A Regional Response to the Global Challenge of Single-Use Plastic Pollution: Regulatory Frameworks in IGAD Countries

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Article

A Regional Response to the Global Challenge of Single-Use Plastic Pollution: Regulatory Frameworks in IGAD Countries

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Abstract

The issue of single-use plastic (SUP) waste is a recent sustainability challenge in developing and fragile regions with varying capacities for waste management, enforcement, and regional governance. This paper examines the regulation of SUPs in the Intergovernmental Authority on Development (IGAD) member states as an example of regional environmental governance in contexts of weak institutions. The paper provides a structured qualitative legal analysis of formally enacted legislative and policy measures. It assesses the extent to which national (and some subnational) legal responses comply with key principles of international environmental law, including prevention, the polluter-pays principle, and cooperation. The findings show that the legal responses to SUPs in IGAD are developing, but differ in scope, legal form, consistency, and effectiveness. Some countries employ direct bans, while others regulate plastics through their general environmental and waste management legislation. Prevention measures are prominent, but responsibility management measures (such as extended producer responsibility) are in their infancy, with Kenya, and to a lesser extent Uganda, showing more integrated systems. The paper links the regulation of SUPs to sustainable consumption and production, climate change, marine protection, effective institutions and partnerships, and informs discussions about SDGs 12, 13, 14, 16, and 17. The paper concludes that the most pragmatic way forward for IGAD is progressive regional harmonization, with enhanced common standards, monitoring, producer responsibility, and transboundary cooperation, rather than immediate legal convergence.

Keywords: single-use plastics; plastics governance; IGAD; international environmental law; circular economy; extended producer responsibility; regional harmonization; transboundary pollution

1. Introduction

Single-use plastics (SUPs) are among the most widely used plastics, particularly for packaging, drinking bottles, plastic bags, and other "throwaway" items. Their consumption has grown dramatically, as plastic production has increased from 1.7 million metric tonnes in 1950 to 360 million metric tonnes in 2018, with packaging one of the major uses of plastic (Geyer et al., 2017; Plastics Europe, 2019; UNEP, 2018). Such growth has generated significant waste-management problems as most plastic waste ends up in landfill or open dumps, or is leaked into the environment, with only a small percentage recycled (Geyer et al., 2017; UNEP, 2018).

SUP pollution is a significant environmental and sustainability problem because the products are short-lived but also persistent. Plastic bags, packaging, and other single-use products are a source of land- and marine-based pollution, harm to ecosystems, and waste-management burdens (UNEP, 2021; UNEP & UNWTO, 2021). Plastic pollution is linked to the Sustainable Development Goals (SDGs), particularly SDG 12 (responsible consumption and production), SDG 14 (marine pollution), and SDG 13 (environmental pressures from climate change). It also relates to SDG 16 through legal, judicial, and administrative institutions, enforcement and regulatory frameworks, and SDG 17

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because it relates to regional and transboundary cooperation, standards, and governance (United Nations, 2015).

Although Africa produces a relatively small share of global plastics, plastic pollution is on the increase because of increased use of SUPs, poor management of waste, urbanization, and lack of recycling infrastructure. These issues are exacerbated by weak institutions and infrastructure, and cross-border plastic imports and exports in the IGAD region. Although some African countries have implemented plastic bans and extended producer responsibility schemes, many solutions are inadequate because the plastic value chain is not effectively regulated. This highlights the need for regional approaches, such as the IGAD Regional Plastic Pollution Prevention Strategy, to encourage circular economy practices and better waste management (IGAD, 2025).

At the global level, plastics governance has gained momentum through international policy frameworks. In 2022, the United Nations Environment Assembly (UNEA) passed a resolution to negotiate an international legally binding instrument on plastic pollution, with a focus on a life-cycle approach to plastic production, consumption, and disposal (UNEP, 2026). This global trend underscores the need to understand regional responses to plastics governance through legislation, policy, and coordination by regional organizations and countries.

Although there is a growing body of research on plastic pollution and SUP regulation, much of it examines global or national-level trends or case studies in developed and emerging economies. There has been little focus on regional policy responses in developing and fragile regions, such as the Intergovernmental Authority on Development (IGAD) region. Further research also tends to focus on environmental or technical aspects of plastic pollution, rather than on regulations, principles of international environmental law, and regional integration. This leaves a gap in knowledge about the role of regionalism in facilitating transboundary governance of plastic pollution in the Horn of Africa.

The IGAD region is a relevant case as it differs from more institutionally reformed regional blocs. It has a diverse institutional landscape, weak and post-conflict governance environments, waste-management challenges, and transboundary environmental threats. While previous regional studies have explored plastics governance in more institutionalised regional blocs like the Pacific Alliance, the IGAD case study offers a different context of less harmonisation, inconsistent enforcement, and greater reliance on general environmental laws.

This paper examines governance of SUPs in the IGAD member states as an example of fragmented regional environmental governance. The paper aims to evaluate the extent to which national and selected subnational regulatory approaches to SUPs in Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda align with the fundamental principles of international environmental law. Through a structured qualitative legal analysis of officially adopted legal and policy instruments, the research compares regulatory approaches, identifies regulatory gaps and coherence, and assesses prospects for harmonization.

This study systematically assesses single-use plastic governance across IGAD member states through an analytical framework that integrates international environmental law principles, circular economy approaches, and regional governance perspectives. By documenting the region's weak and uneven institutional context, this study expands on the literature on plastics governance, which is largely focused on the global and national scenarios by demonstrating how a lack of coordination, producer responsibility, and regional cooperation weakens sustainable plastics governance in the Horn of Africa.

This study contributes in three ways. First, it expands comparative studies on plastics governance to the less-examined IGAD region, its institutional diversity, and transboundary environmental challenges. Second, it takes a sustainability-law approach to assess not merely the existence of regulations, but their coherence, integration, and alignment with life-cycle governance principles across countries. Third, it demonstrates that in institutionally diverse and vulnerable areas, the governance challenge is not just to establish a ban on problematic plastics, but the development of harmonized legal frameworks for prevention, producer responsibility, circular economy, and transboundary cooperation.

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2. Conceptual Framework: Sustainability Law, Life-Cycle Governance, and Regional Fragmentation

2.1. Global Plastics Governance and Sustainability Law

Plastic pollution is increasingly recognized as a complex global governance issue that is embedded in global value chains and has unequal environmental and socio-economic impacts (Schröder & Chillcott, 2019; Barrowclough & Deere Birkbeck, 2020). This is not a problem that can be solved unilaterally, as plastic pollution crosses national borders in trade, rivers, oceans, and waste streams (Vince & Hardesty, 2017; UNEP, 2021). Thus, global plastics governance requires legal and institutional arrangements to coordinate efforts at the global, regional, national, and subnational levels (Saito-Jensen, 2015; Hooghe & Marks, 2020). Law is crucial in this regard, as it sets normative, regulatory, enforcement, and institutional obligations for environmental protection (Martin et al., 2016).

From a sustainability-law perspective, global plastics governance is guided by the principles of prevention, precaution, polluter pays, cooperation, and life-cycle responsibility (Sands et al., 2018; Martin et al., 2016). Prevention means that institutions and states take action to prevent plastic leakage before environmental damage is done (UNEP, 2018; UNEP, 2021). This is reflected in global efforts such as the Global Program of Action for the Protection of the Marine Environment from Land-Based Activities, the Global Partnership on Marine Litter, and UNEA resolutions on marine litter and microplastics (UNEP, 1996; 2014; 2016; 2018; 2019). It is also embodied in MARPOL Annex V, which bans the discharge of plastic waste from vessels into the sea (IMO, 1973). This paper explores SUP regulation in the member states of the Intergovernmental Authority on Development (IGAD) as an example of regional environmental governance in the context of an institutional gap. Through a structured qualitative legal analysis of legal and policy instruments formally adopted, the paper examines how national and some subnational responses align with key principles under international environmental law, such as prevention, polluter pays, and cooperation.

The precautionary principle is relevant because plastic pollution is uncertain (particularly regarding microplastics, toxic additives, and its impacts on the environment and human health) (UNEP, 2016; 2021). The Stockholm Convention plays a role in this precautionary aspect because plastics can contain or carry persistent organic pollutants that are released into the environment or incinerated under uncontrolled conditions (UNEP, 2016; United Nations, 1989). The Basel Convention's 2019 plastic waste amendments also enhance precautionary governance by enhancing control and transparency of transboundary flows of plastic waste (Basel Convention Secretariat, 2019).

The polluter-pays principle means that the costs of preventing pollution, collecting, treating, and remediating plastic pollution should be shouldered by the polluter, not by governments or communities (OECD, 2001; Sands et al., 2018). This principle is relevant to plastics governance through extended producer responsibility because EPR places responsibility for post-consumer plastic waste on producers, importers, and distributors (OECD, 2001; OECD, 2022). Life-cycle responsibility builds on this by requiring governance of the entire plastics life cycle, including design, production, consumption, collection, recycling, and disposal (Ellen MacArthur Foundation, 2015; Calleja, 2019 ; OECD, 2024).

Cooperation is another fundamental factor due to the international nature of plastic pollution, which cannot be solved in isolation by states (Vince & Hardesty, 2017; UNEP, 2021). States must prevent, reduce, and control marine pollution, and cooperate internationally to develop regulations and standards (United Nations, 1982). Cooperation is facilitated by the London Convention and Protocol on marine pollution, which regulate the dumping of waste into the oceans (United Nations, 1972). Cooperation is again seen in the Basel Convention regarding the environmentally sound disposal of wastes across boundaries (United Nations, 1982; Basel Convention Secretariat, 2019).

Together, these international legal instruments reveal a shift in global plastic governance from fragmented marine pollution control to comprehensive sustainability law grounded in preventive principles, precaution, cooperation, polluter liability, and life-cycle regulation (UNEP, 2021; OECD,

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2024). Nevertheless, global plastic governance remains imperfect due to the current scattered nature of relevant norms, which can be found in marine pollution law, waste law, chemical laws, soft laws, and voluntary collaboration mechanisms, but not in a single legally binding international agreement on plastics management (Dauvergne, 2018; Loges & Jakobi, 2019 ; UNEP, 2021). Such scattering poses specific difficulties for developing countries and regions, especially fragile states (World Bank, 2021; African Union, 2019).

For the IGAD region, this global context provides the legal and policy framework for examining whether national or regional responses include prevention, precaution, polluter pays, cooperation, and life-cycle responsibility (IGAD, 2025; UNEP, 2021). The detailed application of these principles to the IGAD member states is therefore addressed in subsequent sections, while this section lays out the global sustainability law framework for the analysis.

2.2. Regional Approaches to Plastics Governance and the Circular Economy

The regional strategies for plastics governance vary in terms of their legal frameworks, institutional capacities, and policy integration. In this section, the EU and ASEAN are used as reference points for comparisons because both present a contrast in the strategies adopted: the EU takes an integrated approach that is legally enforceable, whereas ASEAN adopts a more flexible approach, which depends on capacity-building and voluntary compliance among other components (European Commission, 2018, 2020; Association of Southeast Asian Nations, 2019 ; GIZ, 2024) . These strategies offer useful lessons for IGAD plastics governance.

One of the most advanced approaches to plastic pollution in regions is the European Union's circular economy policy. This policy deviates from the traditional "produce-use-dispose" scheme, promoting resource efficiency and use, waste prevention and reuse, recycling and recyclability, sustainable product design and use, as well as recycled content (European Commission, 2018; 2020). The Circular Economy Action Plan (Directive EU) 2019/904 is implemented through concrete prohibitions on some plastic products, reduced consumption, product design regulations, labeling rules, extended producer responsibility, collection targets, and recycled content (European Parliament & Council of the European Union, 2019).

In comparison, ASEAN's approach is more collaborative and less coercive in reliance on consensus, coordination, capacity building and technical support. The Framework of Action on Marine Debris and the Regional Action Plan for Combating Marine Debris prioritize the reduction of plastic waste, enhancing waste management and recycling, and embracing substitutes for single-use plastics, encouraging innovations and implementing circular economies (Association of Southeast Asian Nations, 2019; 2021). Regional initiatives such as 3RproMar also encourage the "reduce, reuse, recycling (3R)" idea through organization development, knowledge sharing, engagement, and plastic waste management (GIZ, 2024). Even without the binding power of bans and other enforcement mechanisms like the EU, ASEAN still advocates circular economy governance through cooperation and voluntary compliance.

This study shows that regional plastics governance can take different pathways. The EU example demonstrates the role of binding agreements, harmonization, EPR, recycling targets, labelling and coordination of enforcement. The ASEAN example, on the other hand, highlights the power of flexible arrangements, capacity building and policy harmonization for plastics in more institutionally diverse contexts. In the case of IGAD, the ASEAN-based cooperative plastics governance approach might be more likely in the short term, due to differences in institutional capacity, varying laws and policies and emerging waste management infrastructure. Over time, IGAD can gradually move towards a more harmonized approach and create more binding commitments based on harmonized standards, information and producer responsibility, recycling targets and waste management policies (IGAD, 2025; Association of Southeast Asian Nations, 2019; European Commission, 2020).

2.3. National and subnational legal responses across the plastics life cycle

The formal process of regulating the use of plastics within countries' jurisdictions entails intricate interplay among the legislature, ministries, local government authorities, industry

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stakeholders, retailers, and consumers. In terms of a life cycle approach, legal measures concerning single-use plastics could be evaluated according to their effects on four principal phases, including production/design of products, consumption/usage, collection/recycling, and disposal, including transboundary movement of waste (UNEP, 2018; Knoblauch & Mederake, 2021; OECD, 2022). In reality, however, numerous national/sub-national laws continue to concentrate primarily on products and the end phase of waste management.

The first stage of plastics regulation is production and product design. These measures can include product standards, bans on certain materials, recycled-content mandates, design-for-recyclability requirements, and extended producer responsibility schemes. These regulations are significant as they target plastic pollution upstream of the consumption phase. But comparative research indicates that many national policies are more limited at this stage, and tend to focus more on downstream waste management than on product redesign and production incentives (UNEP, 2018; OECD, 2022).

Regulation at the consumption and use stage is often more visible and politically popular. Bans, restrictions, taxes, and levies on plastic bags and other single-use plastics are the most common regulatory measures. UNEP's analysis of 192 countries reveals that 127 countries have adopted some regulations on plastic bags, whereas fewer have adopted more comprehensive regulations of selected single-use plastic products or microbeads (UNEP, 2018). OECD's country inventory also reveals that many countries have adopted bans or taxes on single-use plastic products, but most measures apply to plastic bags or other low-volume products, making them more effective at curbing litter than at curbing plastic consumption (OECD, 2022). Consumption regulation is thus critical, but it is typically not enough without a more comprehensive approach.

Recycling and collection represent the connection between the measures to control consumption and the implementation of the circular economy. The legislation of individual nations and regions could stipulate requirements for waste sorting and recycling, mandatory deposit systems, collection goals, and other aspects of producers' and municipalities' responsibilities. Reviews of the effectiveness of the legislation demonstrate that plastic bag prohibitions and taxes are most effective when combined with inexpensive reusable bags, communication campaigns, phased implementation, stakeholders buy-in, and strong enforcement of the laws (March et al., 2022; March et al., 2023). Recent research shows that plastic bag prohibitions and taxes help reduce plastic bag; however, governance of plastics extends beyond littering (Papp & Oremus, 2025). OECD modeling demonstrates that only a set of approaches, including demand management, product design, expanding recycling, and leak prevention, will bring positive results (OECD, 2024).

Disposal and cross-border waste management bring about another set of governance challenges. The governance of plastics needs to consider how waste is transported, who suffers from its environmental effects, and whether national-level regulation leads to displacement rather than prevention. For years, developed countries have been dumping millions of tons of plastic waste in other countries. China, for instance, was responsible for receiving a large share of plastic waste until the country banned such imports (Brooks et al., 2018). These changes highlighted the weaknesses of a waste strategy based on offshore collection or disposal (Brooks et al., 2018). In response to this situation, the Basel Convention adopted amendments in 2019 to cover various forms of contaminated, non-recyclable plastic waste through prior informed consent measures.

National and subnational responses vary because national governments are not all subject to the same political, institutional, and economic conditions. Geographical location, capacity to enforce, influence by businesses or tourism, public health and environment leadership, may influence why some jurisdictions choose to legislate earlier or for more stringent reasons than others. UNEP found that Small Island Developing States were well represented among national bans on single-use plastics, given their vulnerability to marine litter, the cost of coastal cleaning, and tourism impacts (UNEP, 2018). In East Africa, a comparative study of Rwanda, Kenya, and Uganda demonstrates that variations in the implementation of plastic bag bans have been influenced by business interests, enforcement capacity, and political incentives for environmental leadership (Behuria, 2021).

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For the Horn of Africa and IGAD member states, these life-cycle differences are particularly significant as conflicting national or subnational regulations can create loopholes in the supply, enforcement, recycling, and cross-border trade of plastic products and waste. IGAD's new regional plastic pollution strategy calls for harmonised national action plans, regulation of problematic single-use plastics, extended producer responsibility, improved waste management, and regional waste-flow monitoring (IGAD, 2025). In other words, the governance question is no longer just whether states regulate plastics, but whether they do so in a coherent life-cycle manner, and in coordination with other jurisdictions.

2.4. Sustainability Principles for Assessing Plastics Regulation

Law is a critical foundation for sustainability as it sets standards, obligations, and policy frameworks for minimizing environmental impacts and for sustainable production and consumption (World Bank, 2017). This is crucial for single-use plastics because their impacts occur during the extraction, production, use, and post-consumer disposal phases, not just disposal (Sands et al., 2018). Principles of sustainable development (intergenerational equity, sustainable use of natural resources, intra-generational equity, integration of environmental considerations into development) offer the normative foundation for the analysis of plastic regulation, but their implementation requires operationalisation through legal rules and institutions (Sands et al., 2018; Sanz & Torres de Mier, 2020).

This research adopts the IUCN Framework for Assessing and Improving Law for Sustainability, which considers the implementation of legal principles through formal legal arrangements, government actions, behaviors, and social and environmental impacts (IUCN Environmental Law Program, 2015). This research focuses on formal legal arrangements to evaluate whether sustainability principles are incorporated into IGAD's laws and policies governing single-use plastics. The key principles are prevention, precaution, the polluter-pays principle, and good-faith cooperation. These principles can be used to evaluate whether laws prevent harmful plastics before they cause harm, respond to uncertainty about microplastics and toxic chemicals in plastics, allocate responsibility to producers or consumers, and facilitate regional coordination and transboundary waste management (United Nations, 1973; 1993).

The framework integrates a circular economy and life-cycle approach to turning these principles into action. This assesses the life-cycle (production, consumption, disposal, and recovery) of single-use plastics while encouraging the reduction of unnecessary plastics, innovation for reusable or recyclable plastics and recirculation of material in the economy (Kirchherr et al., 2017; Calleja, 2019; Ellen MacArthur Foundation, 2015). The relevant policy instruments and tools include bans, taxes, subsidies, education, labelling, certification, extended producer responsibility, circular public procurement, recycling measures, and regional and transboundary cooperation (OECD, 2001; 2016; Plastic Waste Partnership, 2023).

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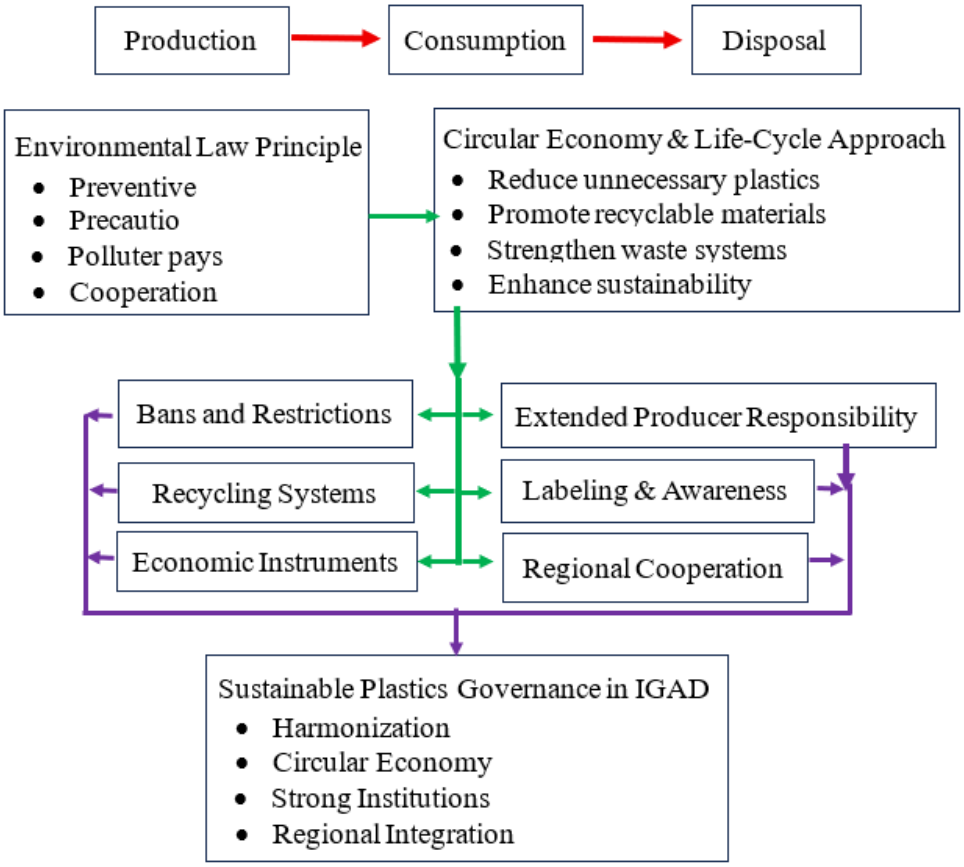

Figure 1. Conceptual framework for assessing sustainable plastics governance in IGAD. The framework links environmental law principles, circular economy and life-cycle governance, regulatory instruments, and expected governance outcomes.

Overall, the framework offers a systematic and temporal analysis of sustainability principles in terms of their recognition in law, institutionalization through legal arrangements and operationalization through regulatory tools. The framework also captures the relationship between principles and regulatory instruments, connecting them to life-cycle approaches and to various measures, including bans and restrictions, extended producer responsibility (EPR), recycling, economic instruments, labelling and regional cooperation, leading to sustainable plastics governance.

3. IGAD Context: Plastics, Institutions, and Transboundary Governance Challenges

The Intergovernmental Authority on Development (IGAD) is a regional intergovernmental organization in Eastern Africa that was established in 1996 to succeed the Intergovernmental Authority on Drought and Development, originally formed in 1986 to address the challenges of drought, famine, environmental degradation, and economic hardships in the Horn of Africa. IGAD is one of the eight Regional Economic Communities (RECs) recognized by the African Union and serves as an institutional framework for regional integration (IGAD, 1996). Its role has grown to include peace and security, economic cooperation, food security, the environment, regional integration, and drought (Intergovernmental Authority on Development IGAD, 2020). Recent institutional developments in IGAD include Eritrea's withdrawal from IGAD in December 2025; however, for this study, Eritrea is managed as part of the broader IGAD legal-regional context where appropriate (IGAD, 2025c).

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In IGAD, environmental governance has increasingly been institutionalized through regional strategies and dedicated institutions to address climate vulnerability, environmental degradation, and resource-led development (IGAD, 2023). The establishment of the IGAD Center of Excellence for Climate Change Adaptation and Environmental Protection improved regional coordination on climate adaptation and environmental protection (IGAD, 2023). This has also been supported by the IGAD Climate Adaptation Strategy 2023-2030 and the Regional Blue Economy Strategy, which also prioritize sustainability, ecosystem conservation, circular-economy principles, and waste management (IGAD, 2022, 2023). Plastic pollution and waste management are significant challenges for IGAD member states, with comparable data on individual countries scarce due to very weak monitoring systems in many of them (IGAD, 2025a; World Bank, 2018). The available evidence suggests a lack of collection capacity, recycling, and open dumping, as well as inconsistent institutional capacity (World Bank, 2018). This means plastics governance is not only constrained by legal design, but also by poor data systems, inadequate infrastructure, and weak capacity (IGAD, 2025a; World Bank, 2018).

Plastic pollution is also a transboundary issue. Coastal IGAD nations (Djibouti, Kenya, Somalia, Sudan) are affected by marine and coastal pollution, while the landlocked nations are impacted by plastics through urban waste management, land-based leakage and poor disposal (IGAD, 2022; World Bank, 2018). Open borders, regional trade relationships, and weak enforcement enable the transboundary movement of plastics products and waste (IGAD, 2025a). As such, plastics governance in IGAD is not just a national regulatory problem but also a regional governance issue that calls for legal and institutional harmonization and capacity-building in waste management (IGAD, 2025a).

IGAD is aware of these threats through its environment and blue economy policy. This includes enhanced management of water pollution, protection of ecosystems, sustainable management of marine and freshwater resources, and the promotion of circular economies (IGAD, 2022). The Regional Blue Economy Strategy also highlights pollution prevention and better waste management as areas to focus on for sustainable blue economy development in the region (IGAD, 2022). Recently, IGAD has taken another step to develop the Regional Plastic Pollution Prevention Strategy and Implementation Plan (IGAD, 2025a). IGAD developed and technically validated a Regional Plastic Pollution Prevention Strategy in 2025, which was subsequently adopted at the ministerial level in December 2025 as a regional framework for addressing plastic pollution through a circular economy approach (IGAD, 2025a). The draft strategy was technically validated in February 2025, promoted in June 2025, and ministerially endorsed in December 2025 as the 2026-2035 strategy (IGAD, 2025a; IGAD,2025b). This prioritizes circular economy, sustainable production, enhanced waste management, and regional collaboration (IGAD, 2025).

In addition to IGAD's regional strategies, member states are also connected to wider international and regional environmental agreements relevant to plastics, marine pollution, hazardous waste, and transboundary environmental governance. Table 1 summarizes the status of selected agreements across IGAD member states.

Table 1. Status of selected international and regional environmental agreements relevant to plastics governance in IGAD member states.

Country	MARPOL Annex V	London Protocol (1996)	UNCLOS (1982)	Basel Convention (1989) + 2019 plastics amendments	Stockholm Convention (2001)	Bamako Convention (1991)	Nairobi Convention (1985)
Djibouti	X		X	X	X		

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Ethiopia						X		X		X		
Kenya	X		X		X	X		X				X
Somalia					X	X		X				X
South Sudan												
Sudan	X				X	X		X		X		
Uganda					X	X		X		X		
Eritrea							X		X			

This institutional and cross-border context justifies the following focus on national legal pathways, responsibility-based approaches (such as extended producer responsibility), regulations on recycling and waste management, and harmonization opportunities (IGAD, 2025a). The question here is whether IGAD member states are building integrated plastic governance frameworks that incorporate prevention, producer responsibility, the circular economy, and regional collaboration (IGAD, 2025a).

4. Research Materials and Methods

This study adopts the illustrative regional case-study method in the IGAD member states and the broader IGAD legal-regional context (which in some cases includes Eritrea historically) to examine the legal and policy responses to single-use plastics (SUPs). While Eritrea announced its intention to withdraw from IGAD in December 2025, this study includes it because it examines the broader IGAD legal-regional environment and because Eritrea was included in the regional framework for much of the time period (IGAD, 2025). The research considers the regulation of plastics not just as an environmental matter, but as one of sustainability, regulatory coordination, and regional governance in a context of unequal institutional capacities and disjointed waste-management systems. The focus of the analysis is therefore on how national and regional legal instruments in the IGAD region address key principles of environmental law, such as the principles of prevention, precaution, polluter pays, and good faith.

The empirical data sources include regional, national, and, where applicable, subnational regulatory instruments related to single-use plastics, waste management, recycling and circular economy measures in IGAD countries. These instruments were found in official IGAD publications, government websites, gazettes, and other official legal repositories of the member states. Instruments were verified, wherever possible against official gazettes, ministry websites, regional publications, and other approved legal sources to enhance the credibility of the sources and avoid the possibility of inclusion of unrepresentative or out-of-date instruments. To ensure consistency across the countries, the study only included instruments that had been formally adopted and were enforceable in some form or another, and directly or indirectly related to plastic regulation or waste management. Drafts, policy papers, and other instruments not clearly relevant to the legal regulation of SUPs were excluded from the sample.

The study involved a qualitative legal review, following the Framework for Assessing and Improving Law for Sustainability, that focused on formal legal arrangements. A codebook was developed to categorize the identified instruments into discrete categories, such as plastic bans, production (or import or use) restrictions, consumption-reduction tools (such as a levy), extended producer responsibility regulations, recycling targets, and measures for regional cooperation. To improve reliability, the same terminology and coding rules were applied consistently across all documents. Where a provision was unclear, it was reviewed in relation to the law's purpose, scope, and enforcement powers before a coding decision was made. The coded data were then entered into Microsoft Excel and used for cross-country comparison. Regulatory coherence was assessed by

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examining how far each instrument reflected sustainability principles and combined different policy tools across the plastics life cycle. This made it possible to identify patterns of convergence and divergence among IGAD countries, as well as key regulatory gaps that are discussed in the Results section.

Table 2. National and subnational legislation was selected for the framework analysis.

Countries	**National**	**Subnational**	**Total**
Djibouti	2	0	2
Eritrea	3	0	3
Ethiopia	7	1	8
Kenya	5	3	8
Somalia	7	2	9
South Sudan	3	0	3
Sudan	3	0	3
Uganda	4	1	5
Total	**34**	**7**	**41**

Source: self-elaboration from data collection.

5. Results

The findings are organized around three related themes. First, the analysis examines national legal approaches to single-use plastic regulation across IGAD countries. Second, it considers responsibility-based and circular economy measures, including extended producer responsibility, recycling, and economic instruments. Third, it assesses sub-regional cooperation, legal fragmentation, and opportunities for harmonization.

5.1. Divergent National Legal Pathways in IGAD Plastics Regulation

Across the IGAD region, single-use plastic regulation is mainly framed as an environmental and public health issue. It is also linked to wider concerns about unsustainable production, consumption, and waste management. The analysis shows that most legal responses are preventive in nature. They rely on bans, restrictions, controls on production and use, waste-management rules, recycling provisions, and penalties. By contrast, economic instruments and explicit extended producer responsibility schemes remain less developed and are found only in a limited number of countries.

A clear distinction can be seen between countries that have adopted direct measures on single-use plastics and those that address plastic pollution through broader environmental or waste-management laws. Djibouti and Somalia have explicit rules on plastic bags, while Ethiopia, Uganda, Kenya, Sudan, and South Sudan mainly regulate plastics through wider environmental control mechanisms. Eritrea, although treated here within the broader IGAD legal-geographical context, also represents an example of direct prohibition. This points to two main legal pathways in the region: direct product regulation and broader environmental regulation.

The case of Djibouti is an example of a top-down, proactive approach that incorporates both general environmental regulation and a product ban. On 20 April 2016, Arrêté No. 2016-284/PRE prohibits the importation and sale of non-biodegradable plastic bags that are not produced in Djibouti (Djibouti Presidency, 2016). This ban is accompanied by the Environment Code (Djibouti, 2009), which defines the general framework of environmental protection, waste management, recycling and environmental liability. These laws create a blended regulatory strategy whereby a regulation of plastic bags is coupled with a general environmental regulation.

Somalia is an example of a similar, albeit more recent, trend towards regulation of SUP. The most evident of these is the MoECC Plastic Bag Ban Announcement 2024 that explicitly prohibits

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plastic bags, and reflects a shift in focus from broad-based environmental regulation to specific regulation of plastics. This is complemented by the Environmental Protection and Management Act 2024, which provides a legislative basis for environmental protection (The Federal Government of Somalia, Ministry of Environment and Climate Change, 2024). Although Somalia's system is less formalized than Djibouti's, it represents another step in the journey to reduce plastic bag use and to bolster government regulation of plastic effects.

In broader terms, within the IGAD area, Eritrea offers a salient case of direct SUP control. Regulations to Prohibit the Production, Importation, Sale, or Distribution of Plastic Bags in Eritrea 2002 and the Amendment 2004 outlaw plastic bags (Government of Eritrea, 2002, 2004). This is complemented by the Environmental Proclamation 2017 (Government of Eritrea, 2017). Eritrea's strategy is very product-specific and highly focused on behaviour change to reduce the use of plastic bags, rather than recycling, taxing, or producer responsibility.

Ethiopia adopts a different approach by addressing the impacts of plastic pollution through instruments that control pollution and waste. The key instruments include the Environmental Pollution Control Proclamation No. 300/2002, the Solid Waste Management Proclamation No. 513/2007, the Prevention of Industrial Pollution Regulation No. 159/2008 and the Hazardous Waste Management and Disposal Control Proclamation No. 1090/2018 (Council of Ministers of the Federal Democratic Republic of Ethiopia, 2009). These instruments control pollution, waste generation, management, and disposal issues, which in turn control plastic-related environmental harms. At the sub-national level, the city of Addis Ababa provides the Addis Ababa Integrated Solid Waste Management Regulation, No. 100/2018 (Addis Ababa City Government, 2018).

Uganda also uses a multi-instrument approach, albeit with a more structured framework. The primary legislation is the National Environment Act 2019, the National Environment (Waste Management) Regulations 2020, the Public Health Act, and the Local Governments Act (Uganda, 2019; Uganda, 2020). This is supported by the Kampala City Council Solid Waste Management Ordinance 2000, which provides the local perspective (Uganda, 1997). Uganda has also made some progress towards responsibility-based governance with the National Environment (Waste Management) Regulations 2020 and more recent policies, such as the National Strategy for Plastic Circularity (2023-2028), which encourages lifecycle management and recycling, but formal EPR schemes are less developed compared with Kenya. Overall, Uganda's framework supports waste management, environmental protection, institutional enforcement, and emerging circular-economy governance.

Kenya is the most sophisticated example. It does not feature a stand-alone SUP law, but has a multifaceted approach to waste governance. Its main laws are the Environmental Management and Co-ordination Act, the Sustainable Waste Management Act 2022, the Waste Management Regulations 2024, and the Extended Producer Responsibility Regulations 2024 (Government of Kenya, 2022; Government of Kenya, 1999; Government of Kenya, 2024a; Government of Kenya, 2024b). Kenya introduced the Extended Producer Responsibility Regulations through Legal Notice No. 176 of 2024, which came into force in 2025 and require producers and importers to manage products across their life cycle, including collection and recycling.These are supported by subnational laws such as the Nairobi City County Solid Waste Management Act 2015, the Kisii County Solid Waste Management Act 2015, and the Mombasa County Solid Waste Management Act 2021 (Nairobi City County Government, 2015; County Government of Kisii, 2015; Mombasa County Government, 2021). Kenya is therefore unique in combining waste management, recycling, producer responsibility, inter-agency co-ordination, and circular-economy measures.

In Sudan and South Sudan, there are more indirect regulatory approaches. In Sudan, plastic-related issues are tackled through general environmental and public health laws such as the Environment Protection Act 2001, the Environmental Health Act 2009, and the Constitution 2005 (Republic of Sudan, 2009; 2005; 2001). While these laws afford some protection for environmental health and public health, they do not offer a specific SUP framework.

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Likewise, in South Sudan, environmental and development planning instruments such as the First National Adaptation Plan for Climate Change 2021, the Petroleum Health, Safety and Environmental Management System and Plans Regulations 2015 and the Environmental and Social Management Framework for the Regional Climate Resilience Program 2022 are used (Government of South Sudan, 2021; Government of South Sudan, 2015; Government of South Sudan, 2022). In Sudan and South Sudan, plastics governance is reflected in broader environmental and development-planning instruments, rather than dedicated SUP laws.

5.2. Responsibility-based governance and circular economy measures

Responsibility-based governance and circular economy measures vary across the IGAD region. While preventive regulation, particularly through bans, restrictions, and waste-control measures, is prevalent, fewer countries have incorporated legal frameworks that require producers, importers, distributors, or consumers to take responsibility for the entire life cycle of plastic products.

Table 3 compares the strength of responsibility-based and circular economy measures in IGAD countries: EPR, recycling, waste segregation, economic instruments, green procurement, and producer responsibilities.

Table 3. Responsibility-based and circular economy measures across IGAD countries.

Country	Ban	Restriction	Tax	EPR	Recycling	Penalty
Djibouti	✓	✓	—	△	✓	✓
Ethiopia	—/△	✓	—	△	✓	✓
Somalia	✓	✓	—	—	△	✓
Uganda	△	✓	△	△	✓	✓
Eritrea	✓		—	—	—/△	✓
South Sudan	—	△	—	—	△	△
Sudan	—	△	—	—	△	✓
Kenya	✓	✓	✓	✓	✓	✓

Note: ✓ indicates a clearly identifiable provision in a binding legal instrument; △ indicates an indirect, emerging, or policy-based measure; — indicates that no clear provision was identified in the reviewed instruments.

This is particularly true in Kenya. It has a waste governance framework that includes extended producer responsibility, recycling, institutional coordination, and circular economy measures. The Sustainable Waste Management Act, Waste Management Regulations, and Extended Producer Responsibility Regulations offer a more holistic framework for producer responsibility and recovery, recycling, and waste-management systems (Government of Kenya, 2022; Government of Kenya, 1999; Government of Kenya, 2024a; Government of Kenya, 2024b). Thus, Kenya goes beyond bans by connecting plastic regulation to producer responsibility, waste separation, recycling, and the circular economy.

Uganda also exhibits a shift towards responsibility-based governance, but to a lesser extent than Kenya. Waste management, disposal, and institutional roles are governed by the National Environment Act and Waste Management Regulations (Uganda, 2019; Uganda, 2020). Uganda's efforts suggest a movement from general waste regulation to more formalized environmental governance, but the producer responsibility, recycling mandates, and economic measures are less developed than in Kenya.

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In contrast, Ethiopia, Somalia, Djibouti, and Eritrea have more preventive and restrictive measures. Somalia, Djibouti and Eritrea adopt direct bans on plastic bags or supras (SUPs), while Ethiopia addresses plastic-related harms primarily through general pollution and waste-management regulations (Government of Eritrea, 2002, 2004; Djibouti Presidency, 2016; The Federal Government of Somalia, Ministry of Environment and Climate Change, 2024; Council of Ministers of the Federal Democratic Republic of Ethiopia, 2009).These approaches play a crucial role in curbing the availability and consumption of problematic plastics, but are less advanced with respect to reuse, recyclability, sorting, green procurement, producer responsibility, and economic incentives.

Sudan and South Sudan are examples of more indirect approaches. Their legislative efforts are primarily focused on general environmental, health, climate, or development-planning instruments rather than plastics- or circular-economy-specific laws (Republic of Sudan, 2009; 2005; 2001; Government of South Sudan, 2021; Government of South Sudan, 2015; Government of South Sudan, 2022). As a consequence, their governance for responsibility is limited, and their plastic waste governance is still largely dependent on the government.

5.3. Regional Cooperation and Harmonization Patterns

Cooperation is a key principle in international environmental law to manage environmental risks. Cooperation includes procedural principles such as environmental assessment, information exchange, notification, consultation, and good-faith negotiation (United Nations, 1993). This principle is particularly important for plastic pollution as plastic products and plastic waste cross borders through international trade, rivers, oceans, and waste markets, resulting in risks that require cooperation between states (UNEP, 2021).

Cooperation is also enshrined in international legal instruments. UNCLOS requires states to cooperate in the prevention, reduction and control of marine pollution, including through the exchange of information, transfer of technology and development of rules, standards and procedures (United Nations, 1982). The Basel Convention also regulates the transboundary movement of waste, and promotes environmentally sound management, and the 2019 amendments to the Basel Convention on plastic waste strengthen prior informed consent and principles of common but differentiated responsibility for the movement of plastic waste (United Nations, 1989; Basel Convention Secretariat, 2019).

Cooperation is crucial in the IGAD region, where there is diversity in national legislation. Some (such as Kenya and Uganda) have more integrated approaches that include prevention regulation, recycling obligations, institutional mechanisms and producer-focused measures. Some rely primarily on general environmental laws or bans. This reflects that regulation is on the rise, but it also represents a possibility of unregulated spaces where further movement of plastic products or waste may occur through cross-border markets, other trade routes, and poorly regulated waste-management systems (OECD, 2022).

The IGAD Regional Plastic Pollution Prevention Strategy and Implementation Plan is a key step in overcoming this challenge. It demonstrates an awareness of the need for coordinated responses, improved waste-management systems, a circular economy, and regional collaboration (IGAD, 2025). IGAD can thus assist in establishing harmonized standards and monitoring tools, and legal responses, among member states.

Table 4 compares the plastics governance of selected areas in IGAD countries against the more mature European Union (EU) to benchmark IGAD's current emerging regional plastics governance. The comparison should not be seen as suggesting that IGAD should urgently copy the EU approach, but to use the EU as a comparison to identify areas where IGAD's regional plastics governance can gradually be strengthened.

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Policy area	IGAD countries	EU policies
Product bans/restrictions	Present in several countries, but uneven in scope and enforcement.	Harmonized bans and restrictions on selected SUPs and problematic plastics.
EPR and producer responsibility	Limited; strongest in Kenya and emerging in Uganda.	Well-developed and central to plastics governance.
Recycling and collection	Weak or emerging, with limited targets and infrastructure.	Strong recycling rules, collection targets, and recycled-content requirements.
Labelling and consumer information	Minimal across most countries.	Mandatory labelling for selected plastic products.
Economic instruments	Limited use of levies, taxes, and incentives.	Combined with regulatory tools and producer-cost obligations.
Institutional and regional coordination	Increasing through IGAD strategy, but still fragmented.	Strongly coordinated through binding regional directives and reporting systems.

The table shows that IGAD nations have made progress, especially in implementing bans, restrictions and nascent waste-management policies. But producer responsibility, recycling and labelling regulations, collection targets, economic instruments and harmonized monitoring are still in their infancy compared to the EU. This does not necessarily mean that an EU approach is immediately possible. Rather, it points to areas where IGAD could begin to develop.

6. Discussion

The findings show that IGAD countries differ not only in how many plastic laws they have adopted, but also in how those laws are designed. Direct bans suggest a willingness to respond to visible plastic pollution. However, a ban by itself does not necessarily deal with the full plastics chain, from production and use to recycling and final disposal.

This implies that plastic bans may have short-term impacts on some plastic uses (particularly plastic bags), but may not have a lasting impact unless coupled with enforcement, producers' responsibilities and education. On the other hand, countries with more advanced and comprehensive waste-management and EPR systems show a life-cycle shift, but also demonstrate an evolution in life-cycle governance.

The main regulatory challenge in the IGAD region is not only the absence of plastic laws in some jurisdictions, but also the lack of integration of legal instruments across the life cycle of plastic. Where laws are broad or fragmented, they often lack clear mandates, measurable targets, and product-specific obligations. This weakens institutional accountability and makes enforcement difficult across ministries, municipalities, producers, and border authorities.

Circular economy-wise, the main shortcoming in the region is that the laws do not yet regulate plastics across the value chain. Improved governance for the circular economy would offer more detailed rules on product design, reuse, recyclability, waste sorting and collection, recycling targets, green public procurement, take-back systems and economic instruments like fees and incentives. Without these, while bans may reduce some forms of plastic pollution, they are unlikely to establish a sustainable process to reduce plastic waste, improve recycling and internalise environmental costs.

Overall, the findings show that the IGAD countries are at varying stages of development towards circular and responsibility-based plastics governance. Kenya is the most advanced, Uganda is advancing, Ethiopia, Somalia, Djibouti and Eritrea remain more prevention- and restriction, and

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Sudan and South Sudan are more minimalistic. From an analytical point of view, that confirms that IGAD countries are still in the early phases of circular governance: while the majority of legal frameworks indicate that there is a plastic pollution problem, very few have put the polluter-pays principle into action with binding regulations for producers, recycling targets, producer take-back systems and economic mechanisms.

This is important because the lack of responsibility-based regulations means that plastic waste management still relies on governments, municipalities and consumers, instead of producers and importers. So bans and restrictions can help to reduce the visible plastic waste, but might not advance the circular economy in the long run unless accompanied by EPR, recycling, green public procurement, public awareness, and harmonization of regional regulations. The best option for the IGAD region is gradual harmonisation, rather than legal convergence.

In terms of regional governance, the best option for IGAD is a phased approach to harmonization, rather than a sudden legal convergence. This would include harmonized standards for problematic single-use plastics, strengthening regional monitoring and information systems, EPR and producer responsibility, recycling and waste-separation regulations, economic and public awareness measures, and better control of transboundary plastic waste flows.

This reveals that regional harmonization is not only politically desirable, but legally and institutionally necessary, because conflicting national regulations can lead to plastic waste transboundary movement. This would bring IGAD from a disjointed national approach to a more integrated system of prevention, responsibility, circular economy, and transboundary collaboration.

The study has implications for the Sustainable Development Goals. Limited EPR and producer responsibility suggest that there is still much to do to move towards sustainable production and consumption, which is linked to SDG 12. Lack of harmonization, overlapping and unclear mandates, and weak enforcement show that the regulatory framework is weak, and can be linked to SDG 16 on strong institutions. Likewise, weak regional coordination and uneven harmonization indicate that plastics governance will not be addressed effectively on a national level, and reflect an SDG 17 gap in partnership and transboundary cooperation. The research therefore demonstrates that better IGAD plastics governance is not only an environmental imperative, but also a sustainability imperative underpinning responsible production, institutional effectiveness, and regional cooperation.

7. Conclusions

This study has demonstrated that single-use plastic governance in the IGAD region is increasingly connected to various sustainability goals, including those around sustainable consumption and production, environmental protection, and marine plastic pollution. Legal measures addressing single-use plastics are growing across the region, but are varied in terms of coverage, legal design, and enforcement. Our findings show divergent national regulatory approaches: some countries employ more direct regulatory measures, such as bans, while others tackle plastic pollution through more general environmental and waste management laws. While this suggests increasing regulatory focus on plastics, this also means that legal fragmentation prevents the region from having a coherent and effective approach to tackling a transboundary environmental problem.

The analysis reveals that in the IGAD region, prevention is the most widely used mode of regulation, while polluter-pays and responsibility-based regulation are still in their infancy. While nations like Kenya and, to a lesser degree, Uganda have advanced towards more integrated approaches, the region as a whole is still heavily focused on product control and downstream waste management. This suggests better governance of plastics needs more policy coordination at the national, subnational, and regional levels, as well as increased reliance on EPR, economic measures, recycling, and enforcement. In this light, the best approach that IGAD could take is a gradual harmonization through standardization, monitoring, producer responsibility, and transboundary cooperation. Our findings show the importance of plastics governance to SDGs 12, 13, 14, 16, and 17,

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given the integration of circular economy principles, institutional development, and regional coordination.

From a policy perspective, IGAD should develop a regional minimum standard framework for single-use plastics (SUPs), rather than continue to focus on broader environmental cooperation. First, member states should agree on definitions of problematic SUPs, plastic bags, biodegradable substitutes, recycling requirements, and producer responsibility. Second, IGAD should develop a regional monitoring and reporting framework to measure plastic production, imports, consumption, collection, recycling, and import-export of plastic waste. Third, member states should prioritize effective EPR schemes, forcing producers and importers to contribute to collection, recycling, awareness-raising, and clean-up programs. Fourth, member states should bolster municipal waste-management capabilities with waste segregation, recycling targets, incentives, and green procurement. Finally, IGAD should promote enforcement coordination to eliminate enforcement loopholes where banned or mismanaged plastics are transported across borders.

A key limitation of this study is that plastics management is relatively new and still evolving in the IGAD region, while legal and policy information is not centrally stored in a harmonized database, but rather scattered across government websites, gazettes, and regional documents. This presents a challenge for comparative legal research and also points to institutional weakness in data collection and policy monitoring more generally. Therefore, while the study is capable of analyzing legal responses in terms of structure and coherence, it is less suited to analyzing the effectiveness of legal responses in terms of behavior change, waste reduction, or environmental protection. Future studies could therefore build on this analysis by further exploring implementation and enforcement practices, as well as by extending the same analytical approach to other African regional blocs, or to comparative studies of developing regions with similar plastics-governance challenges. More broadly, the IGAD experience demonstrates that, in institutionally poor and heterogenous regions, regulatory approaches to plastics cannot be limited to bans on harmful products. It also requires a more harmonized regional legal framework that ties prevention, responsibility and cooperation along the entire plastics lifecycle.

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