary culprits. Inadequate solid and liquid waste management in both urban and rural areas, and limited progress towards improved farm management practices are degrading water quality and ecosystems in rivers, lakes, and aquifers and ultimately in coastal and marine waters. These issues cannot be solved in isolation as they cross the traditional land-freshwater-coastal-marine boundaries and require a coordinated multi-sectoral approach that addresses the linkages between them.

Source-to-sea governance

Source-to-sea governance considers the entire source-to-sea system – from land to freshwater, coasts and the ocean – stressing upstream and downstream linkages and identifying opportunities to stimulate coordination between sectors and cooperation across segments. Holistic management from source to sea can increase collaboration and coherence across the source-to-sea system and reduce alteration of key flows (water, pollution, sediment, materials, biota, and ecosystem services). This can lead to measurable social, environmental, and economic improvement across freshwater, coastal, nearshore, and marine environments.

Long-term commitments to coordinated and holistic source-to-sea governance are needed to balance the myriad development objectives represented by the SDGs. However, there can be resistance to establishing coordination between parties that have historically worked independently. Recognition of the benefits that will accrue through cross-sectoral coordination can bolster commitment to working together. This can come through taking first steps toward coordination around shared goals and investing the time and resources needed to build trust.

The plastic pollution problem

The issue of plastic pollution in freshwater bodies and the ocean is demanding increasing global attention as we come to better understand the extent of the impacts of plastics and microplastics on the environment, economy, biodiversity, and human health.

It is estimated that around 76 per cent (around 6.9 billion tonnes) of the cumulative plastic produced since 1950 has been discarded as waste, ending up in landfills, dumps, or uncontrolled waste streams (UNEP , 2021a). The disposal of plastic on land is the main source of plastic entering freshwater and marine ecosystems; this includes waste disposal and management, littering, sewer overflows, illegal dumping, stormwater runoff, and industrial activities (Sorrentino, 2022). Most of the plastic entering the ocean is post-consumer single-use plastics such as bottles, tubs, trays, and films, e.g. bags, stretch wrap, etc. (UNEP, 2021b). The linkages between land, freshwater, coasts, and the ocean are highly relevant in preventing plastic pollution, since significant amounts of plastic waste are carried from land-based sources through waterways to coasts and the ocean (Figure 1).

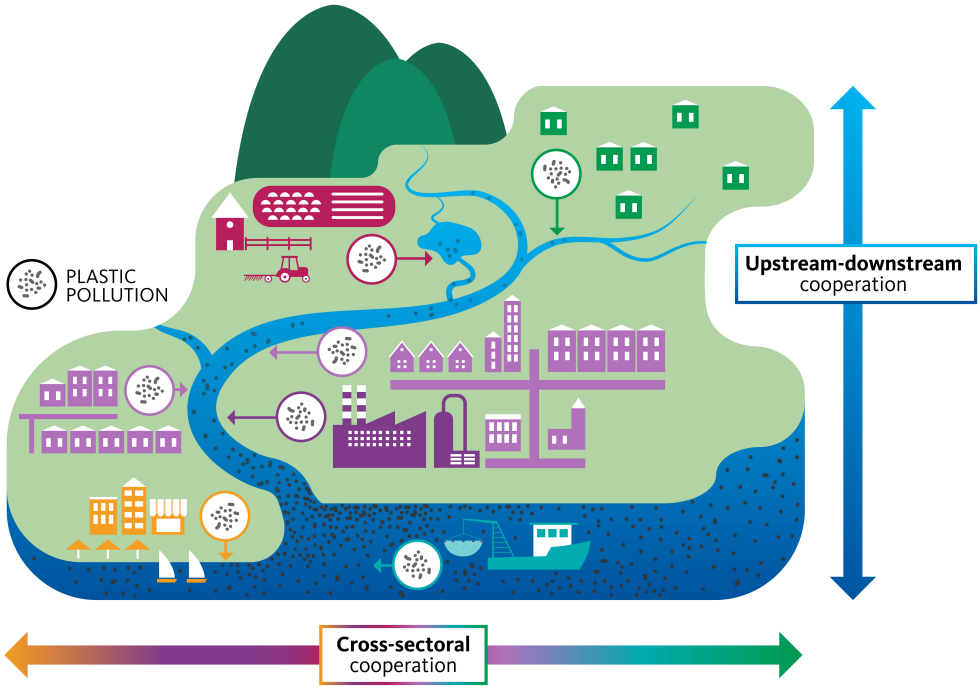

Figure 1: Land-based sources of plastic pollution travel downstream to the coasts and the ocean. Solutions must include upstream-downstream cooperation and cross-sectoral coordination.

Current fragmented and isolated responses to plastic pollution have been unsuccessful or only partly successful in addressing the issue. To attend to the global challenge of plastic pollution we must avoid narrow, isolated, and linear methods and take action across the life cycle of plastic goods through the source-to-sea and circular economy approaches. The declaration signed by 175 countries: End Plastic Pollution: Towards an internationally legally binding instrument, which was adopted at the fifth session of the United Nations Environment Assembly (UNEA 5.2), notes that plastic pollution in marine and other environments can be of a transboundary nature and needs to be tackled through a full life-cycle approach. It also states that there is an urgent need to strengthen coordination, cooperation, and governance (UNEP/EA.5/L.23/Rev.1).

Source-to-sea governance and the circular economy

The Source-to-Sea Framework for Marine Litter Prevention developed by SIWI promotes a source-to-sea view of the problem of land-based sources of plastic pollution and marries this with the need to revolutionize our production and consumption systems from linear to circular (Mathews and Stretz, 2019). The source-to-sea approach to plastic pollution prevention highlights the need to allocate resources to local waste and wastewater managers to enable them to gain greater control of plastic waste, thereby eliminating the sources of plastic entering the environment. Economies of scale can emerge through regional approaches to managing plastic waste, and cooperation between upstream and downstream communities can facilitate reduction in plastic pollution in the source-to-sea system as a whole.

Assessing the benefits of improving waste and wastewater management from source to sea will strengthen the business case for the transition to a circular economy as the benefits accrued across the source-to-sea system become clear. This strengthened business case incentivizes cooperation between upstream and downstream actors, as well as coordination across sectors, which can come together to drive changes in behaviour at individual to global levels. The solution to preventing plastic pollution lies in source-to-sea and life-cycle approaches working together.

Building trust through shared accountability

If we are to halt the flow of plastic pollution into waterways and the ocean, a broad range of stakeholders must come together to collectively make the necessary changes in waste and wastewater management and the life cycle of plastic goods. Plastic waste tends to be managed by local authorities and communities in isolation, which can result in outcomes that may not be optimal nor take into consideration the entire source-to-sea system. Although much of the required action needs to be taken at the local level, municipalities alone cannot drive all the required changes and they need support from actors across the plastic value chain, the source-to-sea system, and beyond. Plastic pollution arises from a lack of accountability and cooperation between actors, e.g. those that produce plastic goods are not in contact with those that manage those goods at the end of their life.

For benefits to accrue across the source-to-sea system, various government, private sector, and civil society actors need to develop a common vision for preventing plastic pollution. To achieve this vision, they need to share responsibility for delivering the range of different and complementary actions needed. Given the complex nature of plastic pollution, these actions may be interdependent, i.e. one actor may be dependent on another's actions to be successful. Understanding these interdependencies and strengthening the relationships between actors is critical to the successful prevention of plastic pollution. Once a multi-stakeholder process is initiated, for collaborative action to succeed, there needs to be accountability between the different actors for delivering the actions required from each of them.

Building a framework for accountability between actors, and the actions that they are individually or jointly responsible for, will illuminate the inter-dependencies between them (UNDP Water Governance Facility/UNICEF, 2015). Making these relationships explicit can be the basis for agreements between actors and help clarify the responsibilities of each actor for contributing to collaborative action. Describing these roles and responsibilities for each actor, and their reliance on other actors, can help identify where changes in behaviour and practices, or other enabling conditions, are needed. This provides a system view of all the actions that need to be taken and how they fit together, which can lead to a shared action plan. An accountability framework that clearly defines roles and responsibilities can allow actors' activities to be assessed transparently and objectively. Through the timely sharing of accurate information, establishing processes for consultation between actors, and creating greater stakeholder participation, trust can develop, thereby engendering a willingness to work together towards the common goal.

The accountability framework can be used for periodic evaluation of progress on individual actions, with each actor being held accountable for their contribution to the action plan. Collectively, it can assist in monitoring overall progress toward the achievement of the shared goals. By tracking the outcomes from the actions taken, collaborative action can be evaluated and adapted as new challenges arise and incorporate new knowledge or changes in the social, environmental, and/or economic conditions within which the collaborative action is operating. The accountability framework can be applicable to actors operating at local, national, and international scales.

Accountability for preventing plastic pollution

The different actors along the plastic value chain can be grouped into four types: 1) those who design, produce, and provide access to plastic goods and packaging; 2) those who use plastic goods and products packaged in plastic; 3) those responsible for the collection and management of plastic goods and packaging after use; and 4) policy-makers/government authorities. Examples of accountability relations between these actors include:

- Policy-makers at the national and international levels set performance standards and policies on raw materials production and the design and manufacture of plastic goods and enforce these, while those who produce

and sell plastic goods and packaging must comply with these performance standards and policies.

- The users of plastic goods and packaging can call for policies, performance standards and services related to their rights, needs and preferences, e.g. the right to a healthy environment. These can be communicated directly to policy-makers at the national and international levels or through civil society, sector and/or non-profit organizations. At the local level, users may communicate rights and preferences related to waste and wastewater collection and management. In return, policy-makers are accountable to the users for protecting their rights, meeting their needs, and for spending public funding in doing so.
- Local policy-makers contract and pay entities for provision of waste and wastewater collection and treatment, and in return these entities provide these services within the terms of the contract.
- Plastic goods and packaging users are accountable to waste and wastewater managers, primarily through payment of fees for waste collection and treatment services and through proper disposal of waste. Waste and wastewater managers are responsible for providing these contracted services and for addressing complaints from customers regarding these services.

Under a linear economic model (Figure 2), it is noticeable that there is no accountability relationship between the private sector actors that produce plastic goods and packaging, and those that are responsible for the end-of-life collection and disposal of plastic goods. The former produce and provide access to plastic goods and packaging and relinquish responsibility for these products once they are sold. This places the full burden of managing plastic waste on local governments. Furthermore, the producers of plastic goods and packaging, particularly the raw material providers, product designers, and manufacturers, are most likely to be located far from the use of the products and the subsequent end-of-life management. This geographical divide complicates accountability since the government authorities that are responsible for providing waste and wastewater management services are operating on a local scale, while the production of plastic goods is often operating outside the local authority's jurisdiction on a global scale.

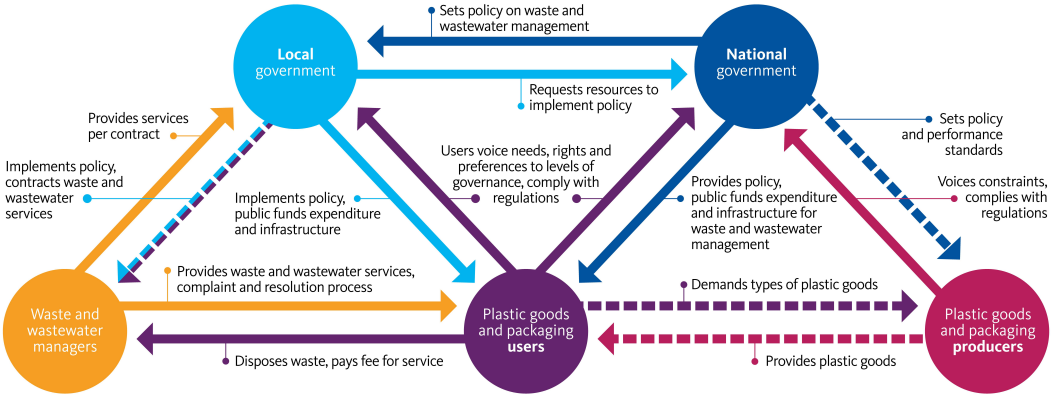

Figure 2: Accountability relationships in a linear economic model where products at the end of life are treated as a waste to be disposed of. Solid lines represent accountability relationships, dashed lines indicate relationships without.

The policy-makers responsible for policies and performance standards for all stages of plastic goods production are far removed from the challenges of local waste management and the impacts of plastic pollution, so they may not prioritize decisions that lessen the burden on local waste management services. Depending on the political context, it may be easier or harder for the users of plastic goods to communicate their rights and needs or the desired policies and performance standards to policy-makers at the national or international levels. This results in a disconnect between goods producers and waste managers, and local communities and national and international policy-makers.

Significant changes need to occur in various sectors, and at all levels from individual to global and across geographies, if we are going to halt plastic pollution everywhere. Among these is the move away from single-use plastic and the development of a circular economy for plastic products and packaging. In the circular economy (Figure 3), once plastic goods and packaging have reached their end of life, they are recycled into valuable resource materials for future production. This changes the accountability relationships, most notably, the relations between plastic goods and packaging providers and end-of-life waste managers. The end-of-life managers are no longer solely those responsible for waste or wastewater management but also include those who capture recyclable waste and process it into a reusable resource for the production of new goods and/or packaging.

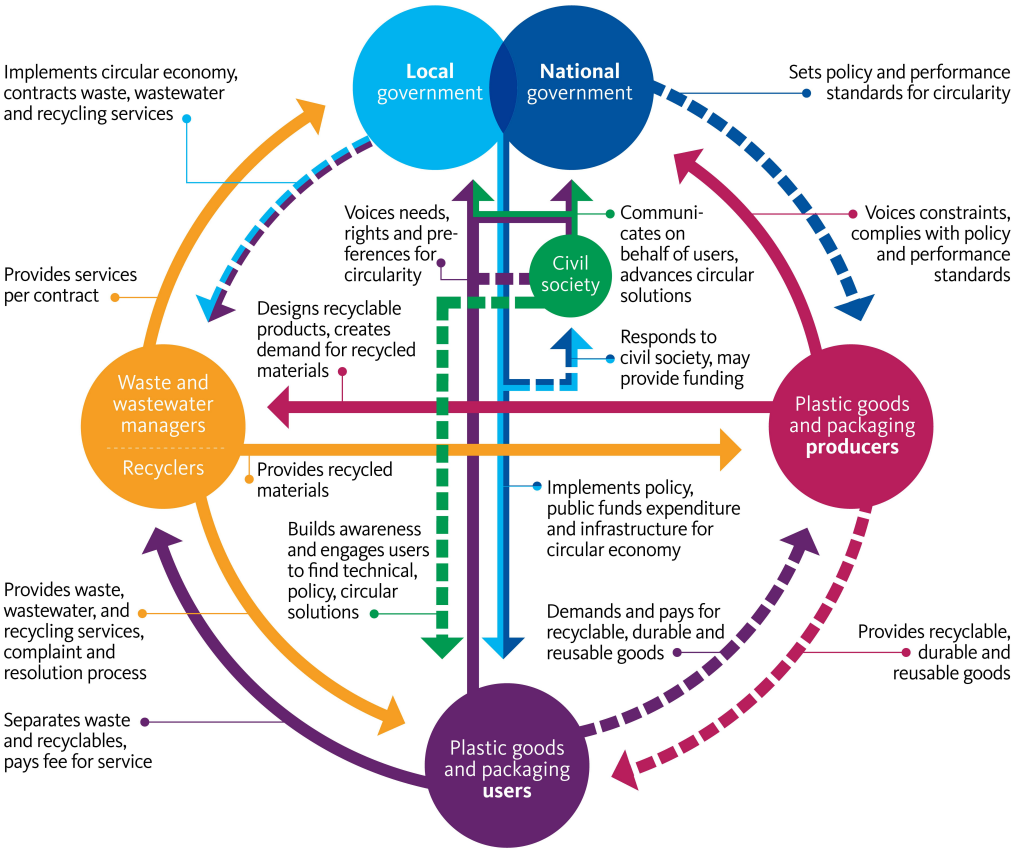

Figure 3: Framework for accountability relationships in a circular plastic goods value chain. Solid lines represent accountability relationships, dashed lines indicate relationships without accountability.

For this circularity to work, plastic goods and packaging providers need to design and produce plastic goods and packaging for ease of resource recovery. They are also responsible for using recycled materials in the manufacture of their products. Recyclers are responsible for collecting and processing recyclable products and making recycled material of appropriate quality available for use in producing plastic goods and packaging. This requires the users of plastic goods and packaging to separate wastes for ease of collection and sorting of recyclable plastics.

It should be noted that waste collection and management can be conducted either as part of the formal sector, where there are clearly defined services to be provided and payment for these services, or by the informal sector. The latter occurs more often in developing countries where there is insufficient formal waste management capacity. The business case for collecting and processing recyclable plastic can be strong enough for this to be developed as a standalone business, as opposed to a service provided by the local government. In some cases, both the formal and informal sectors are involved. The role of the informal sector in the plastic value chain adds further complexity to relationships between actors. Given the importance of the services provided by the informal sector, it is important to include them in the mapping of accountability relationships.

The formal and informal sectors may pull in different directions. If recycling is done by the informal sector, then waste managers may not have the financial incentive to compel households and businesses to separate waste, since they may not reap the financial benefit from recyclers for delivering this waste. Waste managers may wish to remain in the linear value chain, depositing waste in landfills or incinerating wastes. The informal sector does not have a mandate to sanction households and businesses if they do not separate their waste. Additionally, the informal sector does its best to capture the recyclable waste and by doing so diverts that income away from the formal waste collectors and managers. This can create tension between the formal and informal sectors and may further erode the formal sector's drive to ensure recyclable plastic is properly separated and collected. For these reasons, both the formal and informal sectors need to be engaged in collaborative action to prevent plastic pollution.

Informal worker at waste collection facility, Hoi An, Viet Nam. Photo: Ruth Mathews.

Recommendations

Global concern about plastics in the ocean should be focused on long-lasting actions to prevent plastic pollution from source to sea and on where funding, capacity, and infrastructure are insufficient. To successfully address plastic pollution, it is necessary to take a source-to-sea view of land-based sources of plastic pollution and dedicate resources where they are most needed. Economies of scale can emerge through regional approaches to managing and recycling plastic waste. Cooperation between upstream and downstream communities and the transition to the reduction, reuse, and recycling of plastic goods can prevent plastic pollution in the source-to-sea system as a whole.

Stopping plastic waste before it enters waterways and the ocean is the most cost effective approach to reducing its impacts on the environment. As plastic waste flows toward the ocean, it has myriad negative impacts on the ecosystems it passes through as well as social and economic impacts. The immediate need is to direct resources to radically improve the capability of local waste and wastewater managers to gain control of, reduce, and capture waste plastics. Engaging a broader set of upstream-downstream and cross-sectoral stakeholders along the entire plastic goods value chain in supporting improvements in local waste and wastewater management will help break the cycle of inadequate resources at the local level, resulting in improved services and increased local participation in waste management.

Coordination across sectors and cooperation between upstream and downstream stakeholders is urgently needed to prevent plastic pollution. For benefits to accrue across the source-to-sea system, various government, private sector, and civil society actors need to share responsibility for delivering a range of different and complementary actions that will prevent plastic pollution. The source-to-sea approach can facilitate collaborative action among actors from all sectors along the plastic goods value chain. Building a framework for accountability between actors, and the actions they are individually or jointly responsible for, can form the basis for agreements between actors and help clarify the responsibilities of each actor in preventing plastic pollution.

The solution for preventing plastic pollution lies in both source-to-sea management and the circular economy working together. Efforts to implement both approaches need to be supported as they complement each other. Assessing the benefits of improving waste and wastewater management from source to sea will strengthen the business case for the transition to a circular economy. To achieve these benefits, source-to-sea management of solid waste and wastewater is required.

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About this policy brief

This policy brief presents a source-to-sea framework for accountability developed during the implementation of the project Design and Accountability for Source-to-Sea Action on Plastic funded by the German Federal Ministry of Economic Cooperation and Development (BMZ). Project activities were undertaken in Hoi An, Viet Nam and included incorporation of the source-to-sea approach in the development of a five-year environment strategy and engagement of stakeholders across the plastic waste value chain in workshops to determine priority actions that will lead to preventing plastic pollution.

Acknowledgements

We would like to thank Celeste Kellock for her review. The authors and SIWI wish to thank BMZ and Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) for their support.

About SIWI

SIWI is a leading water institute, focused on water governance and capacity building in order to reach a just, prosperous, and sustainable water-wise world. It is well known for its research, knowledge generation, and applied science, which help to develop policy recommendations and support the implementation of programmes. In addition, SIWI uses its trusted convening power to facilitate multi-stakeholder dialogues, most evident in its annual event, World Water Week.

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