



WIOMSA

GAP ANALYSIS REPORT AND DEVELOPED
GUIDELINES ON REGULATORY
FRAMEWORKS ON MARINE LITTER IN AFRICA

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marine waste
NETWORK
A programme of Sustainable Seas Trust

Project Team



• Title of the study

Consultancy to prepare a gap analysis report on marine litter legislation in Africa and contribute to preparation of guidelines for development of legislation and related policies on marine litter in Africa.

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Report overview

Following the UNEA Res. 2/11 (Marine plastic litter and microplastics), and UNEA Res.4/6 the Government of Norway has provided funds to enable technical support to strengthen legal frameworks regarding unnecessary and avoidable marine litter, including single-use plastics. The UN Environment Programme, Africa Office, Regional Sub-Programme Coordinator for Environmental Governance, under the supervision of WIOMSA has contracted two organisations, Sustainable Seas Trust (SST) and ECOGEOS to:

- i) assess and compile key legislation and policy frameworks on marine litter in Africa, and
- ii) prepare guidelines for the development of legislation and related policies on marine litter in Africa.

To address the first of these objectives (the gaps in legal frameworks for selected African countries around the governing of marine litter), SST and ECOGEOS were contracted to review a total of 45 African countries consisting of English-, French- and Portuguese-speaking countries. Two methods were used to assess these gaps were (1) a life-cycle approach and (2) a source-based approach.

The conclusions from the gap analysis served to inform the common guidelines for the development of legislation and related policies on marine litter in Africa.

The full report is therefore presented in two parts:

- 1) Part I: A gap analysis report on representative African countries.
- 2) Part II: A guidelines report for the development of a strong regulatory framework on marine litter.

1.1. Overview of gap analysis findings

This section presents an overview of the findings of the study. Further details, including detailed **country specific gaps**, are contained within Part I of the report.

1.1.1. International level

The global plastic pollution crisis has resulted in a number of government and non-governmental actors proposing a new global treaty. Subsequently, a legally binding international agreement which addresses the entire lifecycle of plastics is being put forward. Examination of the international legal framework indicates limitations in stimulating a reduction in 1) the global quantity of mismanaged plastic waste and 2) the hazard potential of plastic products throughout their lifecycle. The agreement with the greatest application to the management of plastics is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Gaps in the current regulatory frameworks may be remedied through the amendments to existing international treaties, and/or the development of voluntary instruments, such as the Global Plastic Action, New Plastics Economy Global Commitment, #breakfreefromplastic, the Alliance to End Plastic Waste and the Commonwealth Clean Ocean Alliance. The African countries represented in the study has been slow in committing to such voluntary instruments, representing a gap in international instruments that could help management of plastic pollution for the study countries.

To a large extent, most African countries have signed as signatories to international frameworks that address hazardous waste and certain solid waste streams, like the Rotterdam Convention (1998), the Stockholm Convention (2001), the Minamata Convention on Mercury (2013) and the Basel Convention with its Amendments to Annexes II, VII and IX (2019). The UN Watercourses Convention (1997) was found to be one of the most poorly signed conventions in Africa. UNCLOS (1982) partially compensates for the lack of

ratification to regulations from the Watercourse Convention (1997), as it provides for marine transboundary interactions specifying the responsibility of states to "prevent, reduce and control pollution of the marine environment from any source". However, the UNCLOS (1982) regulations mitigates sources of waste downstream, while the adoption of the UN Watercourses Convention (1997) could prevent leakages further upstream.

1.1.2. Regional level

Regional agreements are an important link between countries in terms of international relations and management of larger ecological systems. It also allows for the integration of broader international laws to better address a more unique regional context. It was found that the existing Regional Conventions have legislative frameworks addressing both land- and marine-based sources of marine litter, with some more involved than others. However, membership to these conventions is not available to landlocked countries. Among the other regional bodies studied (Regional Economic Communities and River Basin Commissions who address waste or pollution management), land-based waste management (including marine litter transported via transboundary rivers) is relatively well covered, however is not considered by several River Basin Commissions. As such, this aspect is less likely to be addressed at a regional level, particularly for landlocked countries. Elements that apply to all sources of marine litter (such as an awareness programme, monitoring and management, and enforcement bodies) are rarely part of the existing regional legislative framework.

While it is positive that regional bodies that are positioned to address transboundary waste management already exist and have high levels of membership, more could be done, particularly by river basin commissions, to recognise waste management as an important issue and further develop the regional regulatory framework. Feedback from the interviews indicated that regional support is a key element in implementing a solid regulatory framework on marine litter at a national level.

1.1.3. National level

At the national level, no country currently has a marine litter strategy in place (although at least one is under development). Some of the study countries have relatively comprehensive existing national legislative frameworks, however significant variability is observed, with other countries having much more limited regulatory frameworks. Drivers for advancement on the subject included support at the international and/or regional level for national level action, as well as recognition of the importance of the issue by national governments.

Elements of the regulatory framework concerning marine litter that are already commonly in place include plastic bag bans, a legislated collection system and bans on littering/dumping of Municipal Solid Waste (MSW), untreated sewage and industrial waste. Downstream waste management was found to be largely addressed by the studied countries; however, regulation of upstream waste creation is not as well addressed. Other elements that are often found to be lacking concern governance (including a waste awareness programme), application of laws into the African context, a policy or body for monitoring waste management and marine litter, and a designated body for waste management and the enforcement of existing legislation. There are therefore significant opportunities for the advancement of the national level regulatory frameworks across Africa. Countries that are more advanced on the subject of marine litter can be a source of inspiration and information for other countries, sharing experience from a local context, as well as working to further refine and enforce their own regulatory frameworks.

1.2. Overview of guidelines for the development of a regulatory framework on marine litter

During the literature review undertaken as part of the gap analysis, a number of regulatory texts were identified which contained elements that were considered particularly innovative or potentially inspiring to the development of guidelines which serve to mitigate marine litter and pollution. The examples texts demonstrate focus areas identified as important for the mitigation and elimination of marine litter and pollution both on land and at sea, including but not limited to 1) the waste elimination hierarchy – prevent, reduce, reuse, recycle, recover, and dispose, 2) the life cycle approach and 3) leakage hotspots. Summaries of these texts and the relevant aspects or articles are provided in Part II of this report. Finally, based on the findings of the gap analysis, the following guidelines are recommended for countries wishing to develop a strong regulatory framework to combat marine litter.

1.2.1. International level:

- Ratify the United Nations Watercourses Convention
- Redefine electronic waste under the Basel Convention
- Implement the MARPOL Convention at the national level

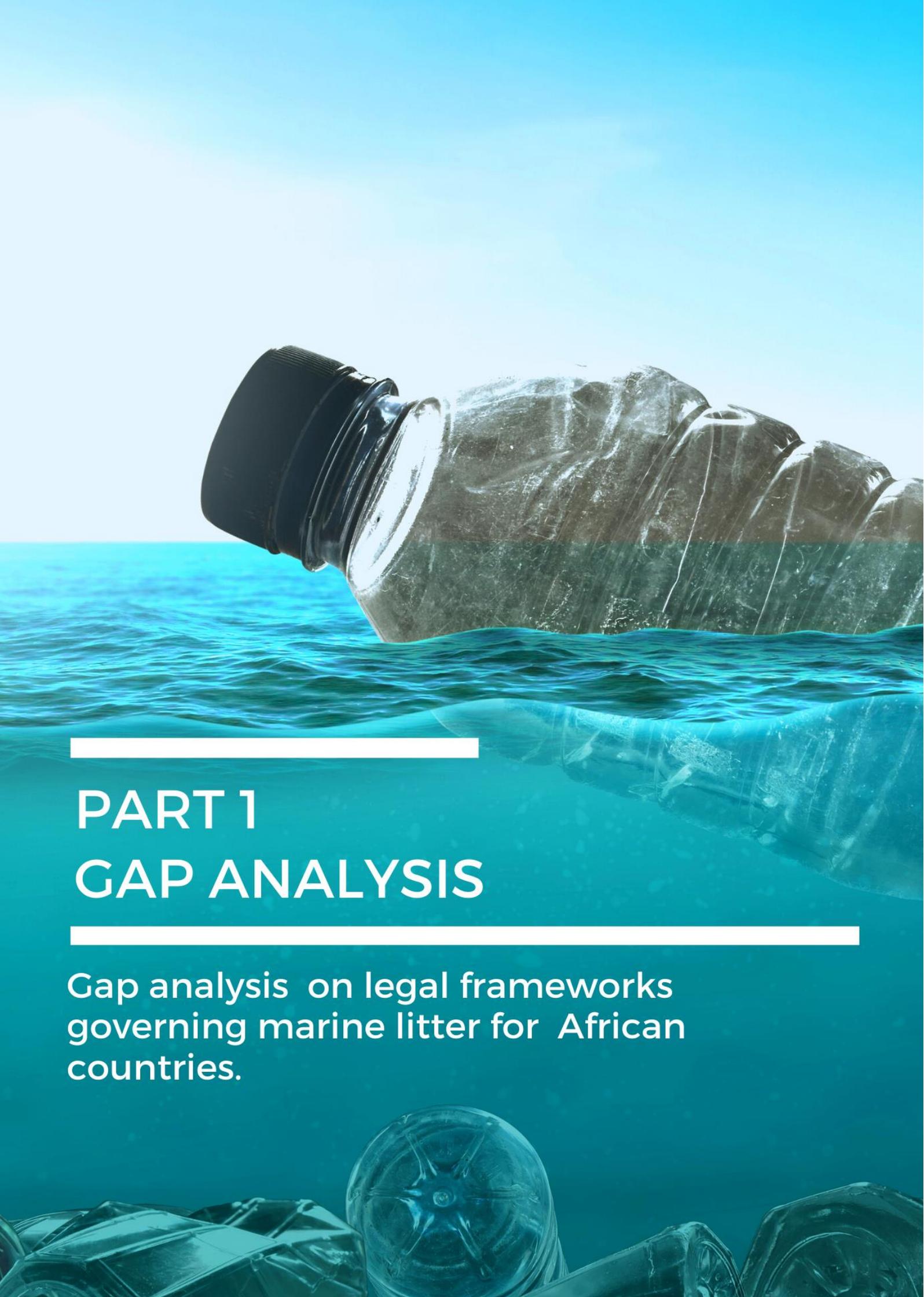
1.2.2. Regional level:

- Address international aspects of marine litter
- Create common goals across regions (Regional best practice guides)
- Harmonise objectives across all levels
- Increase the role and capacity of existing regional entities

1.2.3. National level:

- Consider local context
- Create an overarching guidance document
- Integrate soft laws into binding legislation
- Include the Informal Sector
- Focus on 'priority areas'
- Consider the means required for implementation, monitoring, and enforcement
- Discuss with relevant stakeholders from the beginning stages of development
- Ensure documentation is clear
- Integrate E-waste into national legislation
- Include Extended Producer Responsibility (EPR)
- Create viable end-markets for Reuse, Recycling and Repurpose

Further descriptions of the guidelines, as well as country-specific recommendations for Tanzania, Mauritius, and Lesotho, are contained within Part II of this report.



PART 1

GAP ANALYSIS

Gap analysis on legal frameworks governing marine litter for African countries.



Glossary of terms

Act - A law made by parliament.

Action Plan - A delineated plan outlining actions needed to reach one or more goals.

Bilateral Agreement - A contract in which two parties exchange promises to perform.

Collaborative Commitment - A commitment to an action between two or more parties.

Common/Customary Legislation - The written and unwritten rules which have developed from the customs and traditions of communities.

Consumers - Individuals or a group of individuals that use or purchase goods, products, or services primarily for personal, social, familial, household, and similar needs, which is not directly related to entrepreneurial or business activities.

Controlled disposal - Waste is deposited at a designated site with access control, cover and compaction, but no liners and leachate collection systems.¹

Disposal - The general term used to describe the action or process of getting rid of something after use.

E-waste - Discarded electronic appliances ranging from major appliances such as refrigerators and the likes, to computer and telecommunication appliances such as mobile phones, computers, and televisions and even electronic toys.²

Extended Producer Responsibility (EPR) - A policy approach under which producers are given a significant responsibility – financial and/or physical – for the collection, treatment and/or disposal of post-consumer products.³

Fly-tipping or “indiscriminate” dumping - Waste is deliberately, and often illegally, dumped in open areas in cities, towns, rural areas, or rivers.¹

General waste - An array of waste was mentioned i.e., hazardous, medical, solid, effluent etc.

Glass waste - Bottles, broken glassware, light bulbs, coloured glass.

Guidelines - Provide general guidance, and additional advice and support for policies, standards, or procedures.

Hard law - Agreements that are legally binding.

Hazardous waste - Waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment.

Initiative - The method by which voters may propose new laws or amend existing laws.

Informal waste sector - In the context of municipal solid waste management (MSWM), the informal recycling sector refers to the waste recycling activities of scavengers and waste pickers. These terms are

¹ UNEP (2018). *Africa Waste Management Outlook. United Nations Environment Programme, Nairobi, Kenya.*

² <https://www.ewaste1.com/what-is-e-waste/>

³ <https://www.oecd.org/env/tools-evaluation/extendedproducerresponsibility.html>

used to describe those involved in the extraction of recyclable and reusable materials from mixed waste.⁴

Land-based waste source - The point on land from which waste reaches the marine environment by water, through the air, or directly from the coast.

Landfill - The disposal of waste by burying it in excavated pits.

Law - A body of rules of action or conduct prescribed by a controlling authority.

Legislation - A law passed by parliament. Legislation is rules/law that is written down in a specific format. Firstly, a draft of a proposed law is prepared; this is called a "bill". This bill then needs to be voted in by the legislative authority (passed) and signed by the president to become legislation. A piece of legislation is also called an act or a statute.

Legal framework -The collective term used to describe the suite of governing tools (binding and non-binding) used to regulate and control legal matters - and in this context, that pertaining to waste and marine litter. This includes, legislation (Acts and Bills), regulations, multilateral agreements, bilateral agreements, policy, soft law, customary law, guidelines, action plans, and strategies.

Life Cycle - Consecutive and interlinked stages of a product system from raw material acquisition or generation from natural resources to final disposal.⁵

Manufacturing - The production of goods through the use of labour, machinery, tools, and biological or chemical processing or formulation. Manufacturing is taken as the transformation of raw materials into finished goods, usually on a large-scale, using machinery.

Marine-based waste source - Waste released directly into the marine environment, usually from a ship or other vessel.

Maritime - Connected with the sea, especially in relation to seaborne trade or naval matters.

Metal waste - Examples include cans, foil, tins, non-hazardous aerosol cans, appliances (white goods), railings, and bicycles.

Multilateral Agreement - A contract in which three or more parties exchange promises to perform assigned tasks.

Open or uncontrolled dumping - Waste is indiscriminately deposited at a designated site with either no, or at best very limited, measures to control the operation and to protect the surrounding environment. ¹

Organic waste - Examples include food scraps, garden (leaves, grass, brush) waste, wood, and process residues.

Other forms of waste - Textiles, leather, rubber, multi-laminates, e-waste, appliances, ash, and other inert materials.

Packaging - Materials used to wrap, contain, and/or protect goods.

Paper waste - Examples include paper scraps, cardboard, newspapers, magazines, bags, boxes, wrapping paper, telephone books, shredded paper, and paper beverage cups.

Plastic waste - Any single-use plastic products and packaging, including bottles, packaging, containers,

⁴ Wilson, D. C., Velis, C., & Cheeseman, C. 2006. Role of informal sector recycling in waste management in developing countries. *Habitat international*, 30(4), 797-808.

⁵ ISO 14040

bags, lids, cups, and Styrofoam products.

Persistent Organic Pollutants (POPs) - Toxic chemicals that adversely affect human health and the environment around the world. They persist for long periods of time in the environment and can accumulate and pass from one species to the next through the food chain.

Policy - The general principles by which a government is guided in its management of public affairs or the legislature in its measures.

Policy Framework - Principal policies and overall legal context.

Raw materials and processing - The collection of feedstock material (e.g., crude oil) for a particular product (e.g., plastic water bottle) and subsequent transformation into a material (e.g., PET plastic) that is then used to manufacture products.

Recover - The process of collecting end-of-life waste.

Recommendations - A suggestion or proposal as to the best course of action, especially put forward by an authoritative body.

Recycling, upcycling, and downcycling - Recycling is when waste materials are converted into new materials to produce new products. Upcycling is when materials are recycled to produce a higher value or quality product than the original. Downcycling is a recycling process where the value of the recycled material decreases over time, being used in less valued processes, with lesser quality material and with changes in inherent properties when compared to its original use.⁶

Regulation - A rule of order having the force of law, prescribed by a superior or competent authority, relating to the actions of those under the authority's control.

Retailer - A person or business that sells goods to the public in relatively small quantities for use or consumption.

Reuse - An action of using an item again in the item's original form.

Sanitary engineered landfilling - Waste is deposited in an engineered, controlled facility, designed, and operated to minimise impacts. Includes liners, leachate collection systems, and landfill gas recovery.¹

Soft law - Agreements that are not legally binding.

Solid waste - All solid waste types included in this report (plastic, textiles, glass, metal, and construction and demolition waste).

Strategy - A general plan or an approach to achieve an intended objective.

Transportation - The movement of raw materials or manufactured items from one location to another locally or via import and exportation. Transportation can be over land, by sea, or by air.

Value Chain - The value chain is the sum of all the processes involved in cradle-to-grave activities (such as upstream resource sourcing and production, to downstream marketing, after-sales services, and product end-of-life) by which a company adds value to a product.⁷

⁶ Pires A, Martinho G, Rodrigues S, Gomes MI. 2019. *Sustainable Solid Waste Collection and Management*.

⁷ United Nations Environment Programme (2020). *National guidance for plastic pollution hotspotting and shaping action - Introduction report*. J. Boucher, M. Zgola, et al. United Nations Environment Programme. Nairobi, Kenya.

Acronyms

ACCP – African Clean Cities Platform

ALDFG – Abandoned, Lost, or otherwise Discarded Fishing Gear

AMCEN – African Ministerial Conference on the Environment

AUC – African Union Commission

EPR – Extended Producer Responsibility

FAO – Food and Agriculture Organisation of the United Nations

GDP – Gross Domestic Product

IGES – Institute for Global Environmental Strategies

IUCN – International Union for Conservation of Nature

LCA – Life Cycle Approach

MARLISCO – Marine Litter in European Seas – Social Awareness and Co-Responsibility

MARPOL – The International Convention for Prevention of Marine Pollution for Ships

MEAs – Multilateral Environmental Agreements

MSW – Municipal Solid Waste

POPs – Persistent Organic Pollutants

PRI – Principles for Responsible Investment

SDGs – Sustainable Development Goals

SST – Sustainable Seas Trust

UNCLOS – United Nations Convention on the Law of the Sea

UNDP – United Nations Development Programme

UNEP – United Nations Environment Programme

UNESCO – United Nations Educational, Scientific and Cultural Organisation

UNIDO – United Nations Industrial Development Organisation

WIO – Western Indian Ocean

WIOMSA – Western Indian Ocean Marine Science Association

WMO – Waste Management Outlook

1. Introduction

1.1. Context of the study

Africa, the second largest continent in the world, is experiencing a higher urban population growth (estimated at 3.5% per year) than any other continent, with a steep rise in the middle class and an associated increase of municipal solid waste from 0.78kg per capita per day to 0.99kg by 2025. When coupled with various waste management challenges, it is expected that there will also be an increase in mismanaged waste and pollution for the continent (ACCP, 2019; UNEP, 2018). Considering Africa's extensive coastline (Deloitte, 2014), and shared river systems which flow through large urban settlements (Hoag, 2013), much of Africa's waste is transferred, in critical quantities, to the ocean (Jambeck et al., 2020). The issue of marine litter, and the associated environmental, economic, and health impacts, is being increasingly recognized around the world. As marine litter is a transboundary issue, it presents a unique set of challenges to national governments with regards to developing legislations, as it requires a collaborative and coordinated approach between countries (Stoll et al., 2020). Across Africa, the existence and degree of enforcement of strategies and legislation in relation to marine litter varies considerably by country (Stoll et al., 2020).

Africa's shipping and fishing activities may be one of the most significant sources of maritime pollution (Richardson et al., 2019) as these industries are difficult to monitor. Researchers estimate that of the 20% of marine litter that originates from sea-based activities (Jambeck et al., 2015), 50 % of this litter is a result of Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) per year worldwide (Madricardo et al., 2020). Furthermore, a meta-analysis of global ALDFG papers from 1975 to 2017 found that 5.7% of all fishing nets, 8.6% of all traps, and 29% of all lines were lost each year (Richardson et al., 2019). This is expected to be a significant factor in African waters, with over 12 million people employed in the fishing sector. Furthermore, subsistence fishing is popular in African countries, with fish accounting for a large proportion of animal protein intake, accounting for 50% in Mozambique, 60% in Sierra Leone and Ghana, and 70% in Tanzania. As a result, marine litter is a serious threat to food security, long-term economic growth, marine ecosystem viability, and the building of a vibrant and productive blue economy.

The establishment of the ad hoc, open-ended expert group on marine litter and microplastics during the third session of the United Nations Environment Assembly (UNEA) in accordance with resolution UNEP/EA.4/Res.6 Marine Plastic Litter and Microplastics in response to the global plastic pollution problem indicates the transboundary nature of the issue. The approach to existing international and regional waste and marine pollution/litter legal frameworks and the domestication of these frameworks into national legal frameworks is fragmented. The current frameworks are often assessed by evaluating those instruments that aim to prevent marine pollution, protect species and biodiversity, or manage chemicals and waste, often only considering the downstream components of the waste life cycle and failing to consider the life cycle assessment approach (UNEP, 2019). There needs to be harmonisation in policy development at the national and transboundary-regional level which address the production of raw materials like plastic nurdles or pellets, the transportation of these materials, the manufacturing and design of products, retail, and consumption systems, and, ideally, the reintroduction of those materials with market-value back into the system through reuse, repurposing, or recycling. Furthermore, regulatory frameworks can assist in addressing cross-cutting efforts through financial mechanisms such as Extended Producer Responsibility (EPR), the innovation of suitable alternatives to harmful non-recyclable materials, incentives for the recycling of suitable materials, the training and education of decision-makers tasked with governing waste, and the development of baselines through regular monitoring efforts.

In moving towards a global legal instrument to govern marine litter (Raubenheimer et al., 2018), understanding Africa's regulatory context and best practices is critical. This understanding ensures that

Euro-centric solutions, which are ill-equipped to address African issues, are not promulgated in a framework not suited to the African context. In addressing gaps in legal frameworks governing marine litter in Africa and developing guidelines best suited to the Africa context, it is possible to contribute to the development of an international instrument that successfully regulates marine litter for African countries as well.

To build on the existing efforts made by African countries on marine litter, UNEP has recognised the need for a regional framework to guide both regional and national efforts. With funding from the Government of Norway, and co-supervision from the Western Indian Ocean Marine Sciences Association (WIOMSA), UNEP has commissioned the following works:

- A gap analysis of the existing legislative and policy framework in African countries.
- The development of guidelines for the development of policy and legislation on marine litter.

1.2. Objectives and scope

1.2.1. Objectives

The objective of this project is to develop a guidance framework that can be used by African countries to:

- Support countries' efforts to combat marine litter.
- Promote awareness on the need for legislation on marine litter.
- Inspire countries to act effectively and in a coordinated manner to address marine litter.

1.2.1.1. GAP ANALYSIS OBJECTIVES

- Review and compile the existing legislation and policies on marine litter in African countries at international, regional, and national levels.
- Compare existing international, regional, and national legal frameworks to highlight and assess the associated gaps.
- Identify the key aspects necessary in the development of the regulatory framework to address marine litter at the international, regional, and national levels.

1.2.2. Scope

Geographically, the study covers 45 African countries, consisting of 19 English-, 21 French-, and 5 Portuguese-speaking countries. This includes coastal and landlocked continental countries, as well as island nations. These countries are listed in the Table 1 and represented in Figures 1 and 2.

Table 1. List of the African countries covered in the study.

Country type	English-speaking	French-speaking	Portuguese-speaking
Coastal country	<ul style="list-style-type: none"> Gambia Ghana Kenya Liberia Namibia Nigeria Sierra Leone Somalia South Africa Tanzania 	<ul style="list-style-type: none"> Algeria Benin Cameroon Democratic Republic of Congo Djibouti Gabon Guinea Ivory Coast Mauritania Morocco Senegal Togo Tunisia 	<ul style="list-style-type: none"> Angola Guinea-Bissau Mozambique
Landlocked country	<ul style="list-style-type: none"> Botswana Lesotho Malawi Rwanda Uganda Zambia Zimbabwe 	<ul style="list-style-type: none"> Burkina Faso Burundi Central African Republic Chad Mali Niger 	
Island nations	<ul style="list-style-type: none"> Mauritius Seychelles 	<ul style="list-style-type: none"> Comoros Madagascar 	<ul style="list-style-type: none"> Cape Verde São Tomé and Príncipe

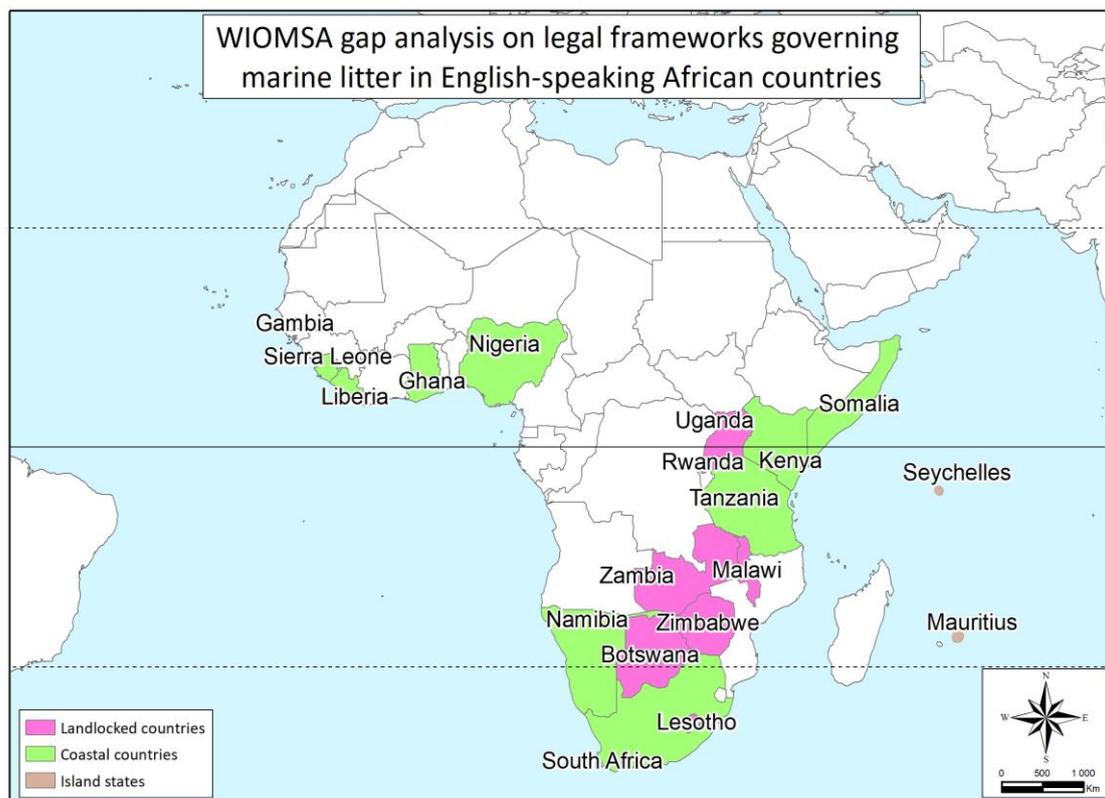


Figure 1. English-speaking countries included in the scope of the study

Please note: this map and all others shown below are for illustration only and do not reflect a legal or political position.

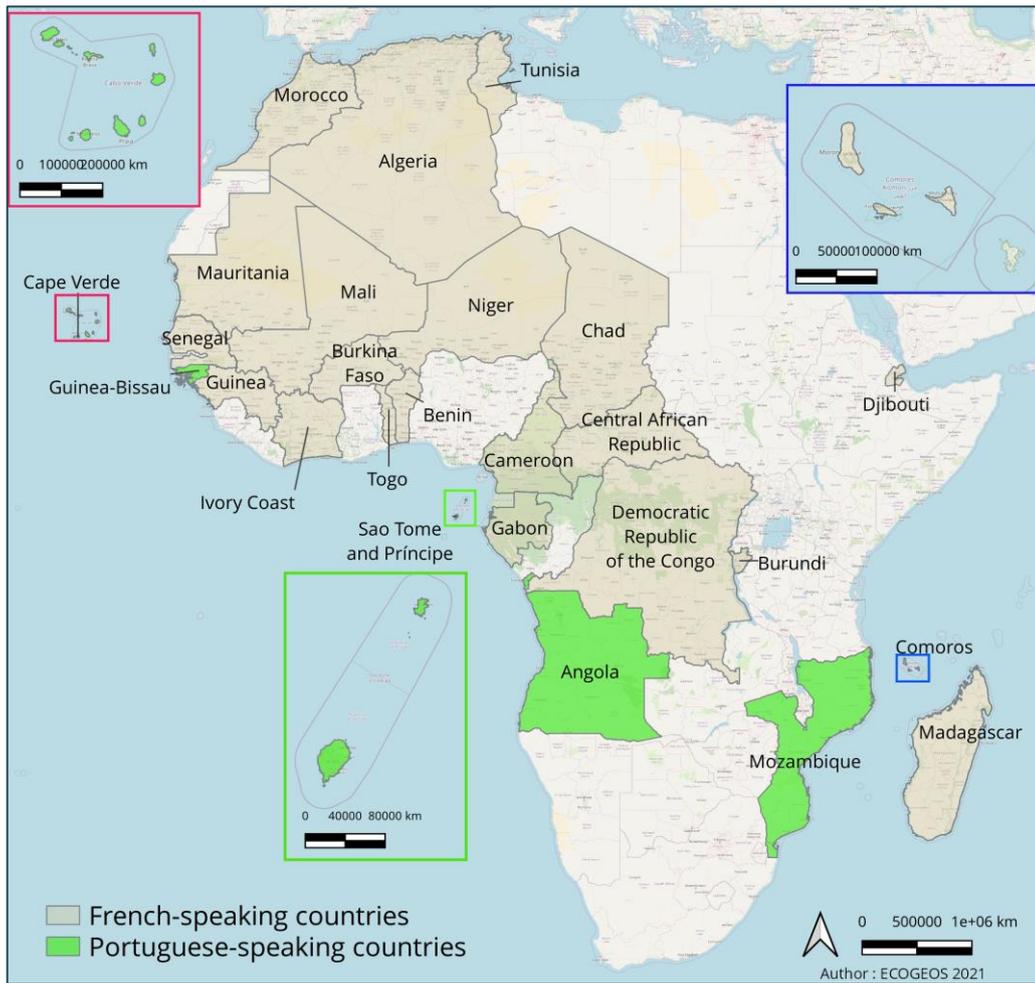


Figure 2. French- and Portuguese-speaking countries included in the scope of the study
Please note: this map and all others shown below are for illustration only and do not reflect a legal or political position

2. Methodology

2.1. Defining marine litter composition

Understanding the composition of marine litter is important in order to identify the items most commonly present and target regulatory measures accordingly. In 2019, as part of their annual marine litter survey, the Ocean Conservancy surveyed a total of almost 40,000 km of coastline across the world, including in 14 African countries. The data gathered, while representing only a snapshot of the current situation, provides an indication of the types of items that are most important to target when combatting marine litter.

The findings, provided in Appendix 1, illustrate that some items, such as plastic cups and plates and plastic lids, were found to represent a higher proportion of beach litter in Africa than elsewhere. The Ocean Conservancy has also noted that, globally, since 2017, the top 10 litter items are all made of plastic (Ocean Conservancy, 2019), underlining the importance of focusing on plastic waste from all sources. As a result, the ideal legislation presented below has been developed to address marine litter from solid waste with a particular focus on plastics.

The study evaluates land-based sources of waste with the potential to become marine litter, as well as marine-based and river-based sources were evaluated. Types of waste includes solid waste, including plastics and other solid waste streams such as textiles, glass, metal, and construction and demolition waste. This report does not consider organic waste such as house and garden refuse as this type of waste is not generally considered marine debris. However, the report does include hazardous waste such as Persistent Organic Pollutants (POPs), electronic waste (e-waste), and other hazardous waste. Research on plastic waste will cover the life cycle with a focus on additional types of waste streams in the downstream components of legislation and policies that govern waste management.

The distinction is based on two aspects: firstly, plastics constitute more than 80% of marine debris. Secondly, plastics contribute directly to marine debris from the production of raw materials (e.g., pellets/nurdles) at the outset (National Research Council et al., 2009; Watkins et al., 2015). The other forms of waste are generally not direct contributors to marine litter when produced or manufactured. The approach considers the entire plastic life cycle, which is consistent with UNEP's recommended life cycle analysis (UNEP, 2019, 2018; UNEP and Life Cycle Initiative, 2021).

2.2. Literature review and compendium

The literature review involved identifying the legislative context in each of the study countries, including all documentation relating to marine litter such as laws and regulations, strategies, and action plans. At a regional level, the review included conventions, treaties, and agreements as well as relevant regional groups and bodies such as the African Union Commission, regional economic communities and river basin commissions. International level conventions (such as the Basel and MARPOL Conventions) were not examined as they were considered outside of the scope for this study.

All the international, regional, and national legal frameworks of the African countries identified in the literature review were also consolidated into a compendium. This process allowed for the examining of countries' strengths and weaknesses at an international, regional, and national level. The compendium therefore formed the basis of the gap analysis assessments. The compendium captured the following information:

- **Location** – Country.
- **Scope of intervention** – National, Regional, or International.
- **Source of waste targeted** – Land-based, Marine-based, or River-based.
- **Value chain stage** (*where applicable*) – see *Table 2* for stages used.
- **Value chain step** (*where applicable*)– see *Table 2* for steps used.
- **Element of ideal legislation addressed** (*where applicable*)
- **Waste targeted** – Solid waste, plastic waste, plastic bags, electronic waste, hazardous waste, general, or not specified.
- **Waste type** – Lists the specific type of waste (plastic banners, Styrofoam, oil, fishing gear, Mercury, POPs etc.) focused on, or if *Waste type* was referred to generally, “All types of waste” was used.
- **Law Name** – Name of law.
- **Description** – Summary.
- **Description** – Full description.
- **Legislation type** – Multilateral agreement, Bilateral agreement, legislation, regulation, customary law, soft law, strategy, or action plan.
- **Keywords/objectives** – Financial incentive, definition of objectives, definition of standards or bans etc.
- **Entry into force** – Year the intervention was implemented.
- **Abandoned** – Yes or no.
- **Stakeholders** – Government institution, inter-governmental organisations etc. (optional).
- **Other comments** – Other pertinent or relevant information (optional).
- **Sources** – Websites, references of report, article, or study.
- **Contacts** – Main e-mail and phone number (if applicable).

2.2.1. Principal sources of information

- The primary search platform was the environmental law search platform ECOLEX (www.ecolex.org), which combined the resources of the Food and Agricultural Organization (FAO), the International Union for Conservation of Nature (IUCN), and the United Nations Environmental Programme (UNEP). Other relevant search platforms were also used, such as InforMEA (www.informea.org/en) and the United Nations' information portal on Multilateral Environmental Agreements (MEAs).
- The affiliated websites, databases, and relevant documents of the United Nations Environmental Programme (UNEP); United Nations Educational, Scientific and Cultural Organization (UNESCO); United Nations Development Programme (UNDP); Food and Agricultural Organisation (FAO); United Nations Industrial Development Organisation (UNIDO); African Ministers Conference on the Environment (AMCEN), and the African Union Commission (AUC) were used.
- Governmental websites and resources, as well as affiliated websites, databases, and documents of conventions such as the Nairobi, Abidjan, BASEL, the International Convention for the Prevention of Pollution from Ships (MARPOL), the United Nations Convention on the Law of the Sea (UNCLOS), and other relevant agreements were used.
- Resources from relevant regional and international groups and bodies such as the African Union Commission, the Southern African Development Community (SADC), and other regional economic communities were used.

The following sections summarise the methodological approaches taken. Two approaches were used to assess the gaps in legal frameworks in this report: a life-cycle approach and a source-based approach. The international-level legal frameworks were analysed using a life cycle approach, and the regional-level legal frameworks were analysed using the source-based approach. For the gap analysis of national-level legal frameworks, either a source-based approach was used to assess the gaps, or a life-cycle approach was used. Those analysed using the source-based approach are presented as individual case studies, while those analysed using the life-cycle approach were summarised in the form of 'Country Profiles'. The methodologies of the two approaches are detailed below:

2.3. Source-based analysis approach

The gap analysis using a source-based approach involves identifying the regulatory frameworks in place in each country and undertaking a comparison of the current situation with an ideal regulatory framework. Both the strong areas and the gaps identified will feed into the development of the guidelines to assist countries to work towards an improved regulatory framework to combat marine litter (see separate report).

2.3.1. Definition of ideal legislation

The first step in undertaking the gap analysis is defining the ideal legislation that will be used as the benchmark. The following sections describe the ideal regulatory framework at a national and regional level, based on the best available data on the sources and composition of marine litter in Africa.

2.3.2. Marine litter: definition and sources

UNEP defines marine litter as “any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment” (UNEP, 2017). This includes waste from the following sources (UNEP, 2016):

- Run-off from landfill sites near coastal areas or waterways
- Rubbish from streets/stormwater
- Litter from inland areas
- Beachgoers
- Wastewater/sewers
- Industrial losses and improper disposal
- Marine-based waste sources (commercial vessels, fishermen and boaters)

These sources, as well as the pathways by which the waste material travels from the source to the marine environment, are illustrated in Figure 3 below.

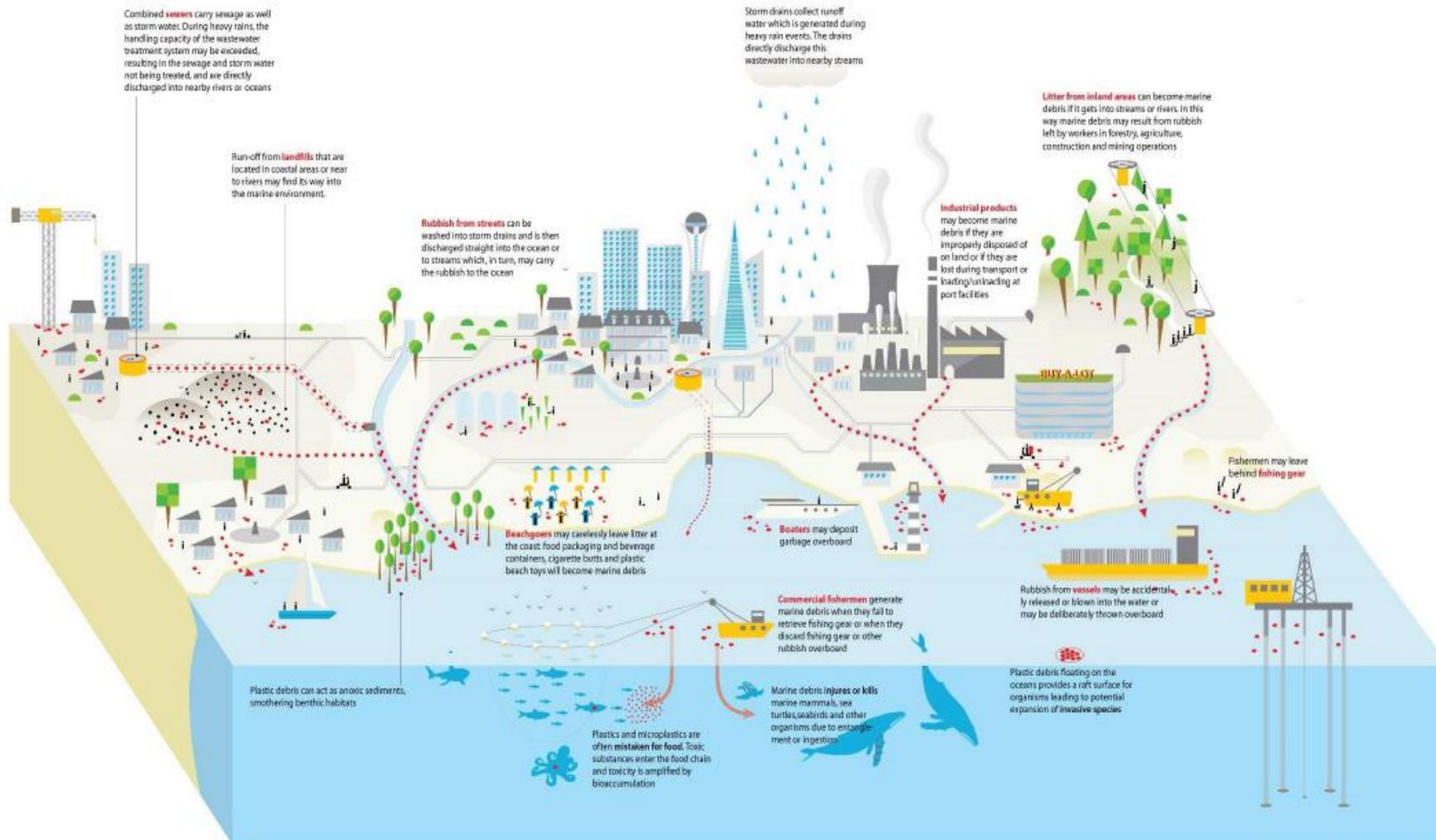


Figure 3. Sources and pathways of marine litter (UNEP, 2016).

Ideal legislation in relation to marine litter should therefore address all these sources, albeit with priority given to those which have the largest impact on marine litter generation.

2.3.3. Ideal regional level regulatory framework

The role of regional level bodies in combatting marine litter is not the same as national governments. The ideal scenario on a regional level was therefore based on the same marine litter sources as used at the national level, with the elements of ideal legislation simplified to reflect the aspects in which regional bodies can provide support and assistance. This ideal regional level regulatory framework is presented in Table 2.

Table 2. Ideal regional regulatory framework to combat marine litter.

Source	Ideal Legislation
Marine-based	Marine-based management
	Marine litter strategy
	Monitoring marine litter
Land-based	Land-based management
	Port waste management
All	Awareness programme
	Monitoring waste management
	Waste management governing body
	Enforcement body

2.3.4. Ideal national level regulatory framework

For the purposes of the gap analysis, the first four of the sources of marine litter (landfills, street rubbish/stormwater, inland litter, and beachgoers) have been considered as an overarching category Municipal Solid Waste (MSW), as the marine litter generated from these sources ultimately arises from the littering, dumping or loss throughout the waste management system of the MSW generated by households and small businesses.

The ideal regulatory framework, which has been developed based on a literature review of effective strategies to reduce marine litter, is outlined in Table 3. For each source, the ideal legislation has been identified for each stage in the waste management system for which legislation can assist in limiting the generation of marine litter. Each element of the ideal legislation has been classified as 'priority' or 'desirable' both in recognition that the different sources contribute to varying degrees to the quantity of marine litter, and the ease of implementation.

The framework below in Table 2 has been based upon a source minimisation approach, which is agreed as preferable to an effect-orientated or clean-up approach (Löhr et al, 2017; Rochman, 2016; The Skimmer, 2017). While the recommendations from literature were not all specific to the African context, they are based on data that is globally applicable (such as the principles of the waste management hierarchy and data on the major sources of marine litter) and often relate to developing countries. Furthermore, it is widely recognised that the specific context of each country must be considered in the development of an effective regulatory framework to combat marine litter.

Table 3. Ideal national regulatory framework to combat marine litter.

Source	Stage	Waste Type	Ideal Legislation	Priority	References	
MSW	Avoidance*	Plastic bags	Ban/levy on the manufacture, import, sale, and use of plastic bags	Priority	Löhr et al, 2017 Ocean Conservancy, 2017 The Skimmer, 2017 UNEP, 2018 UNEP, 2021a UNEP, 2021b	
		Single-use plastics	Ban on the manufacture, import, sale, and use of single-use plastics (such as straws, cutlery, plates, stirrers, cotton buds and take-away food containers)	Desirable	European Commission Löhr et al, 2017 The Skimmer, 2017	
		All wastes	Awareness and education program	Priority	Löhr et al, 2017	
	Collection	High-value waste		Separate waste collection, or container deposit system	Desirable	Löhr et al, 2017 The Skimmer, 2017 UNEP, IGES, 2019 UNEP, 2021a
			EPR		Desirable	European Commission UNEP, 2021a UNEP, 2021b
		All wastes		Legislated collection system	Priority	Ocean Conservancy, 2017 UNEP, IGES, 2019 UNEP, 2021a
			Rules for pre-collection storage and transport vehicle		Desirable	
	Recycling	Household recyclables	Target and/or incentives for improving recycling rate	Desirable	European Commission UNEP, 2021a	
	Disposal	All wastes	Standards for siting and management of landfill sites	Priority	MARLISCO, 2014 Ocean Conservancy, 2017 The Skimmer, 2017 UNEP, IGES, 2019 UNEP, 2021a	
	Collection	All wastes	Ban on littering and illegal dumping	Priority	MARLISCO, 2014	

Source	Stage	Waste Type	Ideal Legislation	Priority	References
	and disposal				Ocean Conservancy, 2017 UNEP, IGES, 2019 UNEP, 2021a
			Require system for collection and disposal of waste in stormwater drains	Desirable	
Wastewater	Avoidance	Microplastics	Ban on microbeads in cosmetics and household cleaning products	Desirable	Löhr et al, 2017 Rochman, 2016 UNEP, 2021a
	Collection	Microplastics	Require microplastic filters on washing machines	Desirable	Rochman, 2016
	Disposal	All wastes	Ban on discharge of untreated sewage into waterways	Priority	MARLISCO, 2014
Industrial outfalls	Collection and disposal	All wastes	Ban on littering and illegal dumping	Priority	MARLISCO, 2014 Ocean Conservancy, 2017 UNEP, IGES, 2019 UNEP, 2021a
Marine-base sources	Collection	All wastes	Ensure adequate waste facilities at ports	Priority	MARLISCO, 2014 UNEP, 2021a
	Collection and disposal	All wastes	Ban on littering and illegal dumping at sea and requirement for adequate on-board waste storage	Priority	MARLISCO, 2014 UNEP, 2021a
		All wastes	Ban on littering and illegal dumping at ports	Priority	
All	-	All wastes	Specific policy or strategy on marine litter	Priority	MARLISCO, 2014 UNEP, IGES, 2019
	-	All waste	Policy or body relating to monitoring of waste management, marine litter and impacts of measures taken	Priority	MARLISCO, 2014 Löhr et al, 2017 UNEP, 2021a
	-	All waste	Existence of a designated body to govern waste management and enforce policy and legislation	Priority	

2.4. Life cycle approach

2.4.1. International-level frameworks

Based on the findings from the compendium (literature review), a gap analysis of the legal frameworks was conducted, including the analysis of international level frameworks adopted within African countries. (Table 4). The gap analysis was broken up into hard laws (Multilateral Environmental Agreements/MEAs) and soft laws (initiatives, commitments, and non-binding agreements). Yes (Y) or No (N) were used to show whether a country has been ratified/acceded into the legal framework, whereas a simple signature (S) was used to denote countries that had initially signed onto the agreement but are not ratified/acceded into it.

Table 4. Illustrative table of the layout of the international-level gap analysis of regulatory texts pertaining to different types of waste. Please note that the colours assigned to countries are arbitrary and used for demonstrative purposes only.

Gap analysis on international legal framework that regulates waste in African English-speaking countries.			Botswana	Gambia	Ghana	Kenya	Lesotho	Liberia	Malawi	Mauritius	Namibia	Nigeria	Rwanda	Seychelles	Sierra Leone	Somalia	South Africa	Sudan	Tanzania	Uganda	Zambia	Zimbabwe
Stage in life cycle	Type of waste	List of policies and legislation	Signatory or member																			
Multilateral environmental agreements are binding international agreements through ratification and accession.																						
Overarching	Hazardous	Rotterdam Convention, 1998	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Production and disposal	Hazardous	Stockholm Convention, 2001	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Overarching	All	United Nations Watercourses Convention, 1997	N	N	Y	N	N	N	N	N	Y	Y	N	N	N	N	Y	N	N	N	N	N
Overarching	Fishing gear	United Nations Fish Stocks Agreement, 1982	N	N	Y	Y	N	Y	N	Y	Y	N	Y	N	N	Y	N	N	Y	N	N	N
Overarching	General	United Nations Convention on the Law of the Sea, 1982 (UNCLOS)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Soft law: International declarations, guidelines, and other efforts that are non-binding, but are often persuasive, inspire and inform national legislation, and may reflect emerging international law.																						
Overarching	Plastic	Global Plastic Action Partnership	N	N	Y	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N
Overarching	Plastic	New Plastics Economy Global Commitment	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N	N	N
Overarching	Plastic	#breakfreefromplastic	N	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	Y	Y
Overarching	Not specified	Public Trust Doctrine (PTD)	N	N	N	Y	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	Y	N	N

- S Simple signature
- U Unknown
- Y Party to agreement
- N Not party to agreement

2.4.2. National-level frameworks

The Life Cycle Approach (LCA) has been put forward as a comprehensive method to analyse waste (UNEP and Life Cycle Initiative, 2021). The LCA, as described by UNEP and the Life Cycle Initiative (2021), addresses upstream, midstream, and downstream waste components along the value chain and describes points along the way at which there are opportunities for products and materials to be recovered, recycled, or reused (UNEP, 2021). As a result, what is traditionally a linear system that runs from raw material production to product end-of-life can become cyclical, resulting in a more closed-loop and less waste. With the development of the waste management hierarchy, the preferred method to manage waste is waste prevention, with disposal the worst management method. To achieve prevention, the upstream components of the life cycle will need to be addressed, whereas disposal (the most common waste management method) represents a downstream component. Therefore, using the life cycle approach allows for legislation gaps to be measured at different stages of waste generation outlined in Table 5.

Overall, three main LCA stages were used: (1) Primary production and processing (upstream components), (2) Product sale and consumption (midstream), and (3) Waste management (downstream). Stage 1 contained three LCA steps, namely, raw materials and processing, transportation/importation/exportation, and manufacturing. Stage 2 also contained three LCA steps, namely Packaging, Retailers, and Consumers. Stage 3 contained the LCA step Disposal, which was divided into subcategories, namely, Recover, Recycle, Reuse, and Landfill.

Table 5. Simplified Life Cycle Approach.

Stage	Step	Description
1. Primary production and processing (Upstream)	1	Raw materials and processing
	2	Transportation/ Importation/ Exportation
	3	Manufacturing
2. Product sale and consumption (Midstream)	4	Packaging
	5	Retailers
	6	Consumers
3. Waste management (Downstream)	7	Disposal
	7.1	Disposal (Recover)
	7.2	Disposal (Recycle)
	7.3	Disposal (Reuse)
	7.4	Disposal (Landfill)

The National gap analysis was broken up into the following categories:

- 1) **Solid waste laws (generally)** – Used the value chain approach outlined in Table 5.
- 2) **Hazardous waste laws** – Used the value chain approach outlined in Table 5.
- 3) **Plastic waste laws** – Used the value chain approach outlined in Table 5.
- 4) **Electronic waste laws** – Used the value chain approach outlined in Table 5.
- 5) **Plastic bans** – plastic bags, microbeads/pellets, and other single-use plastics.
- 6) **Financial incentives** – Polluter pays principle, legislation around informal waste sector, Extended Producer Responsibility (EPR), and plastic bag levy.
- 7) **Maritime** – Marine dumping legislation/regulation, harbour/port, fishing.
- 8) **Conservation Management** – Water bodies/coast protection, monitoring programmes.

Yes (Y), No (N) and Policy/Plan/Strategy (P), was used to indicate the presence or absence of relevant laws in each country (example shown in Table 6). If legislation is present (Y) was used. If there was no legislation (N) was used. If there was a plan or strategy present, (P) was used. Table 6 shows an example of the layout used for the national policy and legislation gap analysis.

Table 6. Illustrative table on the layout of the national level gap analysis of regulatory texts pertaining to the different steps in the value chain. Please note that the colours assigned to countries are arbitrary and used for demonstrative purposes only.

Gap analysis on national policy and legislation that regulate marine litter in African countries.		Botswana	Gambia	Ghana	Kenya	Lesotho	Liberia	Malawi
Topic	Value chain step							
Hazardous waste	1. Raw materials and processing	N	N	N	N	N	N	N
	2. Transportation/Importation/Exportation	Y	Y	Y	Y	Y	Y	Y
	3. Manufacturing	N	N	Y	Y	N	P	Y
	4. Packaging	N	N	N	N	N	N	N
	5. Retailers	N	N	N	N	N	N	N
	6. Consumers	N	N	N	N	N	N	N
	7. Disposal	Y	Y	Y	Y	Y	Y	Y
	7.1 Disposal (Recover)	Y	Y	Y	Y	Y	Y	Y
	7.2 Disposal (Recycle)	N	N	N	N	N	N	N
	7.3 Disposal (Reuse)	N	N	N	N	N	N	N
	7.4 Disposal (Landfill)	Y	Y	Y	Y	Y	Y	Y

Y	= Yes legislation/regulation present
N	= No legislation/regulation present
P	= Policy/Plan/Strategy present

2.5. Presentation of gap analysis results

Source-based approaches are presented using a visual presentation of key pieces of legislation and gaps through a coloured table, a description of the situation of each regional agreement and country, and analysis at both a regional and national level. Based on the results of the gap analysis at the national and regional levels, including the findings of the interviews with the focus countries, a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis was undertaken. This identified the common strengths and weaknesses of the existing regulatory frameworks in the study countries, as well as the opportunities and threats that are or could be encountered by most, if not all or the study countries. On the basis of this analysis, the guidelines have been formulated with the goal of enhancing the existing strengths and harnessing opportunities, while addressing the weakness and minimising the risk from the identified threats.

Countries examined using a life cycle approach, were presented in the form of 'Country Profiles'. These summarise the existing National legal frameworks (includes legislation, regulation, policy, bans, action plans and strategies). Information in the Country Profiles includes:

- A table with the total number of national laws found and the number of different legal framework document types found.
- A table with all relevant legislation, regulations, policies, and plans linked (directly or indirectly) to marine litter with the corresponding value chain steps they pertain to.
- A doughnut diagram showing what percentage (%) of LCA stages are addressed by all the countries' national laws (marine, river and land-based) found.
- A doughnut diagram showing what percentage (%) of LCA steps are addressed by all the countries' national laws (marine, river and land-based) found.

- A 'doughnut pie' diagram showing the percentage (%) of the different types of waste targeted by the legal framework and what kind of legal framework document types exist for it.
- A bar chart showing the number of existing land-based, marine-based, and river-based national legal documents and what LCA stages they address.

2.6. Priority country analysis

To obtain a deeper understanding of the current situation, add to the information gathered from the literature review, including adding qualitative elements, and build the guidelines, 10 countries were selected for a detailed review.

The selection of these countries will be based on:

- Geographical location (West, East, Central, Southern or North Africa, Red Sea or the WIO region).
- Degree of engagement on the subject of marine litter.
- , Number of gaps found in their international, regional, and national legal frameworks
- Availability of information and potential contacts.

The 10 countries selected were:

- **Central African Republic** (French-speaking, Landlocked).
- **Lesotho** (English-speaking, Landlocked)
- **Mauritius** (English-speaking, Island)
- **Comoros** (French-speaking, Island).
- **Guinea** (French-speaking, coastal, West African).
- **Morocco** (French-speaking, coastal, North African).
- **Mozambique** (Portuguese-speaking, coastal, East African).
- **Tanzania** (English-speaking, coastal, East African)
- **Kenya** (English-speaking, coastal, East African)
- **South Africa** (English-speaking, coastal, Southern African)

Semi-structured interviews were held with relevant stakeholders from each focus country. In addition to verifying the information gathered through the literature review, the interviews provided additional details which are often difficult to obtain from literature such as the drivers, adaptation of the legislation to the local context, governance, outcomes, and difficulties encountered. The framework used to guide the interviews is presented in Table . Additionally, social surveys were used to further investigate country-specific contexts.

Table 7. Interview framework for focus countries.

Category	Sub-category	Information
1 – General information	Country, Name and function of the interviewee	
	1.1. Local context and objectives	<ul style="list-style-type: none"> Local issues regarding marine litter Global presentation of legislation and waste management system
2 – Regulatory context	2.1. Regulatory framework	<ul style="list-style-type: none"> Knowledge of the existing regulatory framework: International, Regional, and National context Background and drivers Objectives/targets Governance and external assistance Adaptation to the local context Communication and enforcement strategy Challenges and barriers <ul style="list-style-type: none"> <i>Request documentation</i>
	2.2. Assessment	<ul style="list-style-type: none"> Preferred types of measures (bans versus incentives) Current waste management effectiveness Types of waste Lessons learned Current gaps in legal frameworks Applicability to other countries Needs to drive further progress
3 – Conclusions	3.1. Summary and conclusions	<ul style="list-style-type: none"> General conclusions and recommendations Final questions/comments

2.7. Development of guidelines

The guidelines were developed based on the findings of the gap analysis at an international, regional, and national level. Based on the findings of the gap analysis, and outcomes of expert interviews (see list in Appendix 2) and surveys (priority country analysis), the guidelines were formulated with the goal of enhancing the existing strengths and harnessing opportunities, while addressing the weakness and minimising the risk from the identified threats. The combined guidelines for African countries included in this report are found in Part II.

3. Gap analysis results and discussion

3.1. Overview of the existing legal frameworks around waste in Africa

Over time, Africa has seen an increase in the number of laws passed that pertain to waste and marine litter (Figure 4). Between 1970 and 1990, an average of one law was enacted per year. This is significantly lower than the number of laws enacted post 2000. This increase is an anticipated result as the rise in population and development over time has created more need for the proper management of waste.

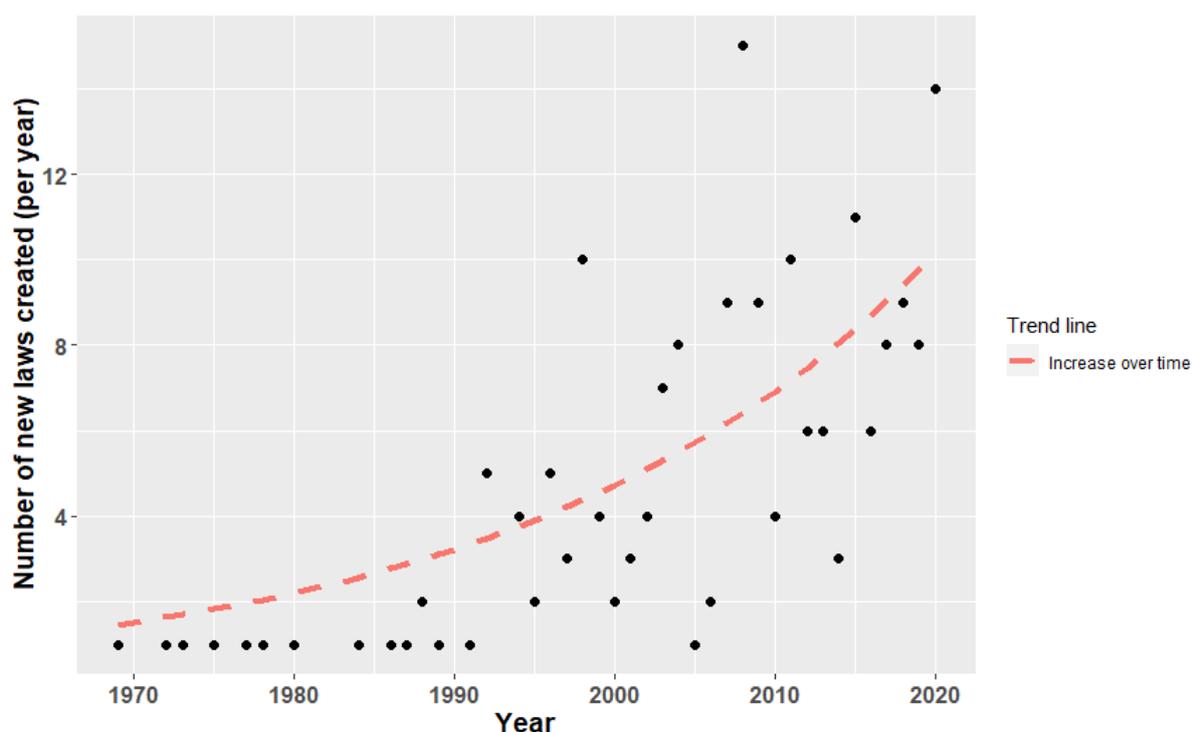


Figure 4. Number of new laws (international, regional, and national) pertaining to waste enacted per year across English-speaking African countries included in the study.

3.2. International level

Table 8 and 9 below are a summary of the gap analysis results for the African countries included in this report.

3.2.1. International gap analysis

Legend:

S	Simple signature
U	Unknown
Y	Party to agreement
N	Not party to agreement

3.2.2. Discussion of international gaps

The global plastic pollution crisis has resulted in a number of government and non-governmental actors proposing a new global treaty, illustrated during the fifth meeting of the United Nations Environment Assembly (UNEA). A legally binding international agreement addressing the entire lifecycle of plastics is being put forward (Raubenheimer and Urho, 2020a). Examination of the international legal framework indicates substantial limitations in stimulating a reduction in 1) the global quantity of mismanaged plastic waste, and 2) the hazard potential of plastic products throughout their lifecycle (Raubenheimer and McIlgorm, 2018). At the international level, the agreement with the greatest application to the management of plastics is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Raubenheimer and McIlgorm, 2018).

Gaps in the current policy framework may be closed through the amendment and/or the development of binding or voluntary instruments like the Global Plastic Action, New Plastics Economy Global Commitment, #breakfreefromplastic, the Alliance to End Plastic Waste, and the Commonwealth Clean Ocean Alliance. The African countries represented in the study have been slow in committing to such voluntary instruments, representing a gap in international instruments that could mitigate plastic pollution for the study countries.

To a large extent, most African countries have signed as signatories to international legal frameworks that address hazardous waste and certain solid waste streams. These include the Rotterdam Convention (1998), the Stockholm Convention (2001), the Minamata Convention on Mercury (2013) and the Basel Convention with its Amendments to Annexes II, VII and IX (2019). However, the adoption and ratification of regionally translated legislation like the Bamako Convention, 1991 (ECOLEX, 1991) has varied between countries, with many not ratified into this agreement (simple signature only). The Bamako Convention, 1991 (ECOLEX, 1991) is a regional intervention modelled off the Basel Convention and similarly outlines regulation and movement of hazardous wastes. When comparing the two conventions, the Bamako Convention was found to have stricter regulations than its international counterpart and refers specifically to and within Africa. The Bamako Convention also states that parties are to adopt precautionary waste generation ideals and establish monitoring and regulatory acting authorities to enact upon the transboundary movement of hazardous waste (ECOLEX, 1991).

The study also identified a fragmented regulatory framework governing transboundary watercourses within Africa. The UN Watercourses Convention (1997) is one of the most poorly signed conventions in Africa after the London Convention (1972). In some sense, UNCLOS (1982) compensates for the lack of ratification to the UN Watercourse Convention (1997) as it provides for marine transboundary interactions, specifying the responsibility of states to "prevent, reduce and control pollution of the marine environment from any source. Measures shall include, inter alia, those designed to fully minimize "the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources". However, the UNCLOS (1982) regulations are aimed at mitigating sources of waste downstream, while the adoption of the UN Watercourses Convention (1997) could prevent leakages further upstream.

At an international and regional level, at present, at-sea leakages are addressed through international agreements like UNCLOS (1982) for all studied African countries, except the landlocked countries Burundi and Central African Republic which are not ratified. However, a large amount of litter is still found to be dumped at sea (Galafassi et al., 2019), indicating an issue with enforcement. Further provision is made through MARPOL (1978), adopted by the coastal and island-nation states of these countries. Provision is specifically made to curb loss of fishing gear through the United Nations Fish Stocks Agreement (1982), but

several coastal and island-nation states have not ratified this agreement.

3.3. Regional level

At a regional level, three types of bodies were taken into consideration for this study (Regional Conventions, Regional Economic Communities, River Basin Commissions). Only regional bodies that contain one or more countries included in our scope were included (see Table 10 for the list).

3.3.1. Regional bodies addressing waste management

All study countries are part of at least one regional body that mentions waste (or pollution) management, as they all are part of the African Union Commission. All the study countries except Tunisia are members of at least two regional bodies, with many being members of three or more.

Table 10. Regional bodies within the study scope which address waste management.

Regional Body	Mention of waste (or pollution) management
Regional Conventions	
Barcelona Convention	
Abidjan Convention	
Bamako Convention	
Benguela Current Convention	
Jeddah Convention	
Nairobi Convention	
African Union	
Regional Economic Communities	
Economic Community of West African States (ECOWAS)	
Southern African Development Community (SADC)	
Intergovernmental Authority on Development	
Arab Maghreb Union	
Common Market for Eastern and Southern Africa	
Community of Sahel-Saharan States	
East African Community	
Economic Community of Central African States	
International Conference on the Great Lakes Region	
River Basin Commission	
Niger Basin Authority (NBA)	
Lake Chad Basin Commission	
Senegal River Basin Development Organization (OMVS)	
Permanent Okavango River Basin Water Commission (OKACOM)	
Nile Basin Initiative (NBI)	
IncoMaputo Watercourse Commission	
Orange-Senque River Commission	
Komati Basin Water Authority	
International Commission of the Congo-Oubangui-Sangha basin (CICOS)	
Permanent Joint Technical Commission (PJTC) Kunene River Basin	
Volta Basin Initiative	
Gambia River Development Organisation (OMVG)	
Zambezi Watercourse Commission	

Limpopo Watercourse Commission (LIMCOM)	
Lake Victoria Basin Commission (LVBC)	

Legend:

- Mentions waste (or pollution) management
- Does not mention waste (or pollution) management

3.3.1.1. REGIONAL CONVENTIONS

The participation of the study countries in regional conventions is shown below in Figure 6. There are no study countries that do not take part in at least one of the selected Regional Conventions. All study countries are part of the African Union Commission and only landlocked countries are not part of a regional convention.

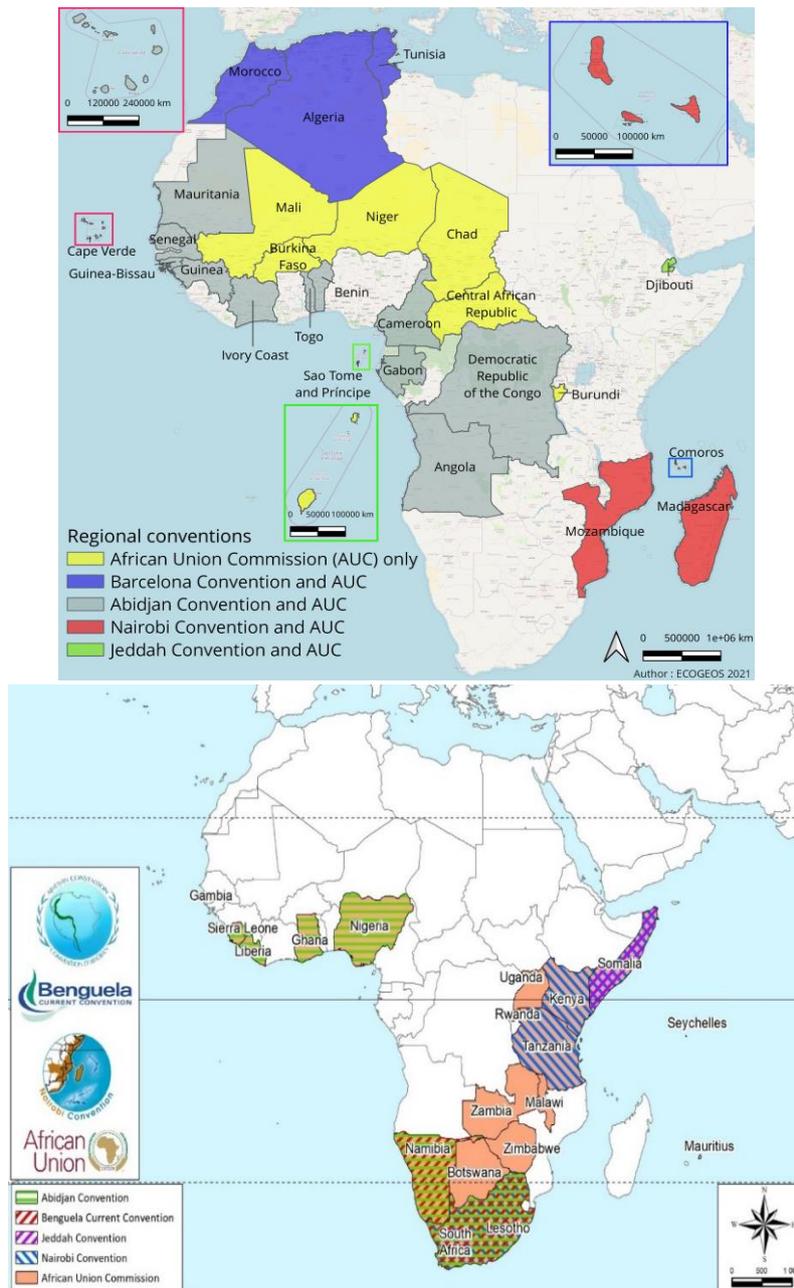


Figure 5. Countries taking part in Regional Conventions.

- **The Barcelona Convention**

The Barcelona Convention was adopted in 1976 to prevent and eliminate pollution in the marine environment and coastal region of the Mediterranean Sea. Its convention, protocols and plans cover marine and land-based sources of waste. It also includes recommendations to develop awareness programmes and enforcement bodies. The literature review identified numerous articles referring to waste management, from measures to eliminate pollution by dumping from ships, to monitoring and assessment programmes for marine litter.

- **The Bamako Convention**

The Bamako Convention, 1991 (ECOLEX, 1991) is a regional intervention which is modelled off the Basel Convention and similarly outlines the strict regulation and movement of hazardous wastes but specifically to and within Africa. It also states that parties are to adopt precautionary waste generation ideals and establish monitoring and regulatory acting authorities to enact on transboundary movement of hazardous waste.

- **The Abidjan Convention**

The Abidjan Convention is a framework agreement made in 1981 for managing the marine and coastal resources of African countries on the Atlantic coast. Its objectives are “to list the sources of pollution that require control” (abidjanconvention.org, 2021) and identify management issues. It covers marine-based sources of litter and has provisions on land-based waste management. The Abidjan convention is also one of only four regional bodies that has a clause on developing awareness programmes on waste.

- **The Benguela Current Convention**

The Benguela Current Convention (BCC) is a multi-sectoral inter-governmental initiative of Angola, Namibia, and South Africa. The Convention promotes the sustainable management and protection of the Benguela Current Large Marine Ecosystem, or BCLME. The Benguela Current Convention has been operational for a decade and has emerged from the precursor natural and fisheries science large marine ecosystem programs. The Convention has been described as a Centralized Authority mode of regional ocean governance. It is funded by GEF (International Waters) and is implemented by UNDP. It will chiefly address transboundary issues in three key areas of activity; the sustainable management and utilisation of living resources; the assessment of environmental variability, ecosystem impacts and improvement of predictability; and maintenance of ecosystem health and management of pollution.

- **The Jeddah Convention**

The Jeddah Convention (which for this study concerns only Djibouti), that entered into force in 1985, has the objective of generating regional cooperation against threats such as marine pollution, depletion of marine resources and overfishing. It covers marine-based sources of waste (preventing pollution, implementing national and regional work programmes, monitoring marine litter) and gives guidelines and goals for land-based waste management. The 2005 protocol also calls for intensive awareness campaigns.

- **The Nairobi Convention**

The Nairobi Convention, which first entered into force in 1996, is part of UNEP’s Regional Seas Programme aiming to “address the accelerating degradation of the world’s oceans and coastal areas” (unep.org/nairobiconvention, 2021). The convention was amended in 2010 to cover the protection, management, and enhancement of the marine and coastal environment of the western Indian ocean. It addresses both marine-based and land-based waste and has a protocol specifically addressing pollution from land-based sources. The convention, along with the associated protocol and action plan, covers illegal dumping and pollution prevention and control, and further actions that will help reduce marine litter (research and monitoring programs of the ocean and coastline, development of national marine litter

management plans, improvement of port waste management facilities).

- **The African Union**

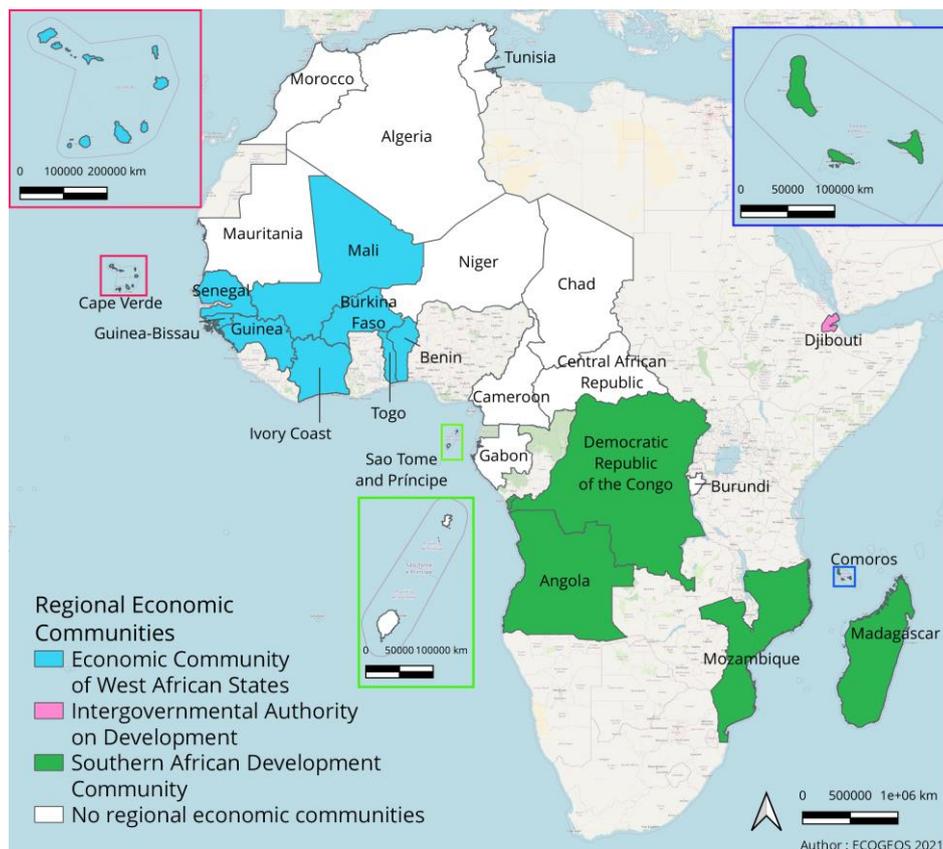
The African Union Commission is the secretariat of the African Union (AU, launched in 2002) and handles its daily operations. Among other activities, it initiates proposals to be submitted to the AU's organs and implements those that are accepted. The Revised Convention on the Conservation of Nature and Natural Resources (revised version adopted in 2017) features articles that cover land-based waste management: by ensuring that non-agricultural land usage such as waste disposal does not encourage pollution and by demanding the establishment of standards for effluents and water quality.

3.3.1.2. REGIONAL ECONOMIC COMMUNITIES

The participation of the study countries in Regional Economic Communities is shown in Figure 7 below.

Among the countries that the United Nations defines as being West Africa, Mauritania and Niger are the ones not taking part in the Economic Community of West African States (ECOWAS). As for the Southern African Development Community (SADC), all the study countries defined within the Geographical Southern Africa are members, in addition to the DRC.

Djibouti, Somalia, Uganda, and Kenya are members of the Intergovernmental Authority on Development (IGAD). It should be noted that all the countries that are shown as not participating in Regional Economic Communities, do participate in one or several of those that were excluded from consideration for this study as they do not mention waste management.



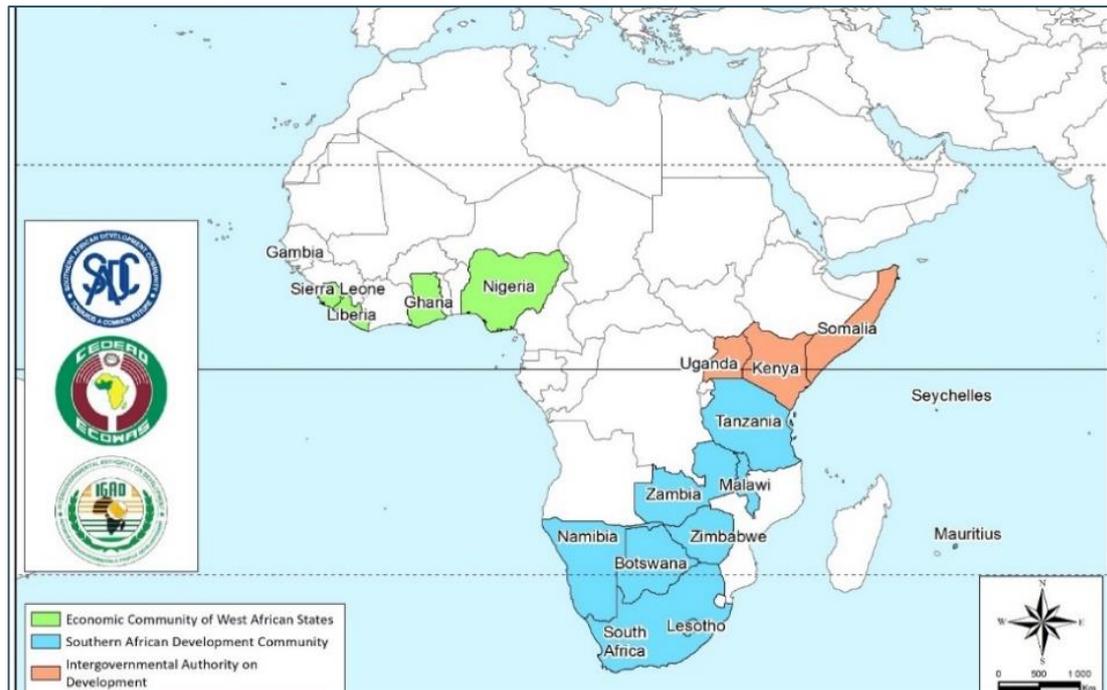


Figure 6. Membership of Regional Economic Communities mentioning waste or pollution management among study countries.

- **The Economic Community of West African States (ECOWAS)**

The ECOWAS, created in 1975 by the treaty of Lagos, aims to build a regional economic and political union and promotes economic integration in “all fields of economic activity”. In its Integrated Maritime Strategy, it includes the implementation of the Abidjan Convention. It also comprises actions on marine and land-based waste management (pollution control on land and at sea), providing data on marine litter and supporting initiatives to protect the marine environment from pollution.

- **The Southern African Development Community (SADC)**

The main objectives of the SADC, which was established in 1992, are to “achieve economic development, peace and security, and growth” (sadc.int, 2021). It has policies on land-based waste management however, contrary to the other two regional economic communities, does not have any policies specifically on marine-based waste management. Regarding land-based waste management, its members are to develop projects on waste management.

- **The Intergovernmental Authority on Development (IGAD)**

The IGAD was created in 1996 to “collectively combat drought and desertification in the region” (igad.int, 2021). Its regional strategy implementation plan from 2016 to 2020 involves a marine litter strategy and the monitoring of marine litter. Its action plan includes the facilitating of regional training on command and control for marine pollution.

3.3.1.3. RIVER BASIN COMMISSIONS

The participation of the study countries in the various river basin commissions is shown below in Figure 8. Amongst the River Basin Commissions that are part of this study, there is no case of a country not taking part in the commission of a river or lake that is part of its territory. Cape Verde, Mauritius, and Seychelles are excluded given that they are Island States.

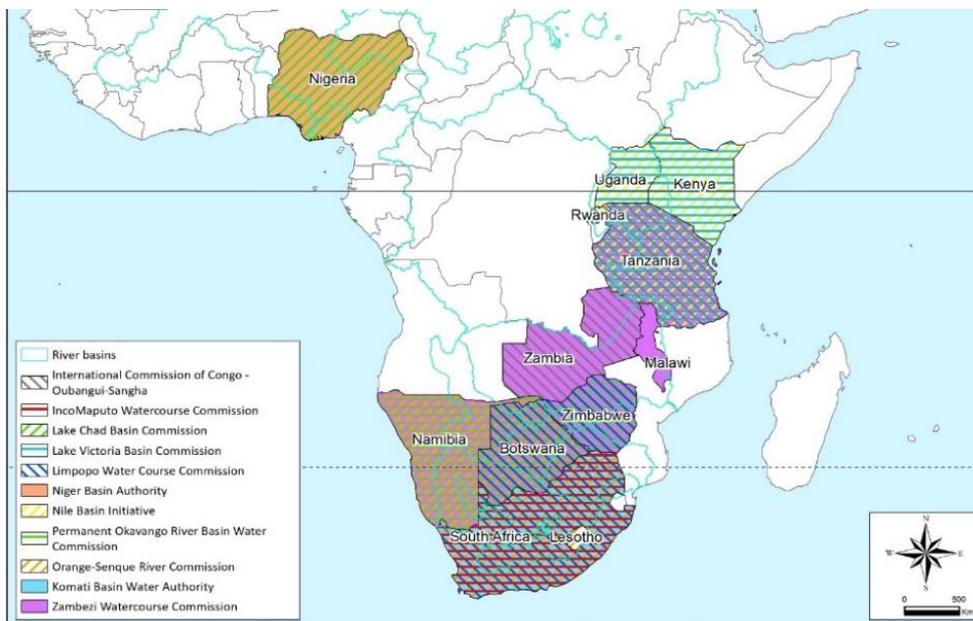
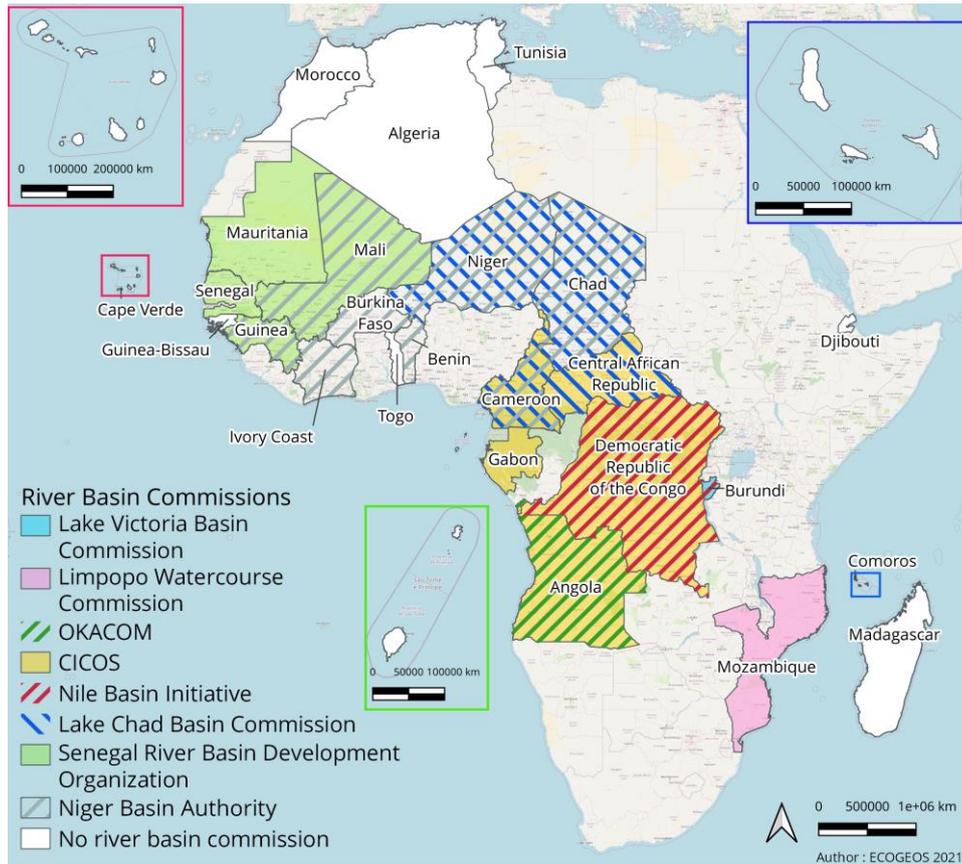


Figure 7. Countries taking part in a River Basin Commission

- **The Niger Basin Authority (NBA)**

The Niger Basin Authority, which was originally created in 1964 as the Niger River Commission, coordinates the efforts of the states of the Niger basin for them to exploit its natural resources. The action plan of 2007 and the convention of 2011 contain articles that cover land-based waste management. Member states must

protect the environment from waste, prevent and limit waste generation. There is also an article on the monitoring of marine litter in the convention, though it does not give precise directives, simply asking member states to acquire the necessary equipment to monitor the quality of the environment.

- **The Lake Chad Basin Commission**

The missions of the Lake Chad Commission, which was created in 1964, are to manage the lake and its resources, preserve its ecosystems and promote regional integration. Its action plan includes land-based waste management (reducing waste from municipal sources) and awareness programmes on waste and wastewater management.

- **The Senegal River Basin Development Organization (OMVS)**

The Senegal River Basin Development Organization (created in 1972) implements the principle of equitable sharing among member states when it comes to the use of the Senegal River. The Charter for the Senegal River features land-based waste management. The Charter states that parties must adopt a common environmental action plan to implement procedures to monitor sources of pollution and effluents.

- **The Permanent Okavango River Basin Water Commission (OKACOM)**

The Okavango River Basin Water Commission treaty was signed in 1994. The goal of the commission is to oversee “the development of the basin and [...] cooperative management of the basin and its shared natural resources” (okacom.org, 2021). While not referring to waste or pollution directly, its Strategic Action Program implies land-based waste management by requiring the establishment of basin-wide water quality monitoring.

- **The Nile Basin Initiative (NBI)**

The Nile Basin Initiative is an intergovernmental partnership established in 1999, allowing State coordination for the “sustainable management and development of the shared Nile Basin water and related resources” (nilebasin.org, 2021). The Initiative established an Environmental and Social Policy tackling “key environmental and social issues and challenges” (nilebasin.org, 2021) which may address waste management; however, this document is not available online.

- **The International Commission of the Congo-Oubangui-Sangha Basin (CICOS)**

The CICOS (created in 1999) covers the need of the countries from the Congo River basin to manage the river’s resources in a collective way. In 2021, the CICOS has begun the process of elaborating common regulations on riverine unit and port waste management for its member states. Prior to this project, there is no occurrence of waste management provisions in CICOS regulations.

- **The Limpopo Watercourse Commission (LIMCOM)**

The Agreement for the Establishment of the Limpopo Watercourse Commission, signed in 2003, aims to “advise the Members States and provide recommendations on the uses of the Limpopo” (sadc.int, 2021). The Limpopo Watercourse Commission Agreement is not available online, so it is therefore unknown whether the agreement contains articles on waste management.

- **The Lake Victoria Basin Commission (LVBC)**

The Lake Victoria Basin Commission is a “specialized institution of the East African Community” (lvbcom.org, 2021), established in 2005. The purpose of the Commission is to “coordinate sustainable development and management of the Lake Victoria Basin” (lvbcom.org, 2021). Their inception report on integrated water resources management gives key policy directions harmonized with respect to transboundary lake basin management. Those policy directions correspond to land-based waste management where effluents must be reduced through targeted infrastructure.

3.3.2. Regional gap analysis

Table 11. Gap Analysis of regulatory framework on marine litter at a regional level.

Source	Element of Ideal Legislation	Regional Conventions						Economic Communities			River Basin Commissions							
		Barcelona Conv.	Abidjan Conv.	Jeddah Conv.	Bamako Conv.	Nairobi Conv.	African Union	ECOWAS	SADC	IGAD	NBA	Lake Chad Basin	OMVS	OKACOM	NBI	CICOS	LIMCOM	LVBC
Availability of information																		
Marine-based	Marine-based management																	
	Marine litter strategy																	
	Monitoring marine litter																	
Land-based	Land-based management																	
	Port waste management																	
All	Awareness programme																	
	Monitoring waste management																	
	Waste management governing body																	



Legend:

Aligns with the Ideal legislation	Aspect not applicable to the regional body
Implementation of the Abidjan Convention	Information easily available
Partially aligns with the Ideal Legislation	Information difficult to access
No legislation in place	

3.3.2.1. SWOT ANALYSIS OF REGIONAL LEVEL

Based on the analysis of regional regulations (Table 11) relating to marine litter, a number of strengths and weaknesses were identified in the current regulatory frameworks as well as opportunities and threats regarding the development of the regulatory framework on marine litter. Thus, the following **SWOT analysis addresses the issues of the current state of regulations** (Table 12).

Table 12. SWOT analysis of current regional regulatory frameworks.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Existence of regional bodies that already have regulations on waste management and/or marine litter • Land-based waste management well covered at this level • Regional Conventions thoroughly cover marine-and land-based sources 	<ul style="list-style-type: none"> • Land-based waste management (including marine litter transported via transboundary rivers) is not considered by several River Basin Commissions • Elements such as awareness, monitoring, governance and enforcement poorly covered at this level • Landlocked countries (not covered by regional conventions) have less access to regional level waste management actions
Opportunities	Threats
<ul style="list-style-type: none"> • Regional bodies are already in place to develop and implement transboundary waste management plans (particularly relevant to River Basin Commissions) • Regional level bodies assist in driving national level action 	<ul style="list-style-type: none"> • Waste management/marine litter not recognised as a significant issue outside of Regional Conventions • Regional level regulatory framework not applied at the national level across all member states

3.3.2.2. DISCUSSION OF REGIONAL GAPS

Intergovernmental organisations such as SADC, ECOWAS, EAC, and the AU, govern common regional African interests. All elements of the ideal legislation addressing marine-based sources of marine litter are covered by each of the regional conventions and are well-structured organisations strategically positioned to implement environmental issues regionally and nationally. The Regional Economic Communities have some documentation that addresses the management and monitoring of marine-based sources of marine litter, even though it may not be their primary objective. Currently, these organisations address mostly economic and social issues. While environmental issues are beginning to be incorporated with higher priority status, they could benefit from being widely integrated into regional and continental agendas for countries to follow. The ECOWAS is the most developed of these, its Integrated Maritime Strategy includes an action to implement the Abidjan Convention, which has a greater focus on waste management. Marine-based waste was not considered relevant to the River Basin Commissions.

Land-based waste management is also addressed by all the regional conventions as well as two out of the three economic communities. River Basin Commissions largely do not address waste management in their documentation. This is likely due to their historical focus on water resources; most were created to ensure the fair distribution of water during droughts and manage the use of waterways by all parties. Three out of eight River Basin Commissions make no mention of land-based waste management, or their documents are not available online.

In relation to the elements of ideal legislation covering all sources of marine litter, the regional conventions generally support the development of awareness programmes and education activities targeting the

general public and/or decision-makers and authorities. This aspect was addressed by only two of the 12 other regional bodies (ECOWAS and the Lake Chad Basin Commission which includes awareness programmes on waste management in its action plan). Aspects such as monitoring waste management and bodies for waste management and enforcement are largely not addressed at the regional level.

The independent development of waste management goals and practices can cause some countries to be very advanced while others fall behind, dependent on the various challenges faced in the countries. Regional waste management guides can be useful as they allow regions to advance in a uniform way by using common goals and shared practices, which may allow for more cohesive management into the future.

The Bamako Convention is a regional agreement that contextualises the Basel Convention within the African perspective. It seeks to improve on some of the Basel Convention matters by creating stricter prohibitions for the transboundary movement of hazardous waste. However, many African countries are not ratified or have acceded into this convention, namely, Botswana, Malawi, Namibia, Algeria, Morocco, and Cape Verde. A further 15 African countries were found to only have simple signatures, however no ratification/accession. Therefore, this is considered to be a gap as the Bamako Convention strengthens the prohibition of all hazardous waste importation and does not make exceptions for certain types of hazardous waste (e.g., radioactive materials), whereas the Basel Convention does.

At present, e-waste falls under a sub-category of hazardous waste. Recently, the Basel Convention has created specific guidelines to address the transboundary movement and handling of e-waste. However, this is only effective if the products are labelled as e-waste. Second-hand and near end-of-life electronic equipment or plastic products enter many African countries under market pretences (e.g., for repairs), even though many of these products have a very short shelf life and are largely obsolete e-waste. This loophole in the importation of e-waste recreates a major problem in effectively controlling the movement of e-waste into Africa.

In conclusion, it appears that, while many of the elements of the ideal regulatory framework are covered within conventions, waste management is yet to be incorporated as priorities for other regional bodies. As landlocked countries are not eligible to be members of the regional conventions (besides the African Union which is continental), this excludes these countries from many of the regional-level actions focused on waste management and combatting marine litter. As marine litter results largely from waste from land-based activities, with transport through rivers one of the key pathways, it is necessary that the issue be recognised and acted on through all relevant regional bodies.

3.4. National level

3.4.1. Country analysis using the sourced-based approach

3.4.1.1. ALGERIA

Algeria has been establishing laws to regulate waste management since 2001. Although these laws do not cover all the aspects of the ideal legislation, there is a solid existing framework with the existence of a national waste management plan, the creation of a government body aimed at promoting and monitoring this national plan and an awareness program on the impacts of waste. There also seems to be urban planning and environmental police responsible for enforcing current legislation, however the relevant regulations were not found online. On the other hand, at present there does not seem to be an official marine litter strategy.

Regarding the reduction of waste at source, there is no law prohibiting the distribution and use of single-use plastics. But there are incentives to stop the sale of products that generate non-biodegradable waste.

The collection, transport and treatment of household waste are the responsibility of the municipalities.

Operational responsibility for waste management is therefore not at national level.

Algeria does not have any laws requiring recycling, however there are tax incentives for companies using recycling practices.

The establishment and management of landfill and waste treatment facilities are subject to compliance with technical standards and require impact assessments and authorization from local authorities for their operation. It should be noted that the law prohibits the construction of these facilities along the coastline. The law indicates that industrial waste must be treated at approved facilities.

No specific legislation strictly prohibiting the dumping of household waste or waste at sea was identified, however disposal of waste at sea is subject to authorization from the Ministry of the Environment.

3.4.1.2. BENIN

Benin has integrated the management of its waste into its regulations for many years. Indeed, since 1987 Benin has passed various legal texts establishing a framework for waste management in its territory. Ever since, new legal texts have been added to this regulatory framework. Since 2003, it has been defined by decree that the Ministry of the Environment establishes a national waste management plan, including the monitoring of waste production and the establishment of objectives. In 2001, an environmental police force was created to ensure the enforcement of regulations. On a more local scale, a Waste Management and Urban Sanitation Company was created by decree by the government in 2018 to pilot the waste management mission in the Grand Nokoué region. Benin has not yet created national marine litter strategy or a specific program to raise public awareness of the challenges of waste management.

Regarding the reduction of waste at source, a law dating from 2017 prohibits the production, import, marketing, and distribution of non-biodegradable plastic bags. This same law also prohibits the illegal deposit of plastic bags.

The collection and pre-collection of waste are regulated. It is established by decree that all building occupants have the right to have their household waste collected. These must be conditioned and sent to approved storage and treatment facilities in suitable bins. Illegal dumping of household and industrial waste is prohibited.

Benin does not have any law requiring recycling. The location, design and operation of waste storage and treatment sites must be approved by the Ministry of the Environment. These must be located at a minimum distance from water sources.

There does not seem to be any specific legislation concerning the management of waste from marine-based sources, except for a ban on the disposal of waste liable to degrade the quality of maritime waters, including waste from ships.

3.4.1.3. BURKINA FASO

Burkina Faso has established laws aimed at regulating waste management since 2000, which were reinforced in 2005 through the establishment of the public hygiene code. Although Burkina Faso does not have an official waste management strategy on its territory, a National Environment and Sustainable Development Observatory monitors waste management. The country does not have a specific program to raise public awareness about the challenges of waste management.

Regarding the reduction of waste at source, a 2014 law prohibits the production, import, marketing and distribution of non-biodegradable plastic bags and packaging. In addition, a law of the Environment Code stipulates that any producer of industrial waste must adopt procedures to minimize the quantity produced.

The collection and pre-collection of waste are regulated. The local communities are obliged to implement an appropriate household waste management system. In urban areas, waste must be placed in closed bins, or placed in dumps authorized by the competent authorities. It is prohibited to carry out illegal dumping of household and industrial waste in public spaces, in particular infrastructure such as stormwater drains, or

in the natural environment.

Burkina Faso does not currently have a law requiring recycling.

It is legally established that waste from all sources must be treated in order to avoid or reduce impacts on the environment. Public authorities must take the necessary measures to design and manage waste storage and treatment facilities. The operation of these facilities is subject to authorization by the public administration, through impact assessment procedures.

3.4.1.4. CAMEROON

Since 1996, Cameroon has established various laws covering all stages of a national waste management system. Cameroon has defined a National Strategy for Waste Management. Responsibility for waste management in the country lies with local authorities, in conjunction with the State. The environmental and education administrations are responsible for organizing public awareness campaigns.

Regarding the reduction of waste at source, in 2012 Cameroon banned the production, import, sale and distribution of non-biodegradable plastic packaging.

The conditions for collection, sorting, transport, recovery, recycling, and all other forms of treatment as well as final disposal are set by decree. Collection is the responsibility of local authorities. The law also prohibits any form of illegal dumping of household or industrial waste in public and natural spaces, including marine environments.

The 2012 ban on plastic packaging also stipulates that any manufacturer, importer or distributor of non-biodegradable plastic packaging, glass, or metal, must put in place a deposit system to assist in their collection with a view to their recycling. At least 80% of the quantity manufactured or imported must be recovered or recycled.

Waste disposal must take place in facilities that are periodically inspected and meet minimum technical standards. Landfilling of waste can only be done with the authorization of the authorities who set the technical requirements and conditions to be observed.

Cameroon does not yet have an official marine litter strategy, nor any specific legislation concerning marine-based waste management, apart from the ban on the dumping of waste likely to degrade the quality of maritime waters.

3.4.1.5. CAPE VERDE

Cape Verde does not yet have legislation regarding all the stages of a comprehensive waste management system and some aspects of its legislation are relatively recent. The country has established a national strategic waste management plan for 2015-2030 and, in 2020, approved the creation of a legal regime for urban waste management services regulating the organization of waste management on its territory. Before these recent regulatory changes, the country had already incorporated laws relating to waste management, in particular regarding the prevention of water pollution, under the jurisdiction of the maritime authorities. However, there is not a national marine litter strategy.

Regarding the reduction of waste at source, a 2015 law prohibits the production, import, marketing and use of plastic bags and packaging, and sets targets in this regard. It also regulates the application of measures aimed at gradually reducing the quantity of these plastic bags in the environment or their replacement by biodegradable bags. This law also encourages environmental associations to develop consumer awareness campaigns on the importance of reducing the consumption of plastic bags.

The regulatory framework defines the management model and entities involved in providing urban waste management services. In general, the management of household waste is the responsibility of municipalities. The legislation allows for the mutualisation of the municipal systems that provide these services, through inter-municipal arrangements, and allows its management to be undertaken in collaboration with private sector. Cape Verde does not have specific legislation related to recycling.

Technical standards for the establishment and management of landfills and waste treatment facilities are defined by law. The operator of a waste treatment facility is responsible for monitoring its operations. Waste cannot be landfilled without meeting certain acceptability criteria.

Marine-based waste is subject to regulations. It is established the general principle of ban of dumping or immersion of all water and harmful wastes, as well as all other substances likely to cause any kind of pollution, in all areas under the jurisdiction of the maritime authorities

3.4.1.6. CENTRAL AFRICAN REPUBLIC

The Central African Republic has a regulatory framework for waste management which is incomplete, as it only concerns the collection and disposal stages. The key regulatory texts are the public hygiene code (2005) and environment code (2007). There is no official strategy or specific body in charge of waste management.

The environmental code stipulates that the state guarantees all citizens the right to environmental education, but the issue of waste is not specifically stipulated. Public and private institutions in charge of education must participate in educating populations about environmental issues. However, there is no specific national awareness campaign on waste prevention and management.

Regarding the reduction of waste at source, the Central African Republic does not have a specific law on the prohibition of single-use plastics. Nor does the country have specific legislation on recycling, in a compulsory or incentive manner.

Responsibility for the management of waste and wastewater, particularly industrial, rests with the waste generators. The conditions for carrying out collection, sorting, storage, transport, recovery, recycling, all other forms of treatment and elimination are set by regulation.

The law prohibits any form of illegal dumping of household or industrial waste, and untreated wastewater, in public spaces and the natural environment. Local communities are responsible for the elimination of household waste, potentially in collaboration with the regional and municipal services, and according to the regulations in force. Landfilling of waste must be done in approved facilities, subject to periodic inspections and respecting technical management standards.

3.4.1.7. COMOROS

The Comoros established regulations relating to waste management in 1994 through a framework law relating to the environment which covers certain stages of the waste management system. The responsibility for the management of household waste is defined as a public service, at the national level and through the local administrative authorities. However, this legislation does not provide a very precise legal framework. Furthermore, it does not appear that a strategy, associated with objectives and follow-up measures, is officially defined.

Regarding the reduction of waste at source, the law prohibits the production, import, marketing and distribution of non-biodegradable plastic bags and packaging. There is, however, no specific program to raise awareness of waste prevention and management.

The collection, treatment and disposal of household waste are the responsibility of public structures. On the other hand, the management of industrial waste is the responsibility of waste generators. No legislation exists requiring recycling.

The location, design and operation of waste storage and treatment facilities must be approved by the Ministry of the Environment however, no clearly established technical reference standards were identified.

Marine-based waste is subject to regulations; it is prohibited to dump waste from ships at sea if such waste poses a risk to the marine environment. It should be noted that the preservation of the quality of water, especially marine waters, is subject to special attention in Comorian legislation as the discharge of waste at sea is prohibited by the constitution.

3.4.1.8. DEMOCRATIC REPUBLIC OF CONGO

The Democratic Republic of Congo (DRC) seems to have few laws governing waste management. Although a 2011 law on fundamental principles relating to environmental protection stipulates that the State and decentralized territorial entities must ensure waste management, there is no policy, strategy, or public body in charge of waste management. There is, however, a national monitoring and control body whose mission consists of collecting data on marine pollution.

Regarding the reduction of waste at source, a 2017 decree prohibits the production, import, marketing and use of plastic bags and packaging. The decree also creates a financial incentive for the recycling of plastic packaging and other products.

There are existing laws concerning the prohibition of illegal dumping of household and industrial waste in the natural environment, including maritime and continental waters. However, there is currently no regulatory framework to structure the waste collection and treatment system. Responsibility for waste management is fully delegated to the waste generators. The 2011 law outlining the fundamental principles relating to environmental protection stipulates that anyone who produces or stores waste is responsible for its management.

3.4.1.9. DJIBOUTI

The Republic of Djibouti has relatively few laws governing waste management with the majority of stipulations on waste management contained within the 2009 environmental code, dating from 2009 and addressing the concept of waste, the regulatory framework is not currently comprehensive. There is no legislated collection system, instead any person who produces or possesses waste must ensure its elimination or recycling, either themselves or through companies approved by the Ministry of the Environment.

In 2016 the country introduced a ban on the import and use of plastic bags and packaging, however this did not include precise definitions of the types of waste included or excluded from the ban, nor the penalties for violation.

3.4.1.10. GABON

Gabon has a relatively limited regulatory framework for waste management. The major existing texts are a law dating from 1993 relating to the protection and improvement of the environment and a 2005 decree regulating waste disposal. The law requires that waste be “collected, treated and disposed of to eliminate or reduce their harmful effects to health, natural resources and the quality of the environment” and stipulates that this must be undertaken in conformity with current legislation. Responsibility for waste disposal is attributed to local governments.

While there is no legislation covering awareness raising, nor an existing strategy on waste management or marine litter, the environment ministry is responsible for monitoring and prevention of pollution and waste and monitoring continental waters to establish their degree of pollution. In relation to waste avoidance, a plastic bag ban was passed in 2010.

Littering and illegal dumping are banned both on land and at sea, as is discharge of wastewater or effluents that may harm the quality of the environment. The law on environmental protection also stipulates that the siting and management of landfills must be undertaken to reduce harmful impacts and in conformity with current regulations.

3.4.1.11. GUINEA

The regulatory framework on marine litter and waste management in Guinea is not comprehensive. Laws have existed since 1989 on certain stages of the overall waste management system and a strategy was established in 2019, but without necessarily regulatory support or clear definition of responsibilities. There

is a national sanitation and public hygiene agency responsible for establishing a comprehensive waste management policy, but there does not appear to be any monitoring and management of this policy. Furthermore, there currently no official marine litter strategy.

The public and private bodies in charge of education, research or information are required to educate their citizens on environmental issues, however this makes no specific mention of waste management or marine litter. Regarding the reduction of waste at source, there is not any law regulating the use of single-use plastics, a national strategy sets reduction targets.

The regulatory framework for the collection and treatment of waste includes a ban on illegal dumping of household and industrial waste, including in maritime and continental waters. The conditions for waste collection are defined in an urban environment and are the responsibility of the road services. It is also forbidden to discharge wastewater into the natural environment without prior treatment.

No legislation appears to be in place establishing the obligation to recycle, but objectives have been set in favour of improving the capacity for collecting recyclable waste as well as its treatment.

Technical standards for the design and management of waste storage and treatment facilities are defined by the public health ministry, as well as the location of these facilities.

No legislation currently exists regarding the management of waste from marine-based sources.

3.4.1.12. IVORY COAST

The Ivory Coast has legislation covering the different stages of a waste management system. This regulatory framework began to be established in 1996 through the environment code and has subsequently been reinforced by various decrees. Waste management is defined as being the responsibility of the municipalities. In addition, a national waste management agency, ANAGED, was created in 2017 to participate in the development and implementation of household waste management policy and infrastructure. There is not currently an official marine litter policy, despite the existence of a law establishing the maritime code and making certain provisions relating to the removal, storage and treatment of waste from ships.

Regarding the reduction of waste at source, in 2013 the country introduced a ban on the manufacture, distribution and use of plastic bags. No restrictions have yet been implemented on the use of single-use plastics.

ANAGED is developing communication and awareness campaigns to improve citizens' knowledge and practices in waste reduction and management.

A regulatory framework for the collection and treatment of waste is defined. It includes a ban on illegal dumping of household and industrial waste in public and natural areas, including sea. All wastes must be collected, treated, and disposed of in an environmentally sound manner to prevent, eliminate or reduce harmful effects on the environment. It is also forbidden to discharge wastewater into the natural environment without prior treatment.

Ivory Coast does not have any law requiring recycling but has implemented tax incentives for companies using recycling practices.

The regulatory framework for waste treatment is also defined. It is stated that each local authority must have at least one landfill subject to controls. The disposal of non-toxic waste can only be undertaken with approval and in compliance with the conditions and technical rules defined by decree, however this does not refer to the location of waste treatment and storage facilities in relation to the coastline or water courses.

3.4.1.13. MALI

Mali has legislation covering most of the different stages of a waste management system. The key texts

include a 2001 decree fixing the methods of solid waste management, and another passed in 2014 fixing the details of the powers transferred from the State to the local authorities in the field of sanitation and the fight against pollution. Thus, there is no national waste management policy, nor a specific dedicated body, rather it is stipulated that the municipalities are responsible for the implementation of public sanitation services and the cantons monitoring and evaluation of actions to fight against pollution. In terms of education, local administrations are responsible for implementing awareness programs on sanitation.

Regarding the reduction of waste at source, in 2014 the country introduced a ban on the manufacture, distribution and use of plastic bags. No regulations have been implemented to limit the use of single-use plastics.

Regarding the collection and treatment of waste, the law stipulates that it is the responsibility of the competent local administration, along with the relevant technical services and the regional governments, to set up plans and conditions for the waste collection and disposal. In addition, a 2017 decree establishes a legal framework relating to pre-collection conditions. It is stipulated that all households must have bins to contain their waste, that these should be sealed with a cover and kept closed and must not overflow. It is forbidden to deposit waste on the ground or in a non-compliant container. The law includes a ban on illegal dumping of household and industrial waste in public spaces. It is also forbidden to discharge wastewater into the natural environment without prior treatment.

In 2001, Mali established a law stipulating that any producer or distributor of plastics or other non-biodegradable packaging is required to recover these materials with a view to their recycling, thus requiring a system to be established for their collection and their orientation towards facilities for reuse or recycling.

The regulatory framework for waste treatment is also well-defined. It stipulates that the establishment of landfills is subject to authorization from the Ministry of the Environment. The authorization indicates the specific rules of treatment and disposal. The regulations include obligations relating to the location of landfills, which cannot be located in an area likely to alter the quality of the waterways or negatively affect the inland ports. Prior authorization is also required for any facility or company carrying out the collection, sorting, transport, storage, elimination, or recovery of waste.

3.4.1.14. MAURITANIA

Mauritania has established legislation covering the various stages of a national waste management system, particularly since 2000 through the law of the environment. The law stipulates that the collection and disposal of waste is the responsibility of administrative authorities or local communities. Mauritania has established a national waste management strategy, however the document was not able to be obtained online. A Pollution and Environmental Emergencies Department is responsible for promoting local waste management strategies, monitoring waste treatment and disposal operations, and supporting local businesses in considering the environment. The country also has an environmental police force responsible for enforcing environmental regulations and preventing and controlling any environmental violations.

Although the country does not yet have a marine litter policy, a law on the merchant marine code establishes a regulatory framework banning the disposal of waste at sea and specifying requirements for port waste management facilities and the establishment of a Waste Reception and Management Plan by port authorities.

Regarding the reduction of waste at source, in 2012 the country introduced a ban on the manufacture, distribution and use of plastic bags. There are no current regulations that apply to single-use plastics. In terms of awareness, one of the missions of the environmental police is to inform and educate the population on environmental issues, but the issue of waste is not specifically stipulated.

Mauritania does not have specific legislation requiring or incentivising recycling.

Regarding the collection and treatment of waste, the law stipulates that anyone who generates, or stores waste is responsible for its disposal or recycling, or to have it done by an approved company. Otherwise, it must be handed over to the local authority or to any company approved by the State for waste management. In addition, all public buildings must have an appropriate system for the disposal of solid and liquid waste.

The law also includes a ban on illegal dumping of waste and wastewater in public areas. Wastewater must be discharged into the public sewer system, or in the absence of this network, each building must have suitable sanitary facilities that comply with the regulations.

Classified industrial installations are subject to specifications which define the general conditions for the disposal of industrial waste. It should also be noted that the legislation states that there can be no new construction within 500m of the coast without having previously carried out an environmental impact study.

3.4.1.15. MOROCCO

Morocco has established a regulatory framework covering the different stages of the waste management system. A national strategy has been in place since 2006. Morocco has defined waste management as the responsibility of the public service. Different national programs and regional plans allow the monitoring and management of waste in the country. Although there not yet a marine litter policy, this is under development and a monitoring program allows the monitoring of marine pollution is already in place, including measurements of micro plastics and marine litter.

Regarding the reduction of waste at source, the country introduced a ban on the manufacture, distribution and use of plastic bags in 2015. No regulations have yet been applied to single-use plastics.

The implementation of recycling is also integrated into Moroccan legislation, but only through a framework law which does not define the precise regulatory modalities of recycling systems. However, Morocco has set recycling targets as part of a national program.

The regulatory framework for the collection and treatment of waste is clearly defined. It includes the ban on illegal dumping of household and industrial waste. It is also forbidden to discharge wastewater into the natural environment without prior treatment. The technical standards for the design and management of waste storage and treatment facilities are defined by decrees and their operation is subject to controls.

Legislation concerning the management of waste from marine-based sources is more limited. A decree regulating maritime fishing prohibits the discharge of substances likely to cause pollution, however there is not yet legislation defining the management of waste on ships and at ports. However, a draft law on the use of port reception facilities by ships, setting rules on how waste must be unloaded was identified.

3.4.1.16. MOZAMBIQUE

Mozambique has legislation in place covering different stages of the waste management system. This regulatory framework is defined mainly by two decrees dating from 2014, one relating to household waste and the other to industrial waste. There is not yet either an official strategy, or a national body responsible for monitoring and supervising waste management. Although there does not seem to be a clearly defined strategy for marine litter, this issue has been considered in regulations for many years. A 2006 decree (which replaced a previous version published in 1973) aims to establish the legal bases for the protection and conservation of maritime areas and other fragile aquatic areas.

In terms of educating the population, municipal councils and district governments are responsible for promoting awareness programs on the importance of good waste management and disseminating good practices.

Regarding the reduction of waste at source, the country implemented a ban of plastic bags of less than 30µm in 2016. Legislation is also in place in relation to source separation, recycling, and recovery (regulation on the management of solid urban waste, 2014) and Extended Producer Responsibility (regulation on the Extended Responsibility of producers and importers of packaging, 2017).

The regulatory framework for the collection and treatment of waste is clearly defined. Municipal councils or district governments establish and approve procedures for the household waste collection and transportation and the treatment and recovery systems. The law also includes the ban on illegal dumping. Final waste disposal should comply with operational standards set by the Ministry of the Environment and

should be carried out in controlled landfills.

The 2006 Decree for the Prevention of Pollution of the Marine Environment and Coastal Regulation aims to prevent and limit pollution resulting from illegal discharges from ships, platforms, or land sources off the Mozambican coast.

3.4.1.17. SOURCE-BASED NATIONAL GAP ANALYSIS

Table 13. Gap Analysis of regulatory framework on marine litter at a national level.

Source	Element of Ideal Legislation	Coastal countries										Landlocked countries			Island nations			
		Algeria	Benin	Cameroon	DRC	Djibouti	Gabon	Guinea	Ivory Coast	Mauritania	Morocco	Mozambique	Burkina Faso	Central African Rep	Mali	Comoros	Cape Verde	
Availability of information																		
Land-based	Plastic bags ban																	
	Single-use plastics ban																	
	Awareness program																	
	Separate waste collection																	
	EPR																	
	Legislated collection system																	
	Pre-collection and transport																	
	Improving recycling rate																	
	Landfill sites standards																	
	Ban on MSW illegal dumping																	
	Waste in stormwater drains																	
	Ban on microbeads in cosmetics																	
	Microplastic filters on washing machines																	

Source	Element of Ideal Legislation	Coastal countries											Landlocked countries			Island nations	
		Algeria	Benin	Cameroon	DRC	Djibouti	Gabon	Guinea	Ivory Coast	Mauritania	Morocco	Mozambique	Burkina Faso	Central African Rep	Mali	Comoros	Cape Verde
Marine-based	Ban on discharge of untreated sewage																
	Ban on industrial waste illegal dumping																
	Waste facilities at ports									*							
	Ban on illegal dumping at sea																
	Ban on illegal dumping at ports									*							
All	Strategy on marine litter																
	Policy or body to monitor waste management/marine litter																
	Body to govern waste management and enforce policy and legislation																

Legend:

	Good availability of information
	Some documents missing
	Indicating policies, legislation, agreements etc that align with the ideal legislation
	Indicating those that partially align with the ideal legislation
*	Indicating existence of a draft law
	Indicating that no policies, legislation, agreements are in place
	Indicating that this may align with the ideal legislation, but the document text could not be accessed
	Element not applicable

3.4.1.18. SWOT ANALYSIS OF NATIONAL LEVEL

Based on the analysis of regional regulations (Table 13) relating to marine litter, a number of strengths and weaknesses were identified in the current regulatory frameworks as well as opportunities and threats regarding the development of the regulatory framework on marine litter. Thus, the following **SWOT analysis addresses the issues of the current state of regulations** (Table 14).

Table 14. SWOT analysis of current national regulatory frameworks.

Strengths	Weaknesses
<ul style="list-style-type: none"> • All countries have some elements of the ideal legislation in place • Some countries have an extensive regulatory framework for every stage of waste management including strategy and waste monitoring • Existence of a regulatory framework for waste collection in a number of countries • Landfill siting and management are regulated in most countries, some requiring a minimum distance from coastlines or inland waters • Ban of illegal dumping of household and industrial waste is covered in most regulations • Plastic bag bans are in place in most countries 	<ul style="list-style-type: none"> • Absence of marine litter strategy and no mention of marine pollution in most regulations • Regulations do not always cover marine-based source of waste (at sea and ports) • National strategies for waste management, including defined targets, are mostly not established, or lack follow up to ensure that they are attained • Most regulatory frameworks currently lack the following priority elements: <ul style="list-style-type: none"> ○ Awareness programme ○ Policy or body for monitoring waste management and marine litter ○ Designated bodies to govern waste management and enforce policy and legislation
Opportunities	Threats
<ul style="list-style-type: none"> • Advanced countries with a strong regulatory framework can be source of inspiration and information for other countries nearby and can provide feedback from an African context on measures taken (Development of regulations based on avoidance (e.g., reducing use of single-use plastics)) • Possibility to reduce waste generation and dumping through awareness programmes • Development of regulations on source separation and recycling • Creation of dedicated national agencies to drive waste management legislation and enforcement 	<ul style="list-style-type: none"> • Government priorities given to sectors other than marine litter and waste management • Risk that practices may not comply with law due to the lack of enforcement bodies • Inefficiency of marine litter regulatory framework in terms of environmental impacts if other countries nearby do not stick to the same level of regulations • Difference of level of regulations between countries may generate unexpected transboundary waste transportation

3.4.1.19. DISCUSSION OF NATIONAL GAPS

As shown in Table 13, the topic of marine litter is not specifically addressed in most national regulations. None of the study countries currently have a dedicated marine litter strategy (although at least one is under development), nor any regulation on marine litter monitoring.

However, as the prevention of marine litter relies heavily on an effective waste management system, particularly for MSW, many countries do have regulatory frameworks which address marine litter through their legislation on waste management. It can however be noted that across the study countries there were significant differences in the level of development of these national regulatory frameworks.

Some countries (Morocco, Benin, Mauritania, Burkina Faso, Ivory Coast) have a relatively well-defined and structured waste management system. National strategies exist and government authorities enable the enforcement of regulations and the monitoring of these strategies by setting up measures and controls. However, most studied countries do not currently have these management structures in place. Their

regulatory frameworks are very general, without any precise laws or defined objectives for waste management, containing only some general prohibitions and assigning responsibilities, mostly to state or local authorities. Thus, while it should be noted that almost all studied countries include the prohibition of illegal dumping in their legislation, some countries do not seem to have a precise regulatory framework structuring the implementation of waste management services. This is a good starting point for all countries, in order to define global objectives and directions, however it can be interesting to develop more specific regulations to help achieved these goals.

Another important point of the ideal legislation corresponds to the challenges of raising awareness and educating populations on avoidance and management of waste. Awareness of the issues related to waste is key in correct use and development of the waste management system. However, this aspect is absent from the legislation of a significant number of countries, or only appears in the definition of responsibilities. Only the Ivory Coast and Guinea currently have national communication and awareness campaigns in place in relation to waste.

Nevertheless, it is interesting to note that regulatory measures have been put in place in regard to waste avoidance. Most studied countries have included the ban on single-use plastics in their legislation, with some examples in place for nearly 10 years (Cameroon, Mauritania).

On the other hand, source separation and recycling are generally not included within most regulatory frameworks among the studied countries. Only five countries have taken regulatory measures to promote separate collection of waste. Other countries (Ivory Coast, Morocco) have set goals, while other (Guinea, Algeria) have set up tax incentives.

In addition, most studied countries have established regulatory standards for the establishment and management of landfills and waste treatment facilities. Only two countries (Democratic Republic of Congo and Djibouti) do not have any legislation in this regard. However, among all the other countries, the level of precision within the regulations varies. It is interesting to note that in some countries (Algeria, Benin, Mali, Mauritania) these standards mention specifically the location of waste disposal sites in relation to the coastline or inland waters.

Among the elements of ideal legislation, some are completely absent from the regulations of the studied countries, particularly those classified as 'desirable'. Legislation concerning microplastics in wastewater (through restricting their use in products or requiring specific filters) does not appear in any country. This aspect of legislation is not a priority, however it is interesting to be considered in long-term efforts to prevent marine litter of all sizes. Similarly, no country has included Extended Producer Responsibility systems in its regulatory framework. Nevertheless, it is interesting to note that Mozambique legislation aims to adopt principles, standards, and guidelines for the responsibilities of producers and importers of packaging.

Another aspect that is absent from the regulations of most studied countries is the management of waste from marine-based sources. Apart from the ban on waste dumping at sea, which is included in the legislation of several countries, nearly none of the study countries has regulations relating specifically to the management of waste on ships and at ports. The legislation on marine-based sources of waste focuses on dumping bans but does not give precise directions on how to prevent illegal dumping. However, the island countries (Comoros, Cape Verde) and Ivory Coast seem to have slightly more detailed legislation. For many years, Cape Verde has had in place laws relating to waste management for the prevention of water pollution, under the jurisdiction of their maritime authorities. As mentioned previously, water quality, especially maritime, is protected under the Comorian constitution. Mauritania stands out from other countries on this issue as it has a much more extensive regulatory framework, notably governing the management of port waste.

Finally, although legislation on waste management exist in all countries, the structure of the regulatory framework depends also on state responsibility and involvement on waste management which varies from one country to the another. Countries like Morocco and the Comoros have legally defined waste management as a public service, with strong oversight at the national level. In other countries (Cameroon, Gabon, Mauritania), the responsibility for waste management depends more upon local administrations. For a last group of countries (Djibouti, Democratic Republic of Congo), state involvement in waste

management is limited, with the responsibility for waste management being mainly on the waste generators themselves.

To conclude, the regulatory framework in all countries may be further developed in order to avoid and manage marine litter. This may be guided through the development of a dedicated marine litter strategy which identifies the additional regulatory measures required to establish a comprehensive regulatory framework for marine litter. However, in some study countries, many aspects of an ideal legislation on marine litter are in place having been implemented as part of the establishment of the waste management system. However, across the study countries, the completeness of the regulatory frameworks is varied. While some seem ready to implement targeted legislation on the desirable elements of the ideal legislation (recycling, addressing microplastics), for others the priority is to add elements to their regulatory framework to address the overall waste management system.

3.4.2. Country analysis using the Life-cycle approach (Country Profiles):

GAMBIA	International	Regional	National	Total	
	6	2	12	20	

Table 15. List of national legal frameworks adopted in Gambia related to the life-cycle approach steps.

List of the Gambia legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
National Environment Management Act, 1994	Overarching
Ban on Plastic Bags Order, 2015	Transportation, Manufacturing Packaging, Retailers, Consumers
Hazardous Chemicals and Pesticides Control and Management Act, (Replacement of Schedule) Order, 1996	Transportation, Manufacturing Packaging, Retailers, Consumers
Hazardous Chemicals Regulations, 1999	Transportation, Manufacturing
Anti-Littering Regulations, 2007	Consumers
Environmental Quality Standards Regulations, 1999	Overarching
Fisheries Act, 2007	Overarching
The Waste Management Bill, 2007	Overarching
The Gambia Environmental Action Plan (GEAP), 2009-2018	Overarching
Environmental Protection (Prevention of Dumping) Act, 1988	Disposal
Ports Act, 1972	Disposal, Overarching
Development Control Regulations, 1995	Disposal

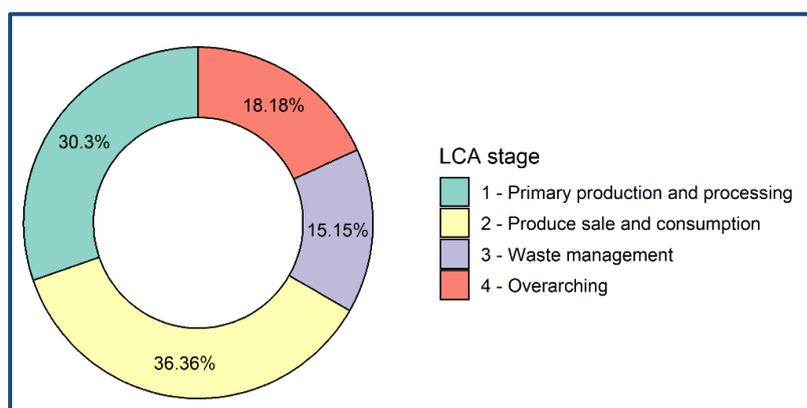


Figure 8. Percentage of adopted national legal frameworks in Gambia that address waste at different stages in the waste life cycle.

The Gambian national legal waste framework (approximately 36%) governs associated waste at the produce sale and consumption stage of its life cycle (Figure 8). Approximately 30% of the national legal framework addresses potential waste at the primary production and processing stage and only around 15% speak directly to the final stage of waste management. This shows that the national legal framework addresses the upstream, midstream, and downstream components of the waste life cycle. Approximately 19% of the national legal framework governs waste in an overarching sense with no specific reference to a life cycle stage of step.

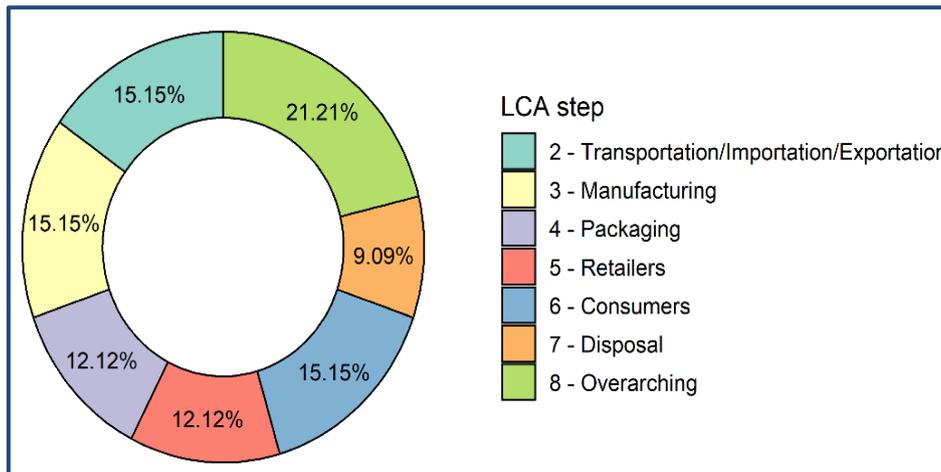
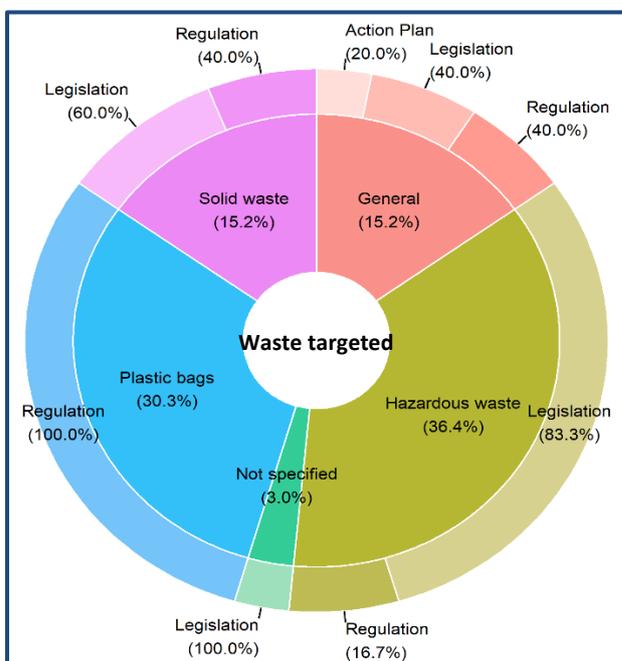


Figure 9. Percentage of adopted national legislation in Gambia that addresses waste at different steps in the waste life cycle.

The national legal framework (Figure Error! Reference source not found. 9) mainly governs a associated waste in an overarching sense, with approximately 20% addressing upstream, midstream, and downstream components in a general way. Upstream, governing has no regulation for raw materials and processing and 15% focuses on the transportation/importation/exportation of waste and 15% on manufacturing. Midstream, the framework focuses on packaging (12%), retailers (12%), and consumer (approximately 15%). Downstream, nine percent of the framework addresses the disposal of waste. No regulation exists for recovery, reuse, or recycling.



Approximately 36% of the national legal framework (Figure 10) addresses hazardous waste through legislation (83%) and regulation (17%). Approximately 36% of the national legal framework addresses hazardous waste through legislation (83%) and regulation (17%). Plastic bags are governed by approximately 30% of the regulations pertaining to waste while solid waste and general waste are addressed in approximately 15% of the governing framework, respectively. For solid waste, 60% of the framework is legislative and 40% is regulatory, while general waste is governed by action plans (20%), legislation (40%), and regulation (40%). About three percent of the legislation did not specify what waste it governed. None of the legal framework governs microbeads, other single-use plastic

Figure 10. Percentage of adopted national legislation in Gambia that addresses waste at different steps in the waste life cycle.

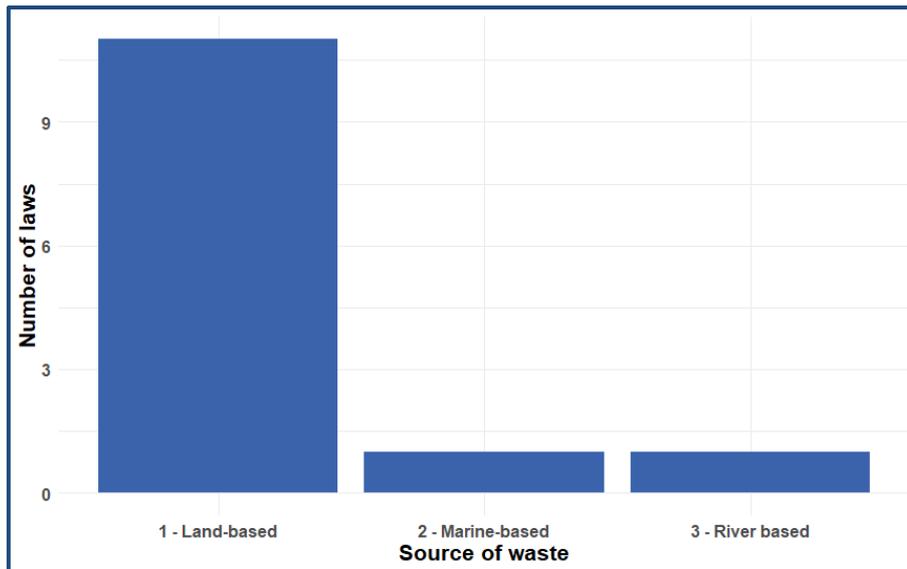


Figure 11. The amount of land, marine and river-based laws pertaining to the different LCA stages in Gambia.

The national legal framework in Gambia is focused on combating pollution at source on land, with very few laws or regulations addressing marine-based and river-based pollution sources (Figure 11). The national legal framework in Gambia is focused on combating pollution at source on land, with very few laws or regulations addressing marine-based and river-based pollution sources. Approximately 11 laws or regulations govern waste on land with only one law targeting marine-based and river-based pollution, respectively.



Legal Framework Gaps in Gambia

In Gambia, there is no national legal framework that explicitly addresses waste during the first LCA step: raw materials, and processing. There are also no national legal frameworks governing or necessitating recovery, reuse, or recycling. There are no international, regional, or national legal frameworks which address the informal sector. Furthermore, there are very few national legal frameworks that govern marine-based or river-based sources of waste. In the case of Gambia, the Fisheries Act, 2007, is the only national law that controls at-sea pollution, and this act focuses solely on fishing gear, not targeting dumping from vessels etc. Specific to plastic, there is no part of the national legal framework which governs or bans microbeads or other single-use plastic products; however, all plastic bags are banned in this country. No part of the legal framework governs e- waste specifically. Gambia shows the intention to protect their marine environment from plastic pollution, as they are a member of the Commonwealth Clean Ocean Alliance. No part of the national legal framework governs e- waste specifically, however this is addressed by several international and regional frameworks, including the Basel and Stockholm Conventions.

GHANA

International	Regional	National	Total
18	3	9	30



Table 16. List of national legal frameworks adopted in Ghana related to the life-cycle approach steps.

List of the Ghana legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Environmental Protection Agency Act 1994 (Act 490)	Overarching
Customs and Excise (Duties and Other Taxes) Act (Act 512), 1996 [Amended by Act 863, 2013]	Manufacturing, Packaging, Retailers, Consumers
Environmental Sanitation Policy, 2010	Disposal (Recover), Disposal (Landfill)
Maritime Pollution Act 2016 (Act 932)	Overarching, Disposal
Technical Guidelines on Environmentally Sound E-Waste Management for Collectors, Collection Centres, Transporters, Treatment Facilities and Final Disposal in Ghana, 2018.	Disposal (Recover), Disposal (Recycle), Disposal (Landfill)
Hazardous, Electronic and Other Wastes (Classification) Control and Management Regulations 2016	Overarching
The Hazardous and Electronic Waste Control and Management Act (Presidential Decree - Act 917/2016)	Disposal (Recover), Disposal (Landfill)
Fisheries Act, 2002 - amended in 2014	Overarching
National Implementation Plan of the Stockholm Convention on POPs, 2009	Overarching
National Plastics Management Policy, 2018 (draft)	Transportation/Importation/Exportation, Packaging, Retailers, Consumers, Disposal (Recycle), Disposal (Recover)

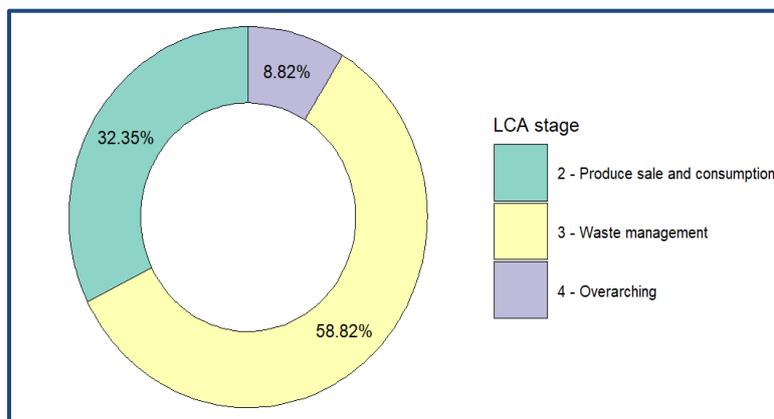


Figure 12. Percentage of adopted national legislation in Ghana that addresses waste at different stages in the waste life cycle.

In Ghana, most national legal frameworks (approximately 59%) govern waste at the waste management stage of its life cycle (Figure 12). Approximately 32% of national legal frameworks address potential waste at the produce and consumption stage and around 9% governs waste in an overarching sense. This shows legal frameworks address the midstream and downstream components of the waste life cycle but not the upstream components in Ghana.

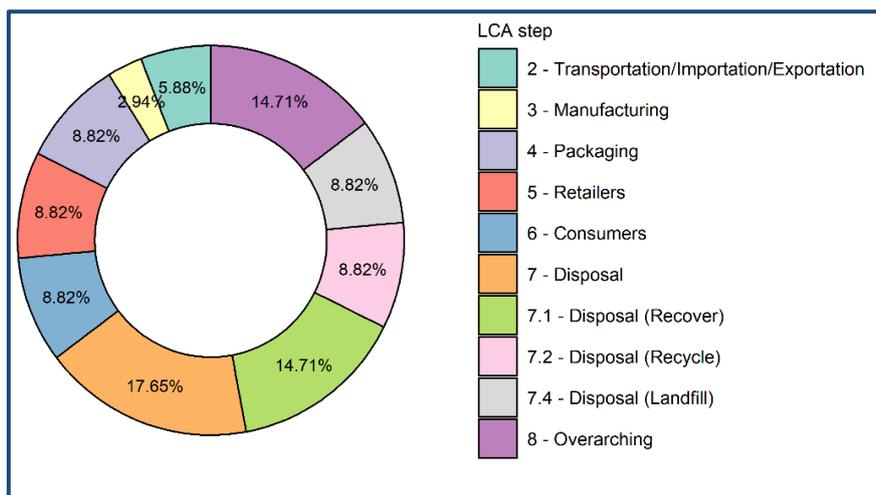


Figure 13. Percentage of adopted national legislation in Ghana that addresses waste at different steps in the waste life cycle.

Upstream, the national legal framework does not govern waste at the raw materials and processing phase of the life cycle (Figure 13). Upstream, the national legal framework does not govern waste at the raw materials and processing phase of the life cycle. Comparatively, a smaller proportion of the legal framework focuses on transportation/importation/exportation (about six percent) and three percent on manufacturing. Midstream, the legal framework addresses packaging (nine percent), retailers (nine percent), and consumers (nine percent). The legal framework in Ghana is focused mainly on governing the downstream components at the disposal phase (18% are disposal associated legal instruments). Comparatively, a larger portion of the legal framework focuses on recovery after disposal (approximately 15%) while almost 9% governs landfill disposal and recycling, respectively. There is no legal framework for reuse. Other legal frameworks govern waste in an overarching sense (approximately 15%).

Most of the national legal framework is focused on addressing plastic waste (about 41%) through policy (Figure 14). Plastic bags specifically are governed by 12% of the legal framework through legislation. General waste is governed by approximately 24% of the legal framework by legislation (63%) and policy (37%). E-waste specifically (about 21% of the legal framework) is governed by guidelines (57%) and legislation (43%). Hazardous waste is governed by three percent of the legal framework through action plans.



Figure 14. Percentage of adopted national legislation in Ghana that addresses waste at different steps in the waste life cycle.

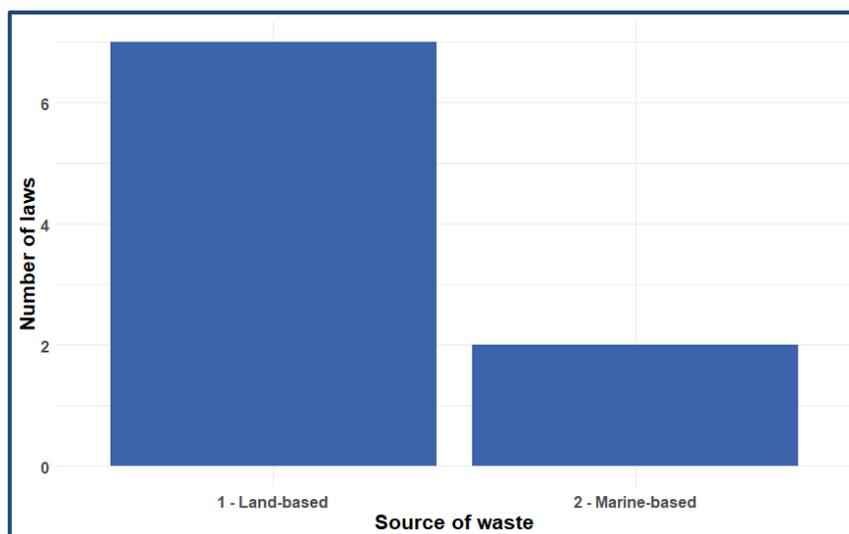


Figure 15. The amount of land, marine and river-based laws pertaining to the different LCA stages in Ghana.

The legal framework in Ghana is focused on combating pollution at source on land with very few laws or regulations addressing marine-based sources and no laws for river-based pollution sources (Figure 15). The legal framework in Ghana is focused on combating pollution at source on land with very few laws or regulations addressing marine-based sources and no laws for river-based pollution sources (Figure 15). Approximately seven laws or regulations govern waste on land; two laws address marine-based pollution, and one law address river-based pollution. Several laws address both land and marine pollution.



Legal Framework gaps in Ghana

In Ghana, the national legal framework does not address upstream components of the waste lifecycle, with no provision for waste at the raw material and processing stage. Legislation and regulations are present for the transportation/importation/exportation and manufacturing LCA steps of hazardous waste, which includes e-waste. Nationally, plastic waste is only partially addressed through the National Plastics Management Policy, 2018 (draft), which uses a life cycle approach that addresses the whole plastic value chain. However, at present, there is no legislation or laws for plastic that are binding. Furthermore, there is no part of the legal framework that bans plastic bags, microbeads, or other single-use plastics. Ghana shows intention to commit to plastic reduction through their international participation in collaborations such as the Global Plastic Action Partnership and the #breakfreefromplastic campaign. In terms of the informal sector, there is no legal framework that addresses this component. Ghana’s maritime laws address marine dumping, harbour and port waste management, and fishing pollution.

KENYA

International	Regional	National	Total
20	5	11	36



Table 17. List of national legal frameworks adopted in Kenya related to the life-cycle approach steps.

List of the Kenya legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Environmental Management and Co-ordination Act, 1999 (No. 8 of 1999)	Overarching
Environmental Management and Co-ordination (Waste Management) Regulations, 2006	Manufacturing, Retailers, Disposal, Disposal (Recover), Disposal (Landfill)
Notice No. 2356 of 2017 on Plastic Bags	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Environmental (Prevention of Pollution in Coastal Zones and Other Segments of the Environment) Regulation, 2003	Disposal
Environmental Management and Co-ordination (E-Waste Management) Regulations, 2013 - Draft	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Landfill)
The E-Waste Guidelines, 2010	Disposal
National E-Waste Management Strategy in 2019 - draft	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse)
National Solid Waste Management Strategy, 2014	Disposal
Environmental Management and Co-ordination (Extended Producer Responsibility) Regulations, 2020 - draft	Manufacturing
Fisheries Management and Development Act, 2016	Disposal, Disposal (Recover)
Plastic Action Plan, 2019	Raw materials and processing, Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers, Disposal, Disposal (Recover), Disposal (Recycle)

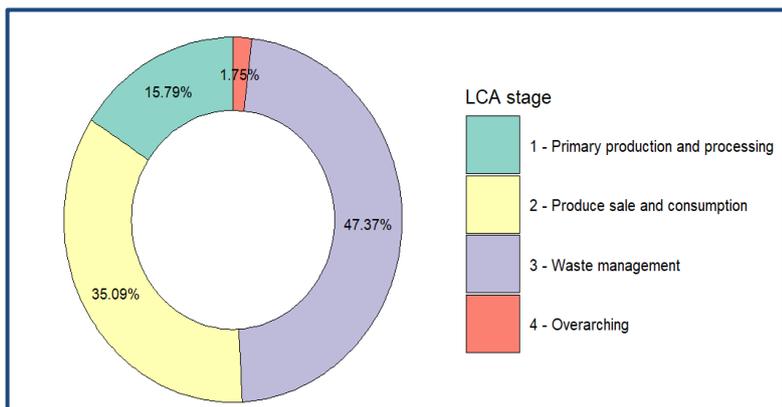


Figure 16. Percentage adopted national legal framework in Kenya that addresses waste at different stages in the waste life cycle.

In Kenya, the national legal framework mainly governs waste at the final stage of the lifecycle. Approximately 47% of the legal framework addresses waste management (Figure 16). About 35% of the legal framework addresses waste at the produce sale and consumption stage, and approximately 16% addresses waste at the primary and processing stages.

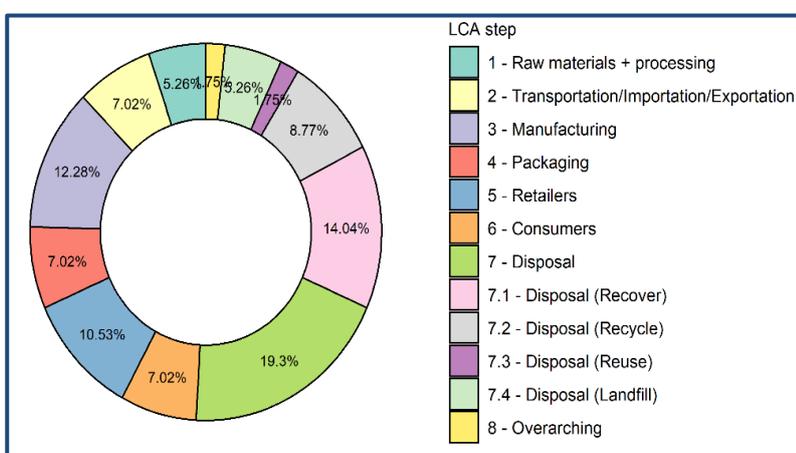
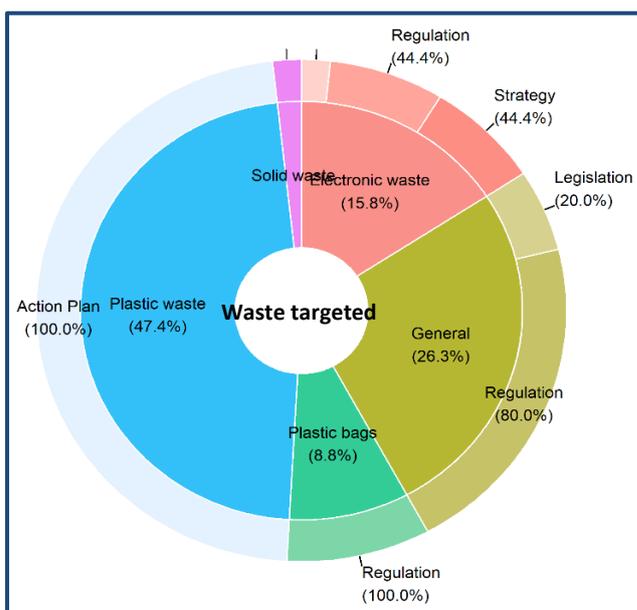


Figure 17. Percentage of adopted national legislation in Kenya that addresses waste at different steps in the waste life cycle.

The national legal framework in Kenya addresses all the steps in the waste life cycle (Figure 17). Upstream, raw materials and processing are addressed by five percent of the legal framework, and transportation/importation/exportation by seven percent. Midstream, manufacturing is governed by 12%, packaging by 7%, retailers by 11%, and consumers by 7%. The largest part of the national legal framework governs the downstream component of disposal (19%). Recovery is covered by 14% of the legal framework, recycling by 9%, and reuse by 2% while landfills are governed by 5% of the framework.



Most of the national legal framework in Kenya governs plastic waste through action plans (about 47%). Plastic bags are specifically governed by nine percent of the legal framework through regulation (Figure 18). General waste is governed by 26% of the national legal framework through legislation (20%) and regulation (80%). E-waste is governed by 16% of the legal framework through strategies (44%) and regulation (44%).

Figure 18. Percentage of adopted national laws governing different types of waste, with percentages of different types of the legal frameworks.

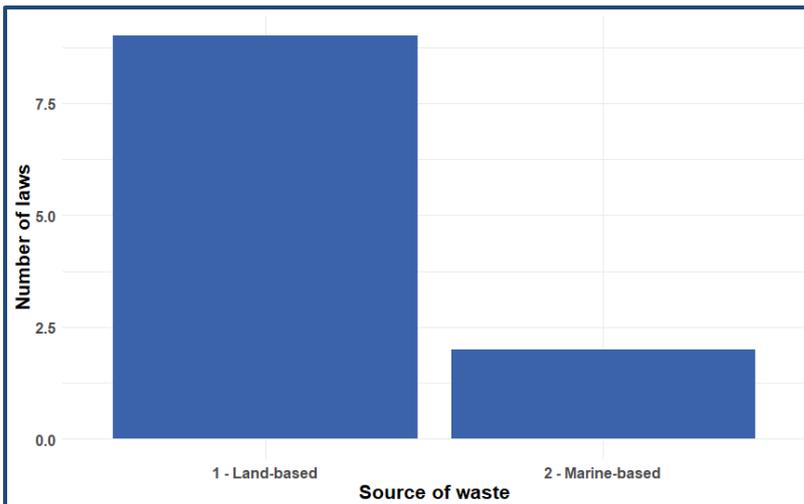


Figure 19. The amount of land, marine and river-based laws pertaining to the different LCA stages in Kenya.

The national legal framework in Kenya is focused on combating pollution at source on land, with very few laws or regulations addressing marine-based pollution and no laws for river-based pollution sources (Figure 19). Approximately nine laws or regulations govern waste on land while several target both land and the marine environment. Only two laws target marine-based sources and there are none that target river-based pollution.



Legal Framework Gaps in Kenya

In Kenya, no aspects of the national legal framework specifically address hazardous waste, but it is covered in the more general legislation and regulations governing waste management. Hazardous waste is also covered under international and regional legal frameworks, including the Rotterdam Convention (1998), the Stockholm Convention (2001), the Minamata Convention on Mercury (2013), MARPOL (73/78), Strategic Approach to International Chemicals Management (SAICM), and the Economic Community of West African States: Regional Strategy on Chemicals Management and Hazardous Waste (2015).

E-waste is adequately addressed with regulations set for e-waste end-of-life management through recycling and proper disposal. There are also national guidelines and strategies available. EPR and polluter pays principles are set in regulations, which helps target manufacturers to incorporate better waste management. Specific to plastics, there is no national legal framework that targets microbeads or single-use plastics besides plastic bags. Kenya does show the intention to manage plastic better through action plan development and membership to initiative such as #breakfreefromplastic, the Alliance to End Plastic Waste, and the Commonwealth Clean Ocean Alliance. Kenya's maritime laws address marine dumping, harbour and port waste management, and fishing pollution. There is no legal framework that addresses the informal waste sector.

LIBERIA	International	Regional	National	Total
	10	5	6	21

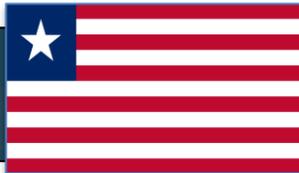


Table 18. List of national legal frameworks adopted in Liberia related to the life-cycle approach steps.

List of the Liberia legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Environment Protection Agency Act of Liberia, 2003	Overarching
Environment Protection and Management Law of the Republic of Liberia	Overarching
Maritime Regulations, 2002	Disposal
Marine notice for implementation of revised Annex V, Regulations for the Prevention of Pollution by Garbage from Ships, of MARPOL	Disposal, Transportation/Importation/Exportation
Regulations relating to fisheries, fishing, and related activities, for the marine fisheries sector in the Republic of Liberia, 2010	Disposal
The National Environmental Policy of the Republic of Liberia, 2002	Overarching

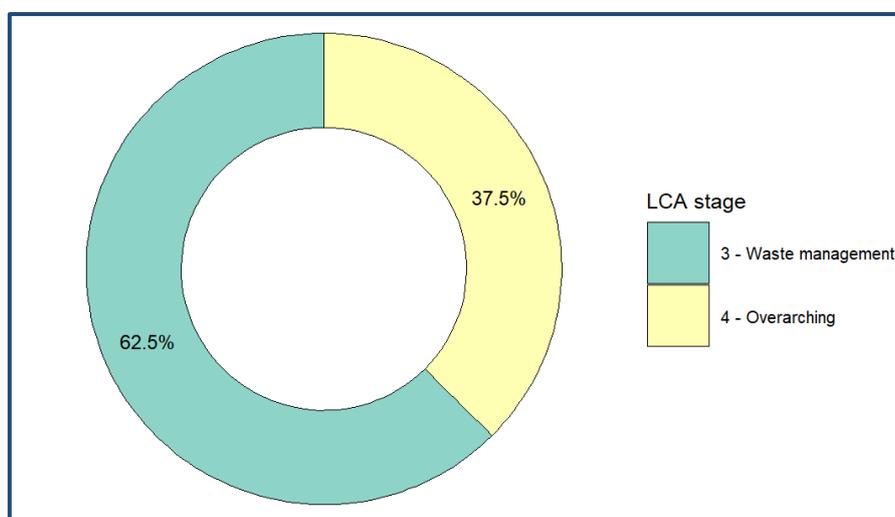
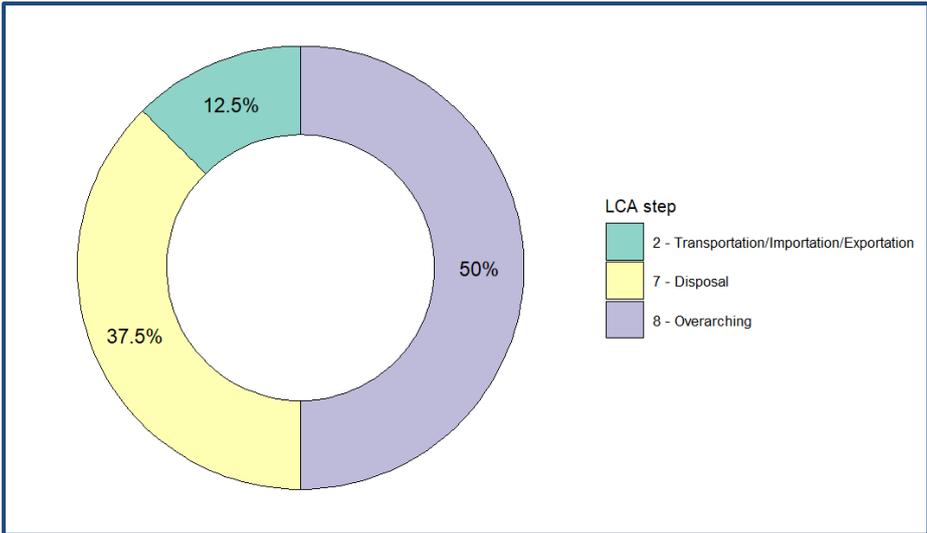


Figure 20. Percentage of adopted national legal frameworks in Liberia that address waste at different stages in the waste life cycle.

In Liberia, there are no national legal frameworks which specifically address the first two life stages in the waste life cycle, the primary production and processing and the produce sale and consumption stage (Figure 20). All legal frameworks govern waste management (about 62.5%) or govern waste in an overarching legislation (37.5%).



Upstream, the national legal framework addresses transportation/importation /exportation (12.5%) (Figure 21). There are no legal frameworks that specifically address midstream components. Downstream, the legal framework addresses disposal (37.5%). Other legal frameworks govern in an overarching sense (50%).

Figure 21. Percentage of adopted national legislation in Liberia that addresses waste at different steps in the waste life cycle.

Approximately 62% of the national legal framework governs solid waste through regulation (40%), policy (20%), and guidelines (40%). About 38% of the frameworks govern general waste through legislation (67%) and policy (33%) (Figure 22). There are no national legal frameworks that specifically govern hazardous waste or e- waste. There are no national legal frameworks that address plastic specifically.

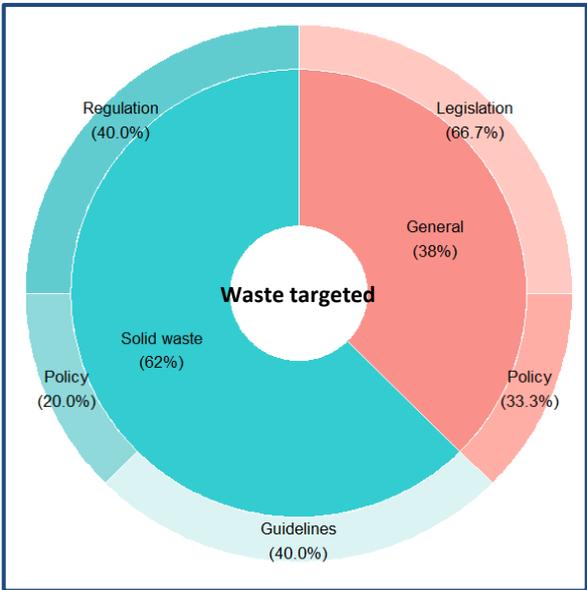
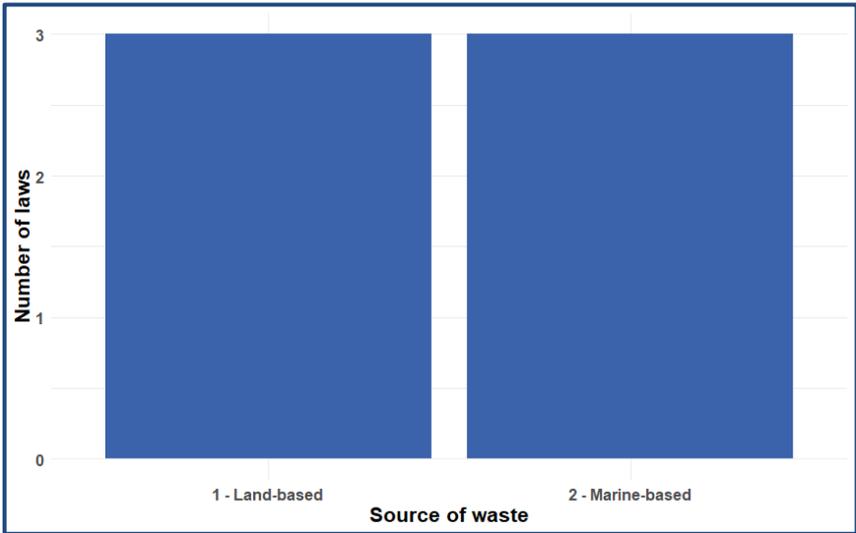


Figure 22. Percentage of adopted national laws governing different types of waste, with percentage of different types of the legal frameworks.



The legal framework in Liberia is focused on combating pollution sources on land, with very few laws or regulations addressing marine-based and river-based pollution sources (Figure 23). Three national laws or regulations govern waste on land, and three laws govern at-sea waste. There is no legal framework specific to waste in river-based pollution sources.

Figure 23. The amount of land, marine and river-based laws pertaining to the different LCA stages in Liberia.



Legal Framework Gaps in Liberia

There are no national legal frameworks which specifically govern the upstream components of raw materials and processing and manufacturing. There are no national legal frameworks that govern midstream components of waste, packaging, retailers, and consumers. There are no international, regional, or national legal frameworks that govern reuse, recycling, recovery and landfills. There are no legal frameworks that address the informal sector. There are no national legal frameworks that govern hazardous and e-waste specifically, however, e-waste transportation/importation/exportation is regulated in overarching legislature. Liberia also forms part of the Rotterdam Convention, 1998, Stockholm Convention, 2001, and the Minamata Convention on Mercury, 2013 as well as the Basel Convention, 1989. Regionally, Liberia forms part of the Economic Community of West African States: E-waste Regional Strategy (2012) and the Economic Community of West African States: Regional Strategy on Chemicals Management and Hazardous Waste (2015). At sea, hazardous waste is governed internationally through MARPOL 73/78. Nationally, maritime law regulates dumping at sea and fishing gear, however, there are no legal frameworks which govern waste at harbours or ports. There are no legal international or national frameworks that govern plastic waste specifically, including plastic bags, other single use-plastic products, and microbeads, however, Liberia forms part of the #breakfreefromplastic policy and regionally adopted the Economic Community of West African States: Plastic Waste Management Strategy (2016). There are no legal frameworks addressing EPR.

NAMIBIA

International	Regional	National	Total
18	4	10	32



Table 19. List of national legal frameworks adopted in Namibia related to the life-cycle approach steps.

List of the Namibia legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Public and Environmental Health Act 2015 (No. 1 of 2015)	Overarching, Disposal
Dumping At Sea Control Act (No. 73 of 1980)	Overarching, Disposal
Environmental Management Act 2007 (No. 7 of 2007)	Overarching
Water Resources Act, 2013 (No.11 of 2013)	Overarching
Amendment of the Sea Fisheries Regulations, 1994	Disposal
Port Regulations, 2001	Disposal
The National Solid Waste Management Strategy, 2017	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Landfill)
Solid and Hazardous Waste Management Regulations, 1992	Disposal
Pollution Control and Waste Management Policy, 2003	Disposal
Marine Resources Act, 2001 - amended in 2015	Overarching

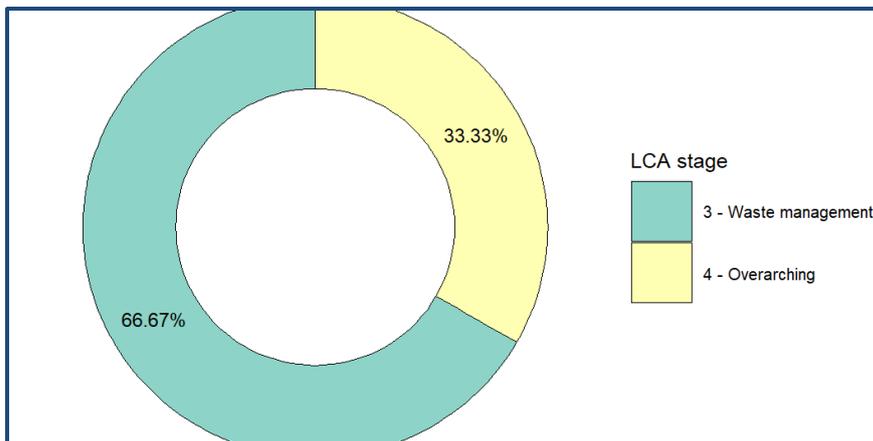
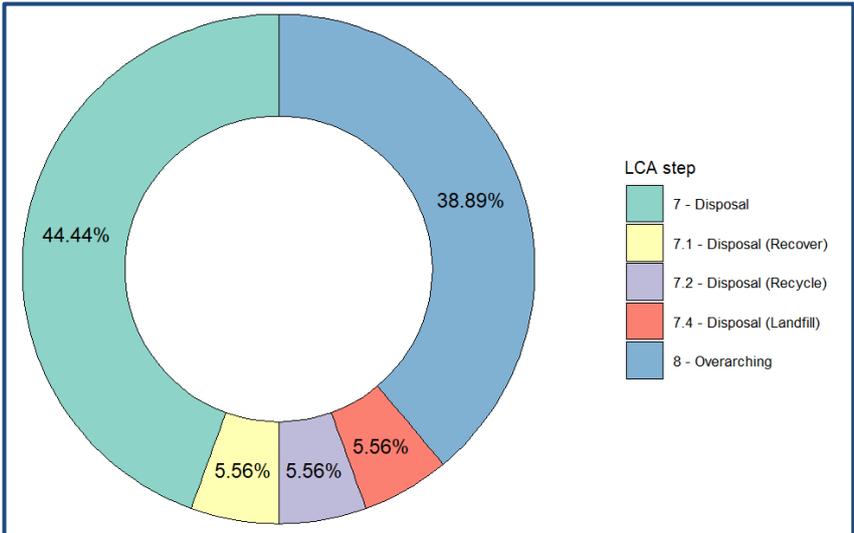


Figure 24. Percentage of adopted national legal frameworks in Namibia that address waste at different stages in the waste life cycle.

In Namibia, there are no national legal frameworks which specifically govern the first two life stages in the waste life cycle: primary production stage and the produce, sale, and consumption stage (Figure 24). All national legal frameworks govern waste management (about 67%) or govern waste in overarching waste management legislature.



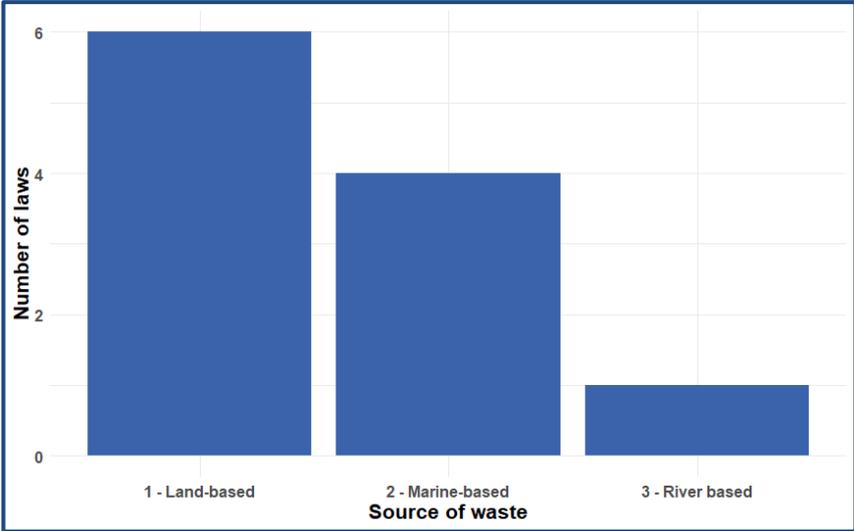
The national legal framework does not specifically govern upstream or midstream components and focuses on downstream components (Figure 25). Approximately 44% of the national legal framework addresses disposal generally while approximately 6% addresses recovery, recycling, and landfills, respectively. No framework addresses reuse specifically. Other legal frameworks govern in an overarching sense (39%).

Figure 25. Percentage of adopted national legislation in Namibia that addresses waste at different steps in the waste life cycle.

Approximately 78% of the national legal framework addresses general waste through regulation (29%), legislation (36%), and policy (7%). Solid waste is addressed by 22% of the national legal framework through legislation (Figure 26). There are no national legal frameworks that address hazardous waste, plastic waste, and e-waste specifically.



Figure 26. Percentage of adopted national legal frameworks governing different types of waste, with percentages of different types of the legal frameworks.



Approximately six legal frameworks govern waste on land, four address waste at sea, and one targets river-based sources of pollution (Figure 27).

Figure 27. The amount of land, marine and river-based laws pertaining to the different LCA stages in Namibia.



Legal Framework Gaps in Namibia

In Namibia, there are no national legal frameworks which specifically govern the first two life stages in the waste life cycle, meaning that no legal frameworks currently exist for the raw materials and processing, transportation/importation/exportation, manufacturing, packaging, retailer, and consumer steps in the waste life cycle. Hazardous waste transportation/importation/exportation and disposal is addressed in general waste legislation and regulations, however there is no national legal framework addressing hazardous waste or e-waste specifically. Namibia is also party to several international conventions pertaining to hazardous waste, but no soft laws exist which specifically target plastic pollution. There is legislation and/or regulation governing solid waste recovery and landfill, however there is only a non-binding strategy in place for recycling and reuse. Plastic waste is not addressed by national legislation or regulation but is addressed in their national waste management strategy. It is also partially addressed through a levy on plastic bags. There is no national legal framework that addresses single-use plastics or microbeads. Namibia's maritime laws address and regulate marine dumping, however, there is no legal framework for waste management in harbours or for fishing vessels. There is also no legal framework that addresses the informal sector.

NIGERIA

International	Regional	National	Total
20	3	11	34



Table 20. List of national legal frameworks adopted in Nigeria related to the life-cycle approach steps.

List of the Nigeria legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007	Overarching
National Environmental (Sanitation and Wastes Control) Regulations, 2009	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Landfill)
Federal Environmental Protection Agency Act, 1988	Overarching
National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations, 1991	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
National Policy on Solid Waste Management, 2020	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
National Policy on Plastic Waste Management, 2020	Manufacturing, Packaging, Retailers, Consumers, Disposal
National Environmental (Surface and Ground Water Quality Control) Regulations, 2011	Overarching
National Environmental (Electrical/Electronic Sector) Regulations (S.I. No 23 of 2011)	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
The Harmful Waste (Special Criminal Provisions) Act, 2004	Transportation/Importation/Exportation, Retailers, Disposal
Nigerian Maritime Administration and Safety Agency Act, 2007	Overarching
Guide for Importers of Used Electrical and Electronic Equipment into Nigeria, 2013	Transportation/Importation/Exportation
Nigerian communications Industry E-waste Regulations, 2018 - draft	Manufacturing, Packaging, Retailers

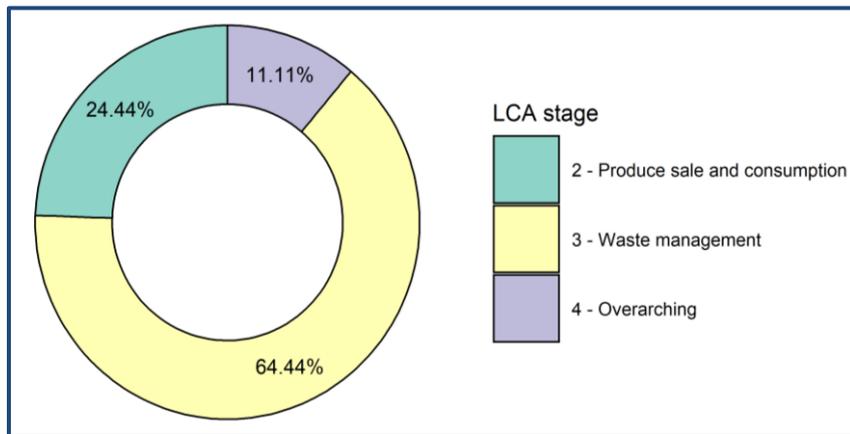


Figure 28. Percentage of adopted national legal frameworks in Nigeria that addresses waste at different stages in the waste life cycle.

The Nigerian national legal framework does not govern potential waste at the first stage of the waste life cycle, primary production, and processing (Figure 28). Approximately 24% of frameworks target potential waste during the produce sale and consumption stage and about 64% during the waste management stage. Other legal frameworks govern waste in an overarching sense, generally managing waste throughout its lifecycle.

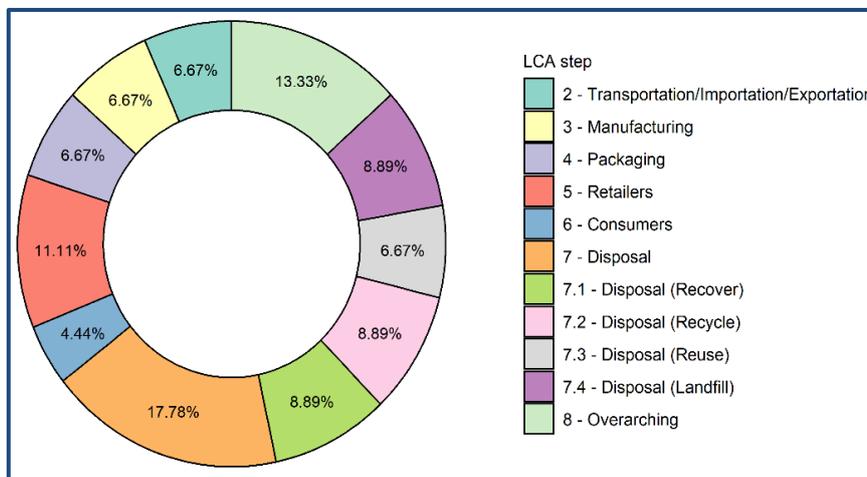


Figure 29. Percentage of adopted national legislation in Nigeria that addresses waste at different steps in the waste life cycle.

Upstream, there are no frameworks that target potential waste at the raw material and processing step (Figure 29). Approximately seven percent of the frameworks target transportation/importation/exportation and manufacturing, respectively. Midstream, about 7% of the legal framework addresses packaging, about 11% addresses retailers and approximately 4% addresses waste at a consumer level. Downstream, approximately 18% addresses the disposal of waste and about 9% governs landfills. Approximately nine percent address recovery and recycling, respectively. About 7% of the legal framework addresses reuse while other legal frameworks (13%) govern waste in an overarching sense.

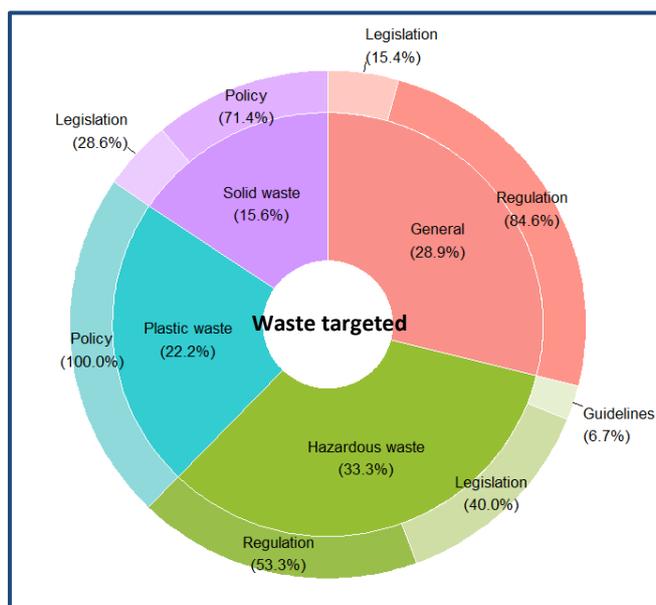


Figure 30. Percentage of adopted national laws governing different types of waste, with percentage of different types of the legal frameworks.

Approximately 33% of the national legal framework addresses hazardous waste through legislation (40%), guidelines (7%) and regulation (53%) (Figure 30). Plastic bags are governed by approximately 22% of the policies pertaining to waste. Solid waste is addressed in approximately 16% of the governing framework through legislation (29%) and policy (71%). General waste is addressed in 29% of the national legal framework through regulation (85%) and legislation (15%). There are no national legal frameworks that specifically address e-waste.

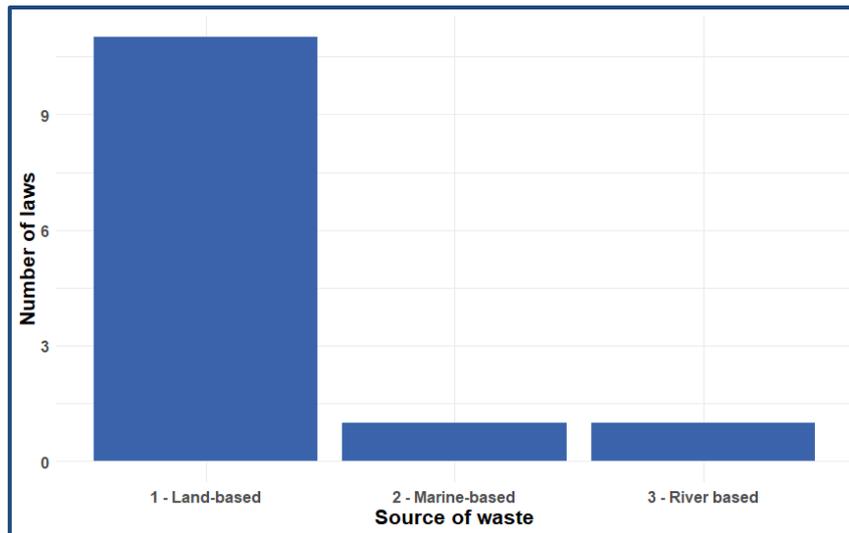


Figure 31. The amount of land, marine and river-based laws pertaining to the different LCA stages in Nigeria.

The legal framework in Nigeria is focused on combating pollution at sources on land, with few laws or regulations addressing marine-based and river-based pollution sources (Figure 31). Approximately 11 laws or regulations govern waste on land, several target both land-based and marine based sources simultaneously, one legal framework addresses marine and river-based sources of waste, respectively. Approximately 11 laws or regulations govern waste on land, several target both land-based and marine based sources simultaneously, one legal framework addresses marine and river-based sources of



Legal Framework Gaps in Nigeria

In Nigeria, there are no national legal frameworks that address potential waste at the raw material and processing steps in the waste value chain. The transportation/importation/exportation and disposal of hazardous waste is addressed under general waste in overarching legislature but is not addressed specifically by existing legal frameworks. However, e-waste has been specifically targeted through regulations, with EPR being introduced, as well as all sub-categories of disposal (recover, recycle, reuse and landfill). Plastic bags and single-use plastics are not officially banned, but there is intention to put bans in place and there is a plastic bag levy implemented through policy. Nigeria is also demonstrating the intention to better manage their plastic pollution through membership of the Global Plastic Action Partnership and the #breakfreefromplastic movement. Nigerian maritime laws address marine dumping and harbour and port waste management and has limited regulations on fishing waste. At present, there are no legal frameworks that address microbeads or the informal waste sector.

SIERRA LEONE

International	Regional	National	Total
16	3	9	28



Table 21. List of national legal frameworks adopted in Sierra Leone related to the life-cycle approach steps.

List of the Sierra Leone legislation, policy, strategies, and guidelines pertaining to waste:	LCA step
Environmental Protection Agency Act 2008 (No. 11 of 2008)	Overarching
National Water Resource Management Agency Act 2017 (No. 5 of 2017)	Overarching
The National Environment Protection Act, 2008	Overarching, Manufacturing, Retailers, Transportation/Importation/Exportation
Environment Protection Agency Strategic Plan 2017-2021	Raw materials + processing, Manufacturing, Consumers, Disposal
National Policy Roadmap on Integrated Waste Management, 2015	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
Fisheries and Aquaculture Act, 2018	Overarching
Merchant Shipping Act, 2008	Transportation/Importation/Exportation, Overarching
Integrated National Waste Management Strategic Plan, 2012-2016	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
Petroleum Exploration and Production Act 2011	Raw materials + processing

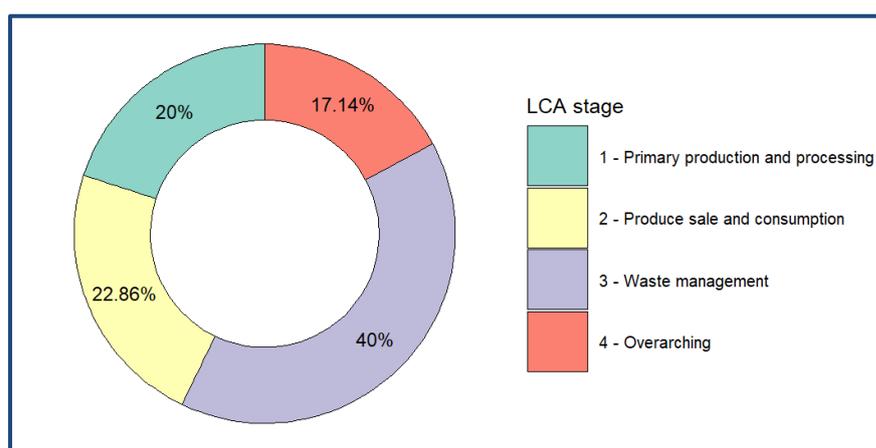


Figure 32. Percentage of adopted national legal frameworks in Sierra Leone that address waste at different stages in the waste life cycle.

In Sierra Leone, 20% of the legal frameworks governing waste nationally focus on the primary production and processing stage (Figure 32). Approximately 23% of the national legal frameworks address the produce and consumption stage and 40% address the waste management stage. About 17% govern general waste in overarching legislature.

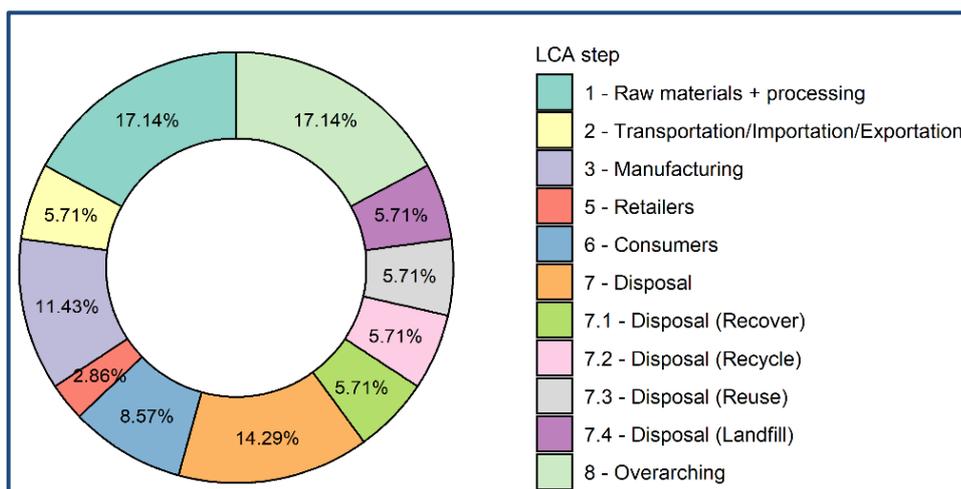


Figure 33. Percentage of adopted national legislation in Sierra Leone that address waste at different steps in the waste life cycle.

Upstream, approximately 17% of the national legal framework addresses the raw material and processing LCA step, 6% targets transportation/importation/exportation and 11% addresses waste during the manufacturing step (Figure 33). Midstream, about 3% of the national legal framework speaks to waste at the retailers' step and approximately 9% address waste at the consumer step, but no national legal framework addresses packaging specifically. Downstream, 14% of the national legal framework targets disposal, approximately, 6% governs disposal at landfill sites, and approximately 6% address recovery, reuse, and recycling, respectively.

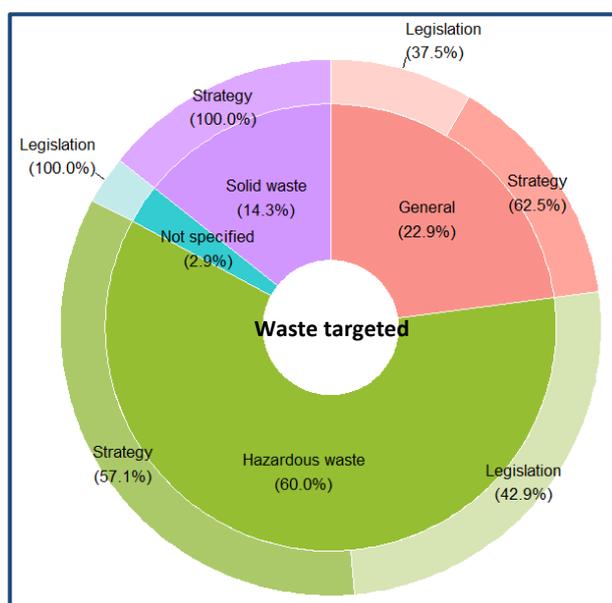


Figure 34. Percentage of adopted national laws governing different types of waste, with percentage of different types of the legal frameworks.

Approximately 60% of the national legal framework governs hazardous waste through strategies (57%) and legislation (43%) (Figure 34). About 14% of the national legal framework addresses solid waste through strategy, and 23% target general waste through legislation (37.5%) and strategy (62.5%). About three percent did not specify the type of waste legislated. There are no national laws that govern plastic or e-waste specifically.

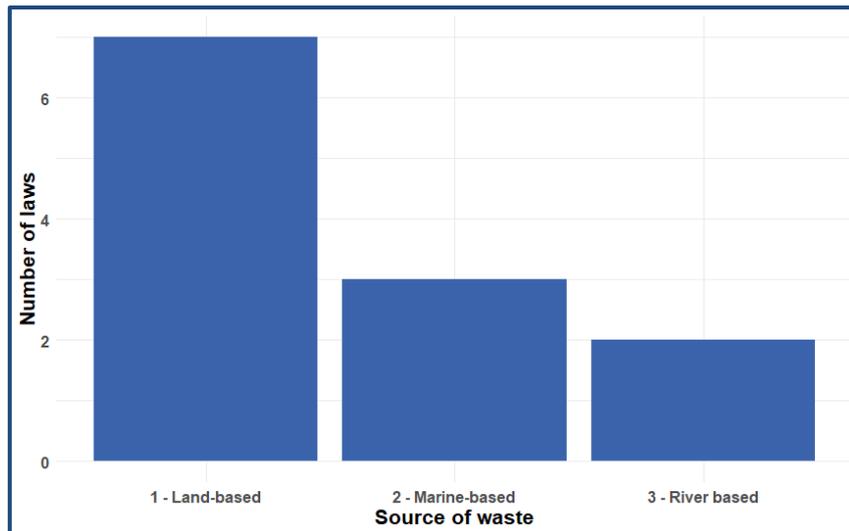


Figure 35. The amount of land, marine and river-based laws pertaining to the different LCA stages in Sierra Leone.

The legal framework in Sierra Leone is focused on combating pollution at source on land, having less laws and regulations addressing marine-based and river-based pollution sources (Figure 35). Approximately seven laws or regulations govern waste on land, with only three laws targeting marine-based and two river-based pollution.



Legal Framework Gaps in Sierra Leone

In Sierra Leone, no national legal frameworks address packaging specifically. There are no national laws that govern plastic specifically and, disconcertingly, there is no legal framework addressing single-use plastic products, plastic bags, and microbeads. However, Sierra Leone demonstrates intent to mitigate marine plastic pollution as they are a member of the Commonwealth Clean Ocean Alliance. There is no national legal framework that addresses e-waste specifically. There is no legal framework that addresses the informal sector. There is no legal framework to promote EPR.

SOMALIA

International	Regional	National	Total
11	3	3	17



Table 22. List of national legal frameworks adopted in Somalia related to the life-cycle approach steps.

List of the Somalia legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Somaliland Environmental Management Law, 2014	Overarching, Disposal, Disposal (Recycle), Disposal (Reuse)
National Environmental Policy, 2020	Overarching
Fisheries law of the Federal Republic of Somalia, 2016	Overarching

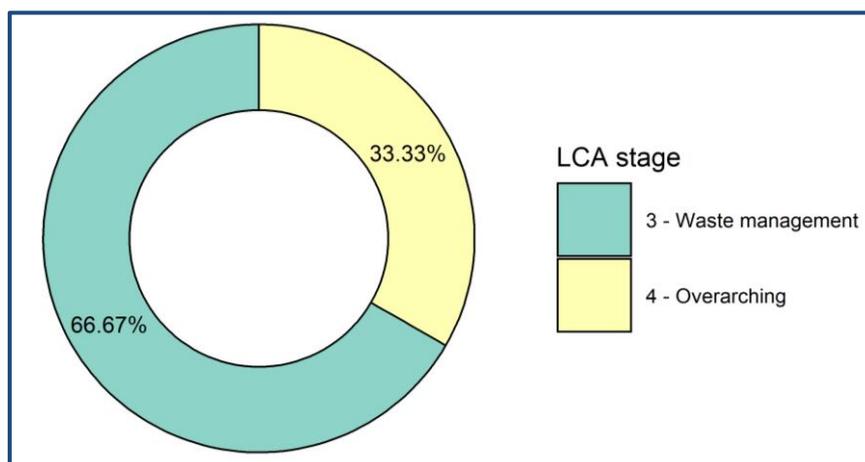
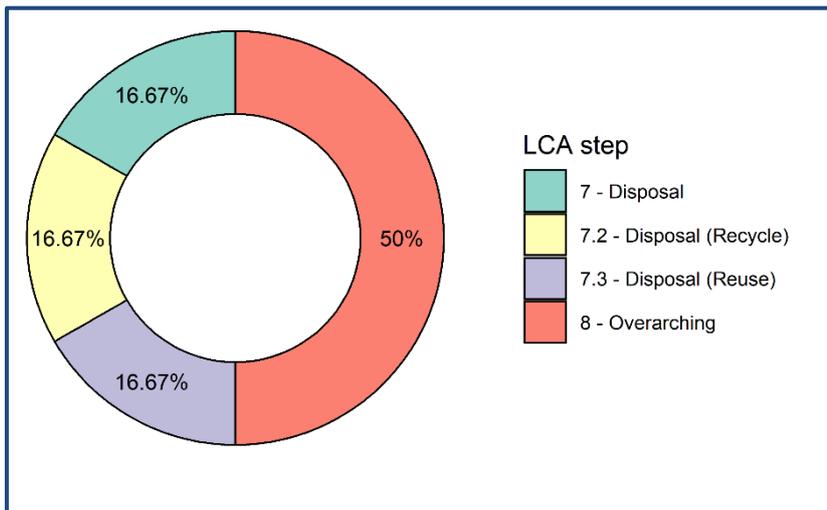


Figure 36. Percentage of adopted national legal frameworks in Somalia that address waste at different stages in the waste life cycle.

In Somalia, most legal frameworks (approximately 67%) govern waste in an overarching sense with no specific reference to a life cycle approach steps (Figure 36) while waste management legal frameworks account for the other 33%. Somalia has no national legal framework addressing the first stage, primary production, and processing or the second stage, product sale and consumption.



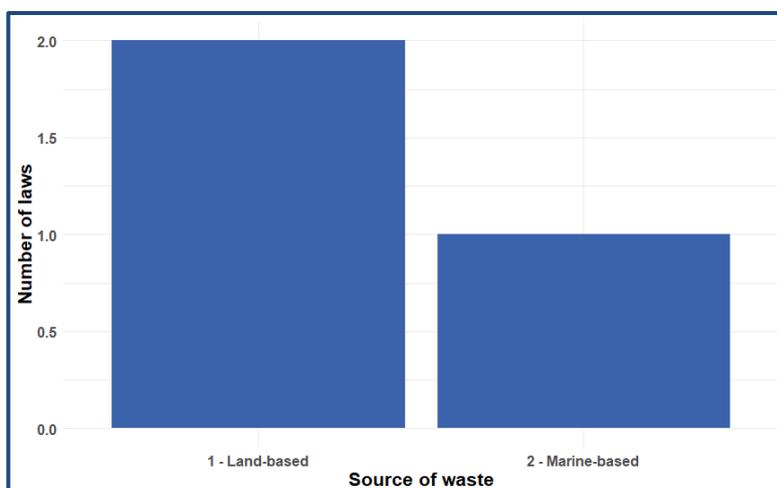
About 50% of the national legal framework addresses waste in an overarching sense, with no specific mention to any of the specific LCA steps (Figure 37). Upstream and midstream components of waste are lacking representation in the national legal framework of Somalia. Downstream, about 17% of the national legal framework addresses disposal, recycling, and reuse, respectively. No part of the national legal framework speaks to recovery.

Figure 37. Percentage of adopted national legislation in Somalia that addresses waste at different steps in the waste life cycle.

General waste is targeted nationally through policy (17%) and legislation (83%) (Figure 38). There is no national legislation which addresses hazardous and e-waste specifically and no legal framework that targets plastic waste specifically.



Figure 38. Percentage of adopted national laws governing different types of waste, with percentage of different types of the legal frameworks.



There are two laws or regulations that govern land-based sources of waste and one that governs marine-based sources of waste. There are no national legal frameworks that address river-based sources of pollution specifically (Figure 39).

Figure 39. The amount of land, marine and river-based laws pertaining to the different LCA stages in Somalia.



Legal Framework Gaps in Somalia

Upstream and midstream components of waste are lacking representation in the national legal framework of Somalia. There is no national legislation which addresses hazardous and e-waste specifically, and no legal framework that targets plastic waste specifically nor solid waste generally. No national legal framework addresses plastic bags, microbeads, or other single-use plastic products. There is no legal framework that targets the informal sector or promotes EPR. Somalia has maritime law around marine dumping; however, it does not have harbour or port waste management protocol, nor fishing waste protocol.

SOUTH AFRICA

International	Regional	National	Total
24	6	15	45



Table 23. List of national legal frameworks adopted in South Africa related to the life-cycle approach steps.

List of the South African legislation, policy, strategies, and guidelines pertaining to waste:	LCA step
National Environmental Management Act, 1998 (NEMA)	Overarching
National Environmental Management: Waste Act (Act No. 59 of 2008) (Waste Act)	Manufacturing, Disposal, Overarching
The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) (NEMICMA).	Overarching
National Water Act (Act No. 36 of 1998) (NWA)	Overarching
Environment Conservation Act 73 of 1989 (2009)	Disposal
South African Maritime Safety Authority Act, 1998	Overarching
Plastic Carrier Bags and Plastic Flat Bags (No. R. 625 of 2003)	Raw materials and processing, Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
National Domestic Waste Collection Standards (No. R. 21 of 2011)	Disposal, Disposal (Recover), Disposal (Recycle)
National Waste Management Strategy, 2020 (NWMS)	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
Hazardous Substances Act (No. 15 of 1973)	Transportation/Importation/Exportation, Manufacturing, Retailers, Consumers, Disposal
National Implementation Plan for the Stockholm Convention of Persistent Organic Pollutants, 2011	Raw materials and processing, Manufacturing
Reception Facilities for Garbage from Ships Regulations, 1992	Disposal, Disposal (Recover)
Amendments to the Regulations and notices regarding Extended Producer Responsibility, 2020	Raw materials and processing, Transportation/Importation/Exportation, Manufacturing
Marine Pollution (Prevention of Pollution from Ships) Amended Bill, 2019 - draft	Disposal

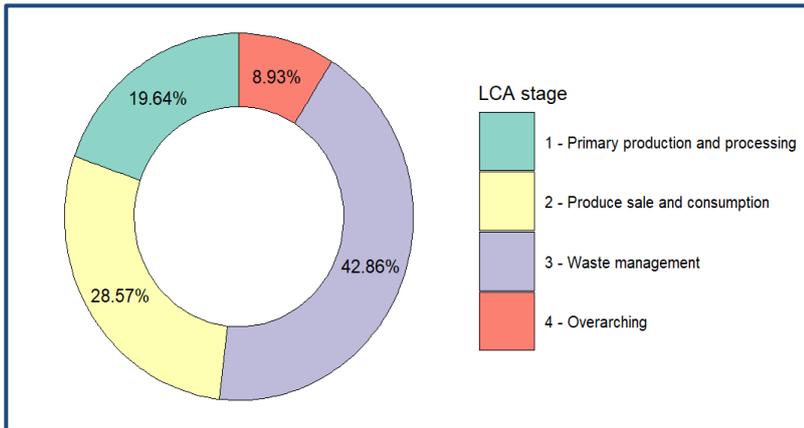


Figure 40. Percentage of adopted national legal frameworks in South Africa that address waste at different stages in the waste life cycle.

The national legal framework in South Africa addresses every stage of the waste value chain (Figure 40). Approximately 20% addresses the primary production and processing stage, about 29% targets the produce sale and consumption stage, and 43% governs waste management and about 9% governs waste in an overarching sense. Upstream, approximately 11% (Figure 41) of the national legal framework governs waste from raw materials and processing and transportation/importation/exportation, respectively. A large portion (16%) of the legal framework addresses waste at the manufacturing step. Midstream, about four percent of the national legal framework addresses waste for packaging while seven percent targets retailers and consumers, respectively. Downstream, about 16% of the national legal framework addresses the disposal of waste, approximately 5% addresses recovery and recycling, respectively, and 4% addresses reuse and landfills respectively. Approximately five percent address recovery and recycling, respectively and four percent addresses reuse and landfills, respectively.

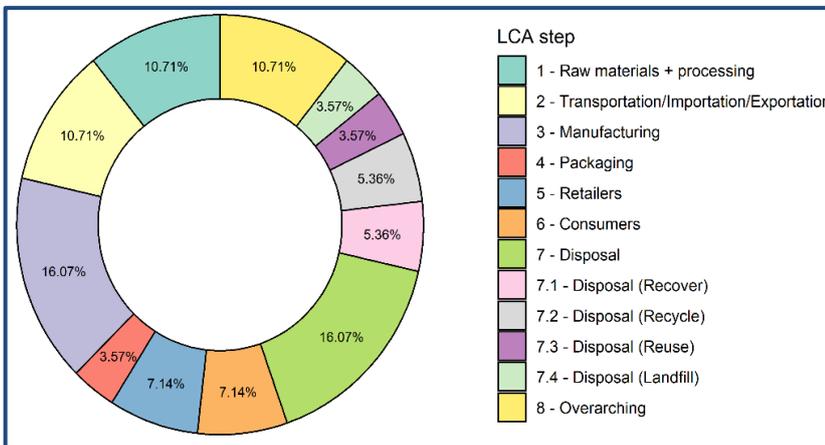
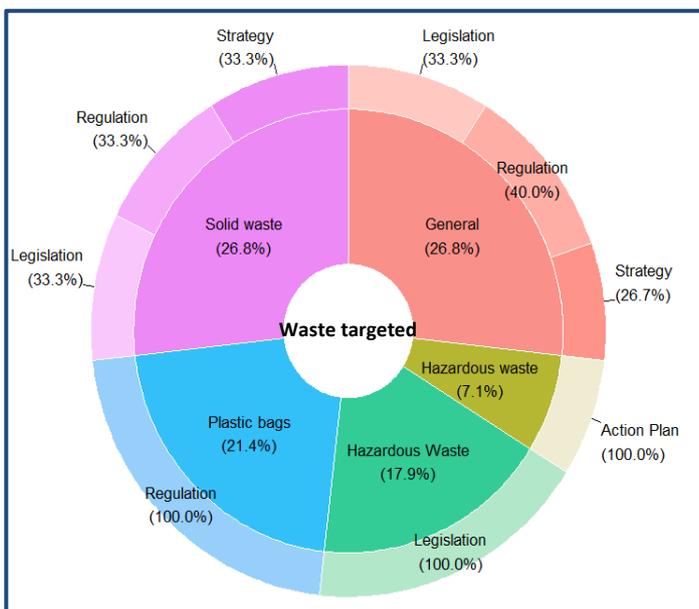


Figure 41. Percentage of adopted national legislation in South Africa that addresses waste at different steps in the waste life cycle.



Approximately 27 of the national legal frameworks govern solid and general waste respectively (Figure 42). About 25% of the national legal frameworks address hazardous waste through legislation and action plans. Approximately 21% addresses plastic bags through regulation.

Figure 42. Percentage of adopted national laws governing different types of waste in South Africa, with percentage of different types of the legal frameworks.

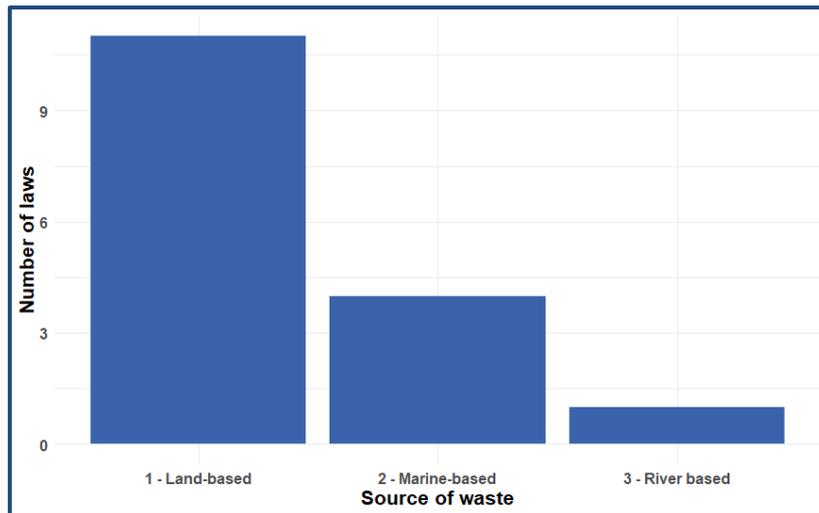


Figure 43. The amount of land, marine and river-based laws pertaining to the different LCA stages in South Africa.

The legal framework in South Africa is focused on combating pollution at source, on land, with few laws or regulations addressing marine-based and river-based pollution sources (Figure 43). Approximately 11 legal frameworks govern waste on land, four legal frameworks address waste at sea, and 1 legal framework pertains to river-based sources.



Legal Framework Gaps in South Africa

In South Africa, national legislation regulates plastic bags through policy and plastic bag levies. No provision is made for microbeads and other single-use plastic waste products. There are provisions made for recycling and reuse in legislation, strategies, and guidelines available for recycling and reuse. E-waste is governed through the National Environmental Management Act, where it is categorised as hazardous waste. EPR is included in legislation. There is legislation and regulations for the informal sector, however there are action plans available.

TANZANIA

International	Regional	National	Total
16	10	10	36



Table 24. List of national legal frameworks adopted in Tanzania related to the life-cycle approach steps.

List of the Tanzania legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Environmental Management Act 2004 (No. 24 of 2004)	Disposal, Overarching
Public Health Act, 2009 (No. 1 of 2010)	Disposal, Disposal (Recover), Disposal (Landfill), Overarching
Merchant Shipping Act, 2003 (No. 21 of 2003)	Overarching
Environmental Management (Prohibition of Plastic Carrier Bags) Regulations, 2019	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Environmental Management (Hazardous Waste Control and Management) Regulations, 2009	Transportation/Importation/Exportation
Environmental Management (Solid Waste) Regulations, 2009	Disposal, Disposal (Recover), Disposal (Landfill)
National Environmental Management Policy, 1997	Overarching
The National Solid Waste Management Strategy, 2018	Disposal, Disposal (Recycle), Disposal (Recover), Disposal (Reuse), Disposal (Landfill)
Fisheries Act No 22 of 2003	Overarching
Environmental Management Act of 2004	Overarching

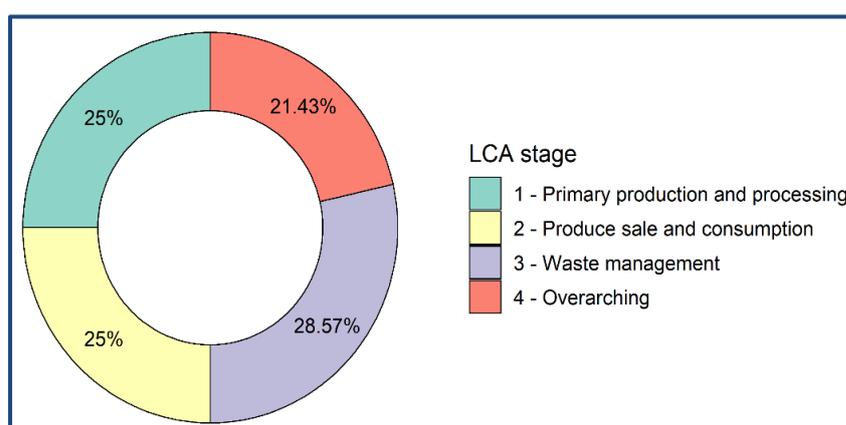


Figure 44. Percentage of adopted national legal frameworks in Tanzania that address waste at different stages in the waste life cycle.

In Tanzania, approximately 17 international, eight regional, and 10 national legal frameworks govern waste (Figure 44). Waste is addressed throughout all its life stages, including the primary production and processing stage (25% of the legal framework addresses the first stage), the produce sale and consumption stage (25% of the legal framework addresses the second stage) and the waste management stage (about 29% addresses the third stage). Other legal frameworks address waste in an overarching sense throughout all three stages.

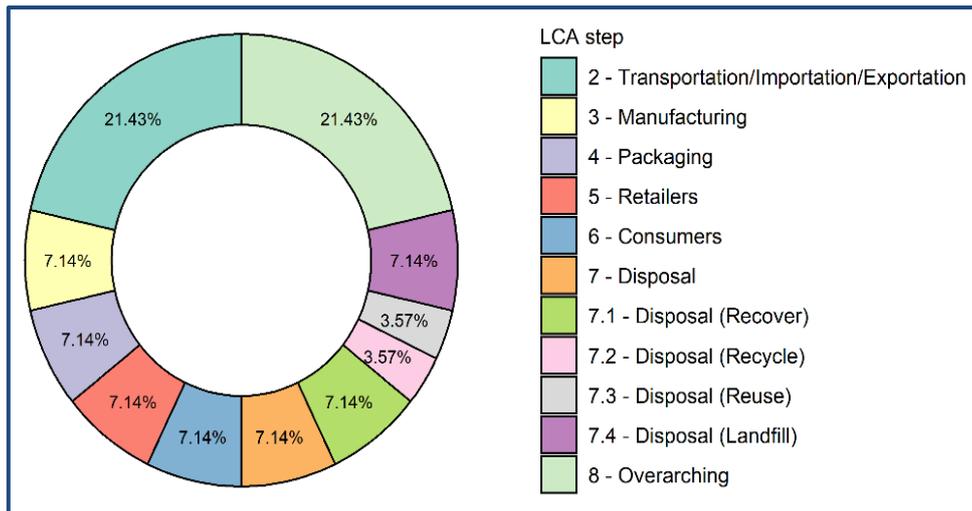


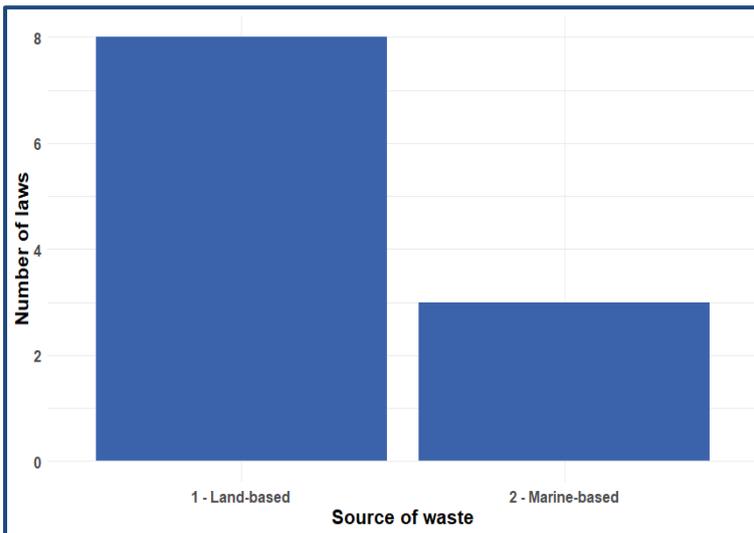
Figure 45. Percentage of adopted national legislation in Tanzania that addresses waste at different steps in the waste life cycle.

Upstream, the national legal framework does not address the raw materials and processing step but governs the transportation/importation/exportation (about 21%) and the manufacturing step (about 7%) (Figure 45). Upstream, the national legal framework does not address the raw materials and processing step but governs the transportation/importation/exportation (about 21%) and the manufacturing step (about 7%). Midstream, approximately seven percent addresses packaging, retailers, and consumers, respectively. Work. Downstream, seven percent of the framework addresses disposal and recovery, respectively. Recycling and reuse are addressed by four percent of the national legal framework, respectively. Landfills are governed by seven percent of the frame.

In Tanzania, approximately 36% of the national legal framework addresses plastic bags through regulation (Figure 46). Approximately 29% addresses solid waste through strategy (62%) and regulation (38%), and 21% addresses general waste through legislation (83%) and policy (17%). Hazardous waste is addressed by 14% of the national legal framework through regulation. No national legal frameworks address E-waste or plastic waste (other than plastic bags) specifically.



Figure 46. Percentage of adopted national laws governing different types of waste in Tanzania, with percentages of different types



The legal framework in Tanzania is focused on combating pollution at source on land, with few laws or regulations addressing marine-based and river-based pollution sources (Figure 47). Approximately eight laws or regulations govern waste on land, with only three laws targeting marine-based pollution. There are no legal frameworks that govern river-based sources of waste specifically.

Figure 47. The amount of land, marine and river-based laws pertaining to the different LCA stages in Tanzania.



Legal Framework Gaps in Tanzania

In Tanzania, no national legal frameworks address E-waste or plastic waste (other than plastic bags) specifically. This means that no national legal framework address microbeads or other single-use plastic products. Tanzania shows intent to address marine pollution through membership to #breakfreefromplastic. They are also party to various regional and international agreements. There is no national legal framework that addresses the informal sector. There is no national legal framework that promotes EPR. Maritime law addresses marine dumping and fishing waste, but there is no legal framework addressing waste management in ports and harbours.

BOTSWANA

International	Regional	National	Total
7	3	8	18



Table 25. List of national legal frameworks adopted in Botswana related to the life-cycle approach steps.

List of the Botswanan legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Green Economy Strategy and Action Plan (SADC - 2015)	Overarching, Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Landfill)
Southern African Development Community (SADC) Regional Indicative Strategic Development Plan (2001)	Disposal, Disposal (Recycle)
Waste Management Act (Chapter 65:06)	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
The Botswana Recycling Guidelines, 2012	Disposal, Disposal (Landfill)
Botswana's Strategy for Waste Management, 1998	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Guidelines for the Disposal of Waste by Landfill, 1997	Overarching, Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Landfill)
Waste Management (Plastic Bag Carrier Bags and Plastic Flat Bags Prohibition) Regulations, 2018	Disposal, Disposal (Recycle)
Plastic Ban Levy, 2007	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)

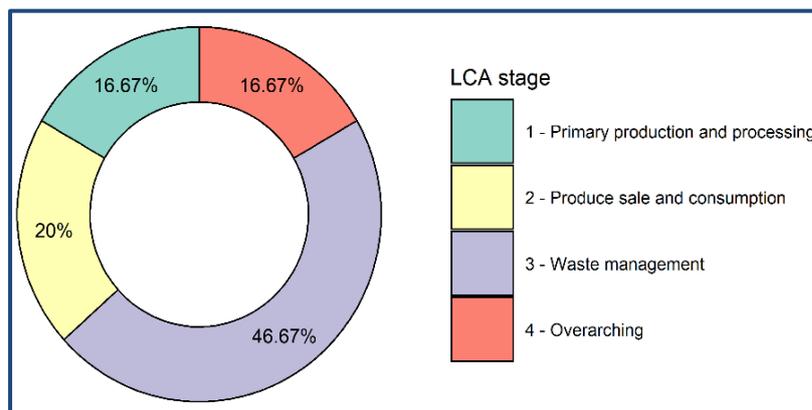


Figure 48. Percentage of adopted national legal frameworks in Botswana that address waste at different stages in the waste life cycle.

For Botswana, the primary production and processing stage is addressed by 17% of the national legal framework, about 20% of the framework targets the produce sale and consumption stage of the waste life cycle, and 47% address the waste management stage (Figure 48). About 17% of the framework addresses waste in an overarching sense across the life stages.

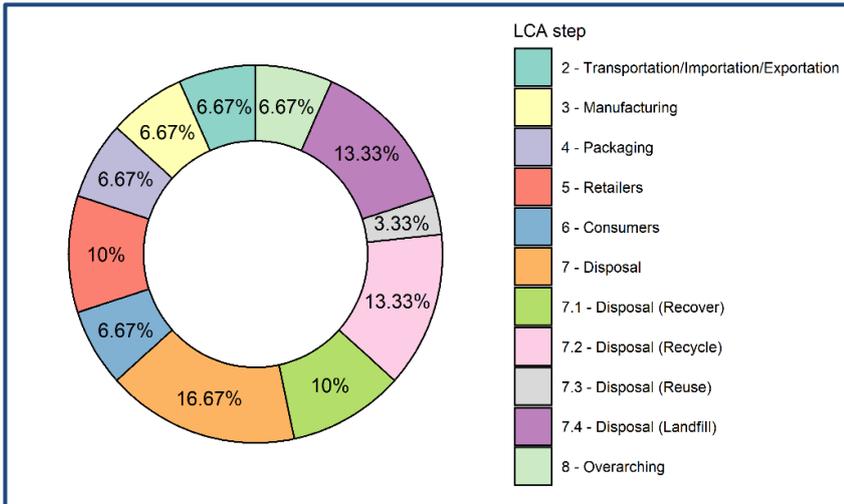


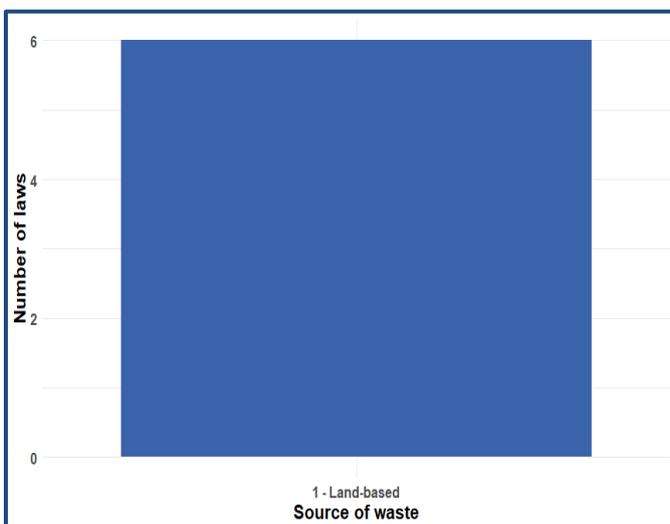
Figure 49. Percentage of adopted national legislation in Botswana that addresses waste at different steps.

Upstream, there are no national framework that address waste at the raw materials and processing step of the life cycle (Figure 49); however, about 7% target the transportation/importation/exportation and manufacturing steps, respectively. Midstream, approximately 7% of the framework addresses waste at the packaging, and consumer steps, respectively and about 10% addresses waste at the retailer's step. Downstream, 17% of the framework addresses disposal and 10% addresses recovery. About 13% address recycling, and 4% target reuse.

Approximately 47% of the framework addresses solid waste through legislation (71%) and guidelines (29%). Approximately 37% of the national legal framework targets plastic bags through regulation, and about 17% targets general waste through strategy (Figure 50). There are no national legal frameworks that address hazardous waste, plastic (other than plastic bags), and E-waste specifically.



Figure 50. Percentage of adopted international, regional, and national laws governing different types of waste in Botswana, with percentages of different types of the legal frameworks.



The national legal framework in Botswana (Figure 51) currently only has legal documents governing source from on land pollution.

Figure 51. The amount of land, marine and river-based laws pertaining to the different LCA stages in Botswana.



Legal Framework Gaps in Botswana

In Botswana, there is no legal national framework that explicitly addresses waste during the first LCA step, raw materials and processing, nor is there any national framework that addresses waste at the primary production and processing stage. The second most common waste type targeted is plastic waste, however, the majority of plastic waste targeted comprises solely of plastic bags, with the rest unspecified. No plastic bans exist, although there are financial incentives such as penalties for polluting as well as a plastic bag levy. E-waste is not addressed at all within the national legal framework and is not addressed in any international hard or soft laws. There are also no national, international, or regional legal frameworks that govern marine-based or river-based sources of waste despite the region having large rivers, including the Orange and Caledon rivers. There is, however, legislation around conservation management that addresses water bodies/coastal protection and monitoring.

LESOTHO

International	Regional	National	Total
12	5	4	21



Table 26. List of national legal frameworks adopted in Lesotho related to the life-cycle approach steps.

List of the Lesotho legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
National Environmental Action Plan, 1989	Overarching
National Environment Policy, 1998	Disposal, Disposal (Recover), Disposal (Landfill)
Environment Act 2008 (No. 10 of 2008)	Overarching
Water Act, 2008 (No. 15 of 2008)	Overarching

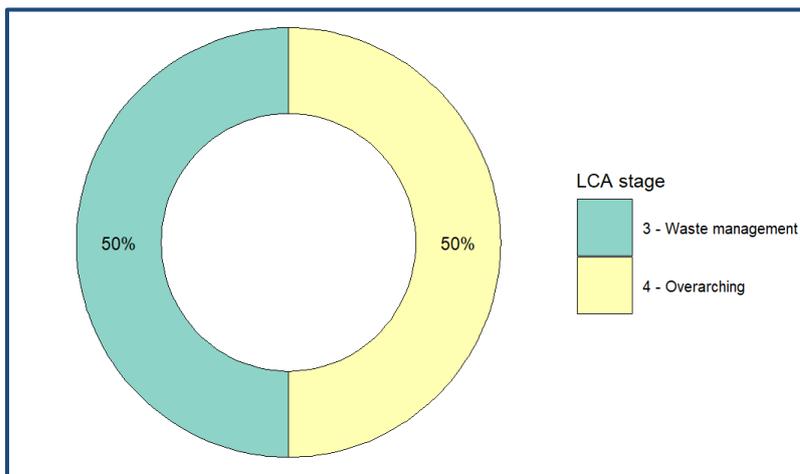
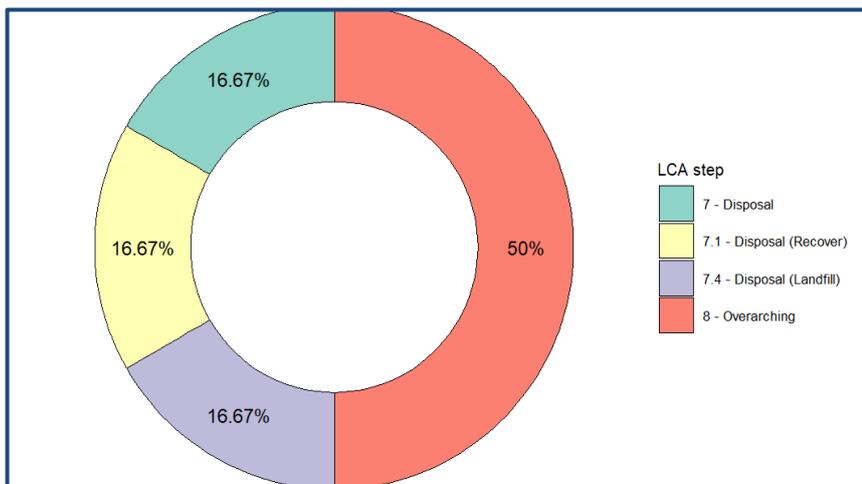


Figure 52. Percentage of adopted national legal frameworks in Lesotho that address waste at different stages in the waste life cycle.

In Lesotho, there are approximately 11 international, 4 national and 4 regional frameworks governing waste (Figure 52). Approximately 50% address the downstream component of waste management, while the other 50% address more general and overarching stages of the waste life cycle.



Approximately 50% of the legal framework address overarching laws that include a number of LCA steps (Figure 53). The rest of the legal framework (50%) address the downstream component of various forms of disposal.

Figure 53. Percentage of adopted national legislation in Lesotho that addresses waste at different steps in the waste life cycle.

The majority of waste targeted in Lesotho is general waste (83%) which is governed by policy (60%), legislation (20%), and action plans (20%) (Figure 54). The remaining 17% of targeted waste is solid waste, which is only governed by legislation.

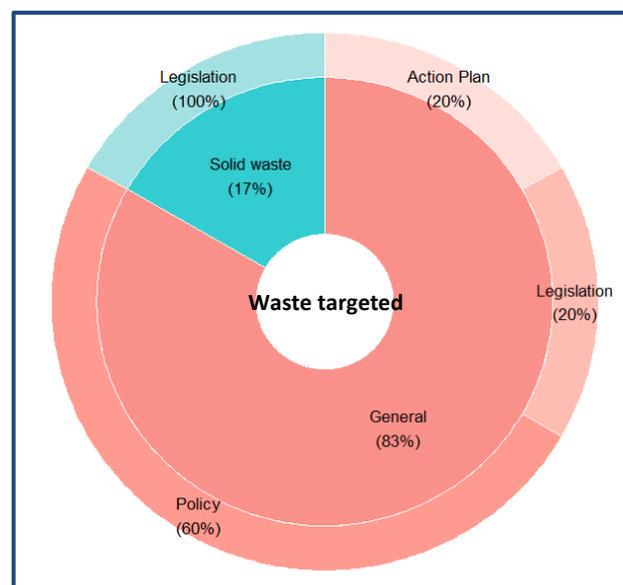
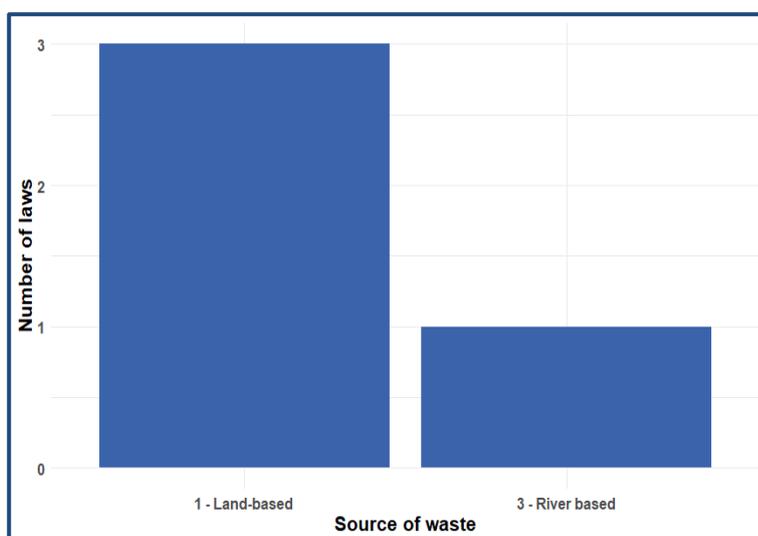


Figure 54. Percentage of national laws governing different types of waste, with percentages of different types of the legal frameworks.



The legal framework in Lesotho is focused on combating pollution at source on land, with a few laws targeting river-based sources (Figure 55). Approximately three laws or regulations govern waste on land, with only one law targeting river-based pollution.

Figure 55. The amount of land, marine and river-based laws pertaining to the different LCA stages in Lesotho.



Legal Framework Gaps in Lesotho

In Lesotho, there are no national frameworks that address the primary production and processing stage in the waste life cycle. Furthermore, upstream and midstream waste life cycle steps are not present in the national legal framework. There is legal framework around solid waste management, which includes recovery and landfill management, however, there is no legal framework, binding or non-binding, that addresses reuse or recycling. Hazardous waste, plastic waste, and e-waste are not specifically covered within the national legal framework; however, Lesotho is included in international multilateral agreements covering hazardous waste. These agreements include: the Rotterdam Convention, 1998, the Minamata Convention on Mercury, 2013, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention), 1989. Being a landlocked country, the national legal framework of Lesotho does not address any marine-based sources of pollution. Lesotho does have a bilateral agreement with South Africa ensuring proper management of shared water resources. There is no legal framework addressing the informal waste sector or microbeads.

ZAMBIA	International	Regional	National	Total
	12	5	5	22



Table 27. List of national legal frameworks adopted in Zambia related to the life-cycle approach steps.

List of the Zambia legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
National Solid Waste Management Strategy for Zambia, 2004	Overarching
The National Implementation Plans for the Management of Persistent Organic Pollutants (POPs), 2007	Overarching
The Extended Producer Responsibility Regulations, 2009	Manufacturing, Packaging, Retailers
Environmental Management Act, 2011	Overarching
Environmental Management (Licensing) Regulations (S.I. No. 112 of 2013)	Disposal, Disposal (Recover), Disposal (Reuse), Disposal (Landfill)

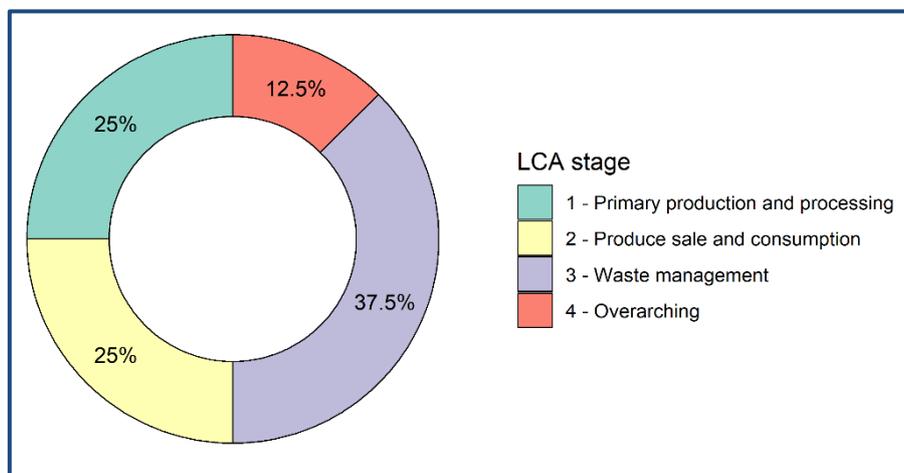


Figure 56. Percentage of adopted national legal frameworks in Zambia that address waste at different stages in the waste life cycle.

In Zambia, approximately 25% of the national legal framework addresses the primary production and processing stage of waste, 25% addresses the produce sale and consumption stage, and 37% addresses waste management (Figure 56). Other legal frameworks govern waste in an overarching sense at all stages of the lifecycle. Therefore, Zambia has a national legal framework that governs waste at all stages of its lifecycle.

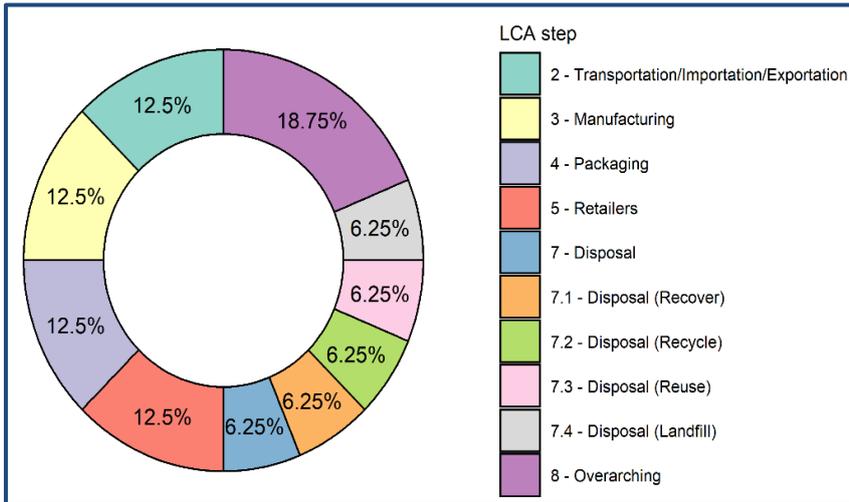


Figure 57. Percentage of adopted national legislation in Zambia that addresses waste at different steps in the waste life cycle.

Upstream, there are no legal frameworks that target waste at the raw materials and processing step (Figure 57). However, 12.5% of the frameworks in place address transportation/exportation/importation and manufacturing, respectively. Midstream, 12.5% of the framework address packaging and retailers, respectively, but none address waste at the consumer level. Downstream, about six percent address disposal, recovery, recycling, and reuse, respectively.

Plastic bags are addressed with regulation in Zambia, however, there is no other type of plastic waste addressed in this way (Figure 58). Waste is not, for the most part, targeted through Zambia's current legal frameworks, rather all types of waste are referred to in found legislation and regulation. Zambia uses strategies and action plans, and non-binding legal documents are used to address solid waste and hazardous waste specifically.

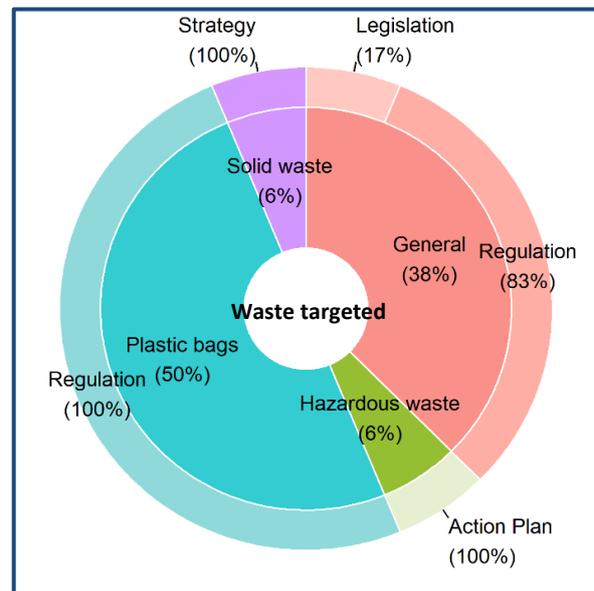
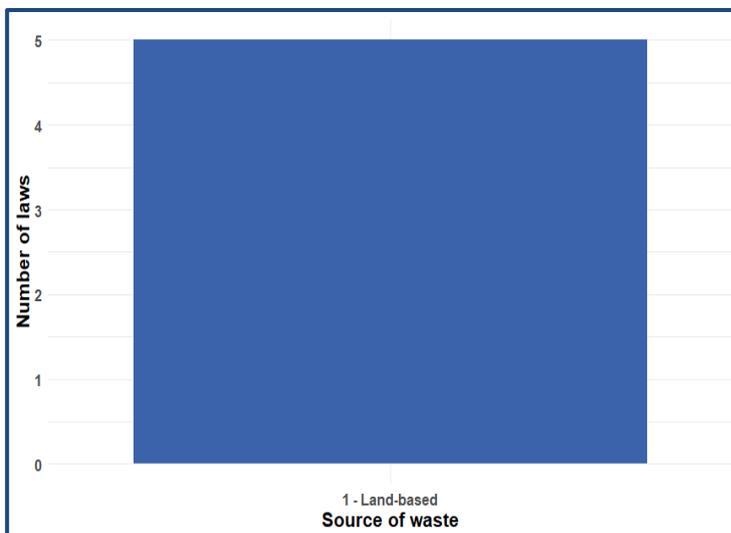


Figure 58. Percentage of national legislation in Zambia that addresses waste at different steps in the waste life cycle.



The legal framework in Zambia is focused on combating pollution at source, on land, with very few national laws or regulations addressing river-based pollution sources (Figure 59). All the legal documents found govern on-land waste sources.

Figure 59. The amount of land, marine and river-based laws pertaining to the different LCA stages in Zambia.



Legal Framework Gaps in Zambia

Zambia is a land-locked country that does not have any laws pertaining to marine-based sources of waste. Solid waste management is adequately addressed in legislation and regulations, with laws pertaining to all disposal sub-categories. All five legal documents found to relate to marine litter directly or indirectly were land-based waste focused with none governing or pertaining to river-based sources of waste, which ultimately may lead to marine litter. It is important to note that Zambia is party to the Zambezi Action Plan, which pertains to the management of pollution and waste in the shared Zambezi waterway, but this has not been incorporated into national law. Zambia has made progress in addressing plastic waste, and importation, manufacturing, and use plastic bags have been banned. Though this progress has been made, it accounts for all the seen legal framework for upstream and midstream components. Therefore, there is a lack of overall legal recourse on other single-use plastics and microbeads.

MALAWI

International	Regional	National	Total
13	3	6	22



Table 28. List of national legal frameworks adopted in Malawi related to the life-cycle approach steps.

List of the Malawi legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Environment Management Act, 2017 (No. 19 of 2017)	Disposal, Disposal (Recover), Disposal (Recycle)
Environment Management (Waste Management and Sanitation) Regulations, 2008	Disposal, Disposal (Recover), Disposal (Recycle)
Water Resources Act, 2013 (No. 2 of 2013)	Overarching
National Environmental Policy, 2004	Overarching
Plastic Bag Ban, 2015	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Environment Management (Chemicals and Toxic Substances Management) Regulations, 2008	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers

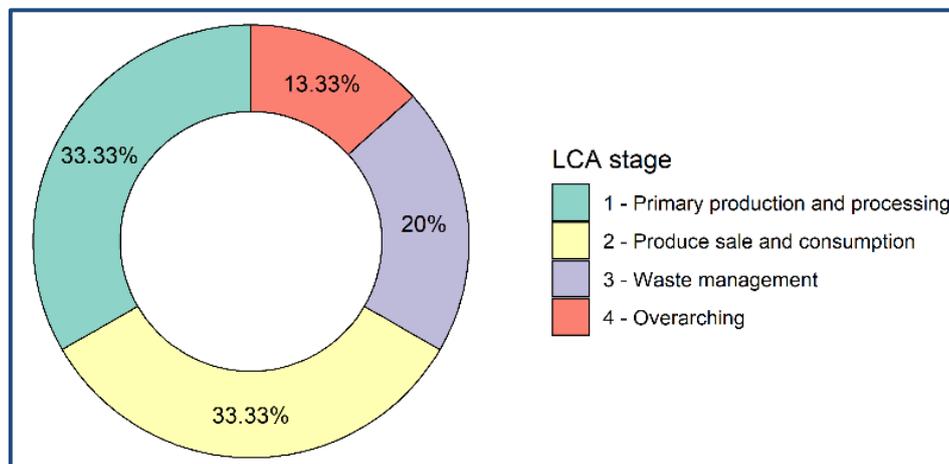


Figure 60. Percentage of adopted national legal frameworks in Malawi that address waste at different stages in the waste life cycle.

In Malawi, approximately 33.33% of national legal frameworks address the upstream component of primary production and processing, 33.33% address the midstream component of produce sale and consumption, and 20% address the downstream component of waste management (Figure 60). The remaining 13.33% address overarching laws that include a range of life cycle stages.

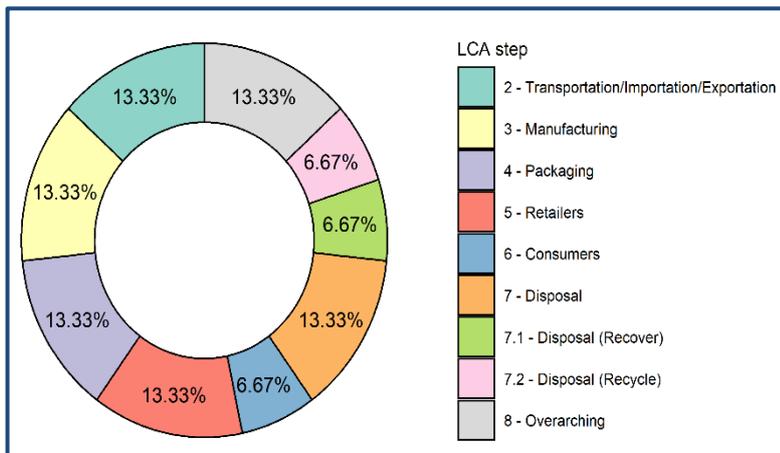
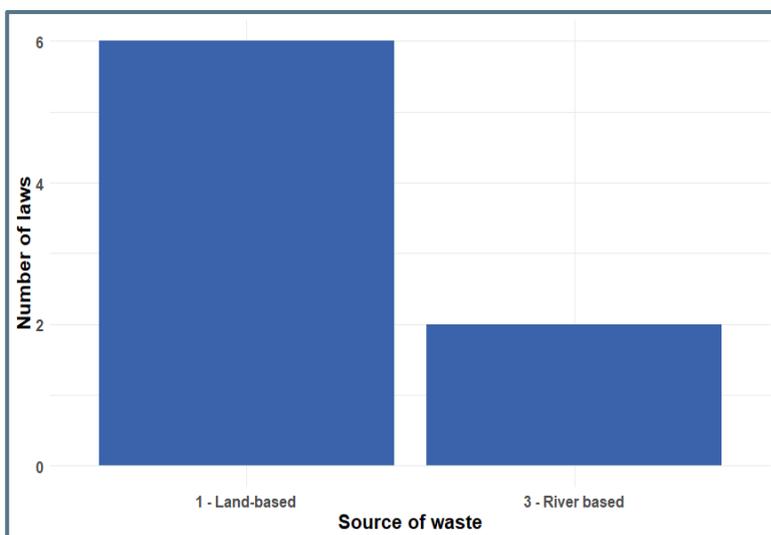
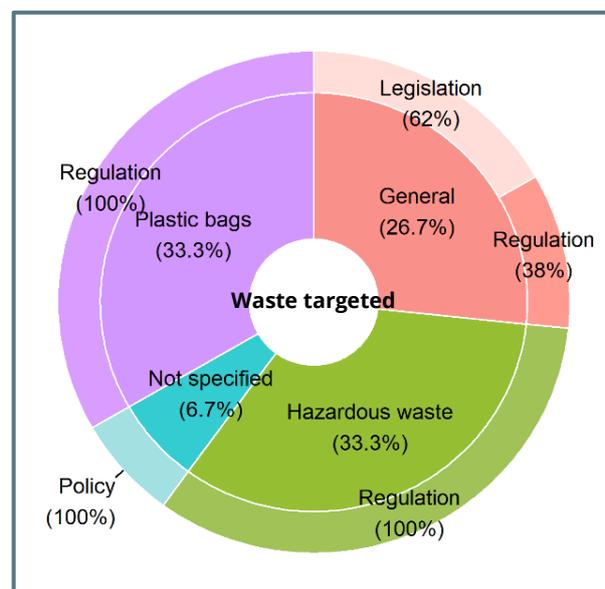


Figure 61. Percentage of adopted national legislation in Malawi that address waste at different steps in the waste life cycle.

In Malawi, the national legal framework addresses upstream, midstream, and downstream components of the waste lifecycle (Figure 61). Approximately 26.66% address upstream transport and manufacturing steps. The midstream component comprises approximately 33.33% of the framework and includes the packaging, retail, and consumer steps. Various forms of disposal makeup 26.67% of the framework and cover the downstream component of the waste lifecycle. Finally, approximately 13.33% address overarching laws, which include a variety of steps.

The majority of waste targeted in Malawi is hazardous waste (33.3%) governed only by regulation (Figure 62). Approximately 33.3% of the waste targeted are plastic bags, governed entirely by regulation, with a further 6.7% addressing unspecified plastic waste governed by policy. Approximately 26.7% addresses general waste governed by legislation (62%) and regulation (38%).

Figure 62. Percentage of adopted national laws governing different types of waste in Malawi, with percentages of different types of the legal frameworks.



The legal framework in Malawi is focused on combating pollution at source, on land, with few laws or regulations addressing river-based pollution sources (Figure 63). Approximately six laws or regulations govern waste on land, with only two laws targeting river-based pollution, respectively.

Figure 63. The amount of land, marine and river-based laws pertaining to the different LCA stages in Malawi.



Legal Framework Gaps in Malawi

In Malawi, national legal frameworks do not address the primary production and processing stage of the waste life cycle. Almost all waste lifecycle steps are addressed under solid waste, apart from reuse. E-waste is not addressed in the national framework, nor is it covered by any multilateral agreements. Aside from plastic bags, plastic waste is not addressed in the existing legal framework, with no other single-use products banned. Being a landlocked country, Malawi does not address any marine-based sources of pollution.

RWANDA	International	Regional	National	Total	
	12	2	9	23	

Table 29. List of national legal frameworks adopted in Rwanda related to the life-cycle approach steps.

List of the Rwanda legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Plastic Bag Ban, 2008 - amended in 2019	Raw Materials and Processing, Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Law No. 48/2018 on the Environment	Transportation/Importation/Exportation, Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
Law No. 17/2019 Relating to the Prohibition of Manufacturing, Importation, Use and Sale of Plastic Carry Bags and Single-Use Plastic Items	Transportation/Importation/Exportation, Manufacture, Packaging, Retailers, Consumers
Regulations No. 02/2015 Governing Solid Wastes Recycling in Rwanda	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
National E-Waste Management Policy for Rwanda, 2018	Disposal, Disposal (Recover), Disposal (Recycle), Disposal (Reuse), Disposal (Landfill)
Regulations Governing the Provision of Services for Hazardous Waste Management, 2017	Overarching
Updated National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants, 2015	Overarching
Regulation Governing E-waste Management in Rwanda, 2018	Transportation/Importation/Exportation, Manufacture, Packaging, Retailers, Consumers, Disposal (Recycle)
Five-Year National E-Waste Strategy, 2015	Overarching

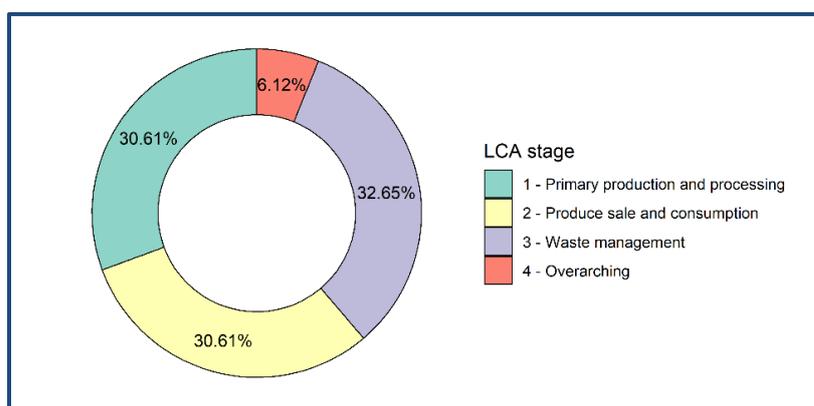


Figure 64. Percentage of adopted national legal frameworks in Rwanda that address waste at different stages in the waste life cycle.

Within the Rwandan national framework, all waste life cycle stages are addressed, covering upstream, midstream, and downstream components (Figure 64). Primary production addresses approximately 30.61%, produce sale and consumption 30.61%, and waste management 32.65%. Finally, overarching covers the remaining 6.12% and comprises a range of life cycle stages.

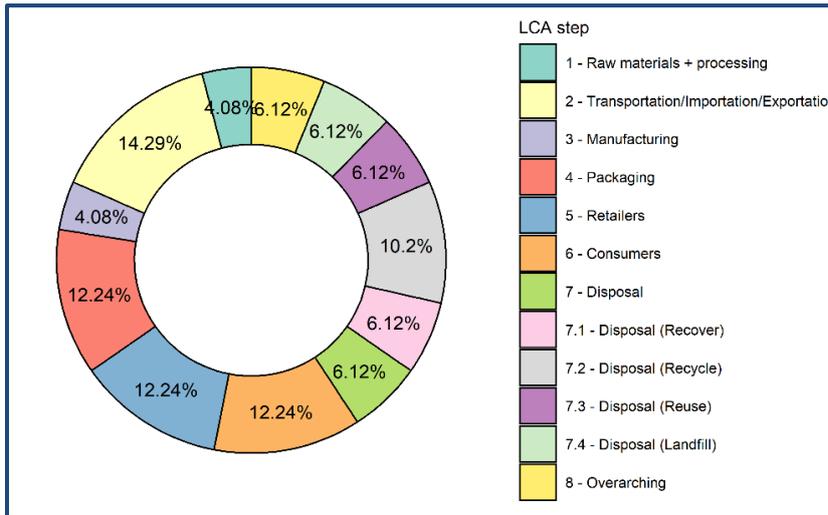
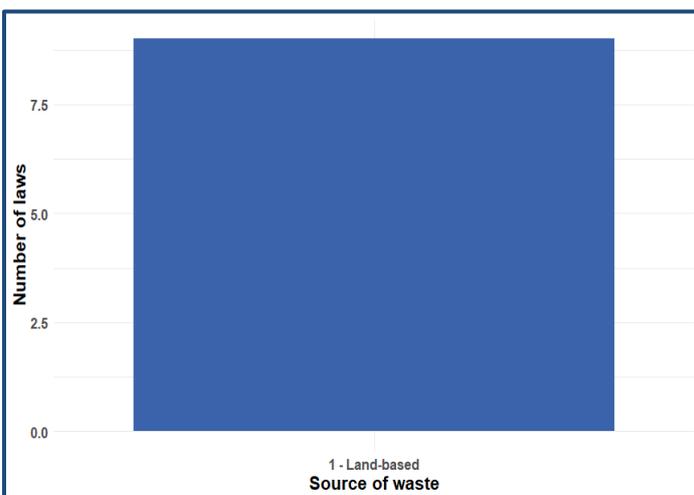
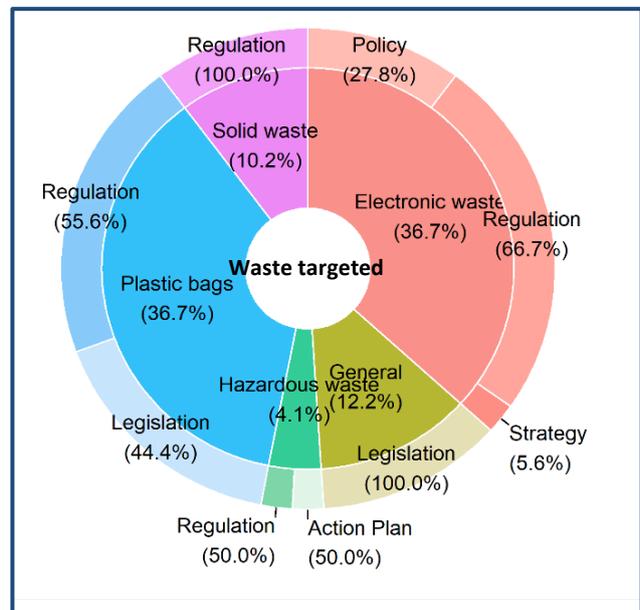


Figure 65. Percentage of adopted national legislation in Rwanda that addresses waste at different steps in the waste life cycle.

The national legal framework in Rwanda addresses all waste life cycle steps. Upstream components, including raw materials, transport and manufacturing, make up 22.49% (Figure 65). Approximately 36.72% address the midstream components packaging, retailers, and consumers. Downstream components, including various forms of disposal, comprise of 34.68%, while approximately 6.12% address overarching, which includes a range of life cycle steps.

The national legal framework in Rwanda (Figure 66) targets several forms of waste, the largest being plastic (36.7%), and exclusively plastic bags, which are governed by regulation (55.6%) and legislation (44.4%). Approximately 36.7% address e-waste, which is governed by policy (27.8%), regulation (66.7%), and strategies (5.6%). General waste addresses 12.2%, governed exclusively by legislation, and hazardous waste addresses 4.1%, governed by regulation (50%) and action plans (50%).

Figure 66. Percentage of adopted national laws governing different types of waste, with percentages of different types of the legal frameworks.



The legal framework in Rwanda is focused on pollution from land-based sources (Figure 67). Approximately nine laws or regulations govern waste on land.

Figure 67. The amount of land, marine and river-based laws pertaining to the different LCA stages in Rwanda.



Legal Framework Gaps in Rwanda

In Rwanda, all lifecycle stages and steps are addressed within the national legal framework. All forms of waste are targeted, however, national laws governing plastic waste are exclusively aimed at dealing with plastic bags, thus leaving all other forms of plastic waste without any form of legal coverage. Furthermore, Rwanda is not part of any multilateral agreements that address plastic waste. Despite many rivers in Rwanda draining into the Congo River basin, and ultimately the Atlantic Ocean, Rwanda has no legislation governing river-based sources of pollution.

UGANDA

International	Regional	National	Total
15	3	7	25



Table 30. List of national legal frameworks adopted in Uganda related to the life-cycle approach steps.

List of the Uganda legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
National Environment (Waste Management) Regulations, 2020	Overarching
Guidelines for the Management of Landfills in Uganda, 2020	Disposal, Disposal (Recovery), Disposal (Recycling)
National Environment (Wetlands, Riverbanks, and Lake Shores Management) Regulations, 2000	Overarching
National Environment Act, 2019 (No. 5 of 2019)	Overarching
Plastic Bag Ban, 2009	Packaging, retailers, consumers
Electronic-Waste (E-waste) Management Policy for Uganda, 2012	Overarching
National Implementation Plan II (NIPII) for the Stockholm Convention on Persistent Organic Pollutants (POPs) (2016- 2025)	Overarching

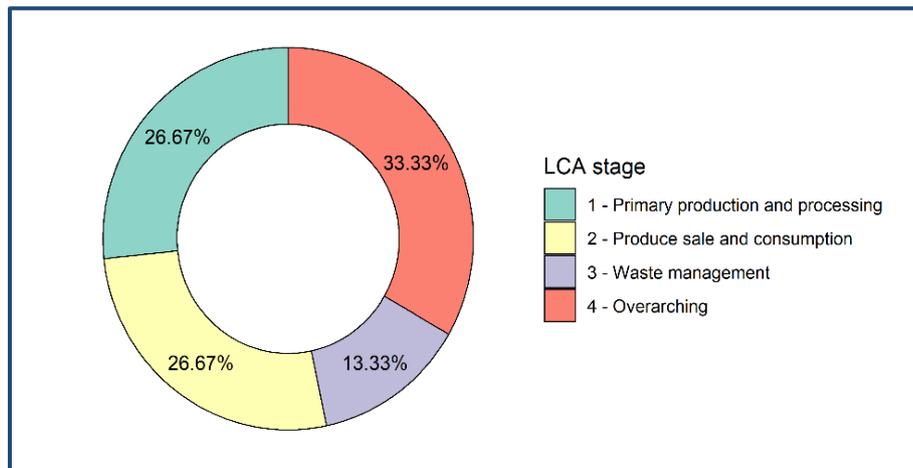


Figure 68. Percentage of adopted national legal frameworks in Uganda that address waste at different stages in the waste life cycle.

In Uganda, approximately 27% of the national legal framework address the first life and the second stage of waste, primary production and processing, and the product sale and consumption stages, respectively (Figure 68). About 13% target waste management, while approximately 33% govern waste in an overarching sense, speaking to certain steps across life stages.

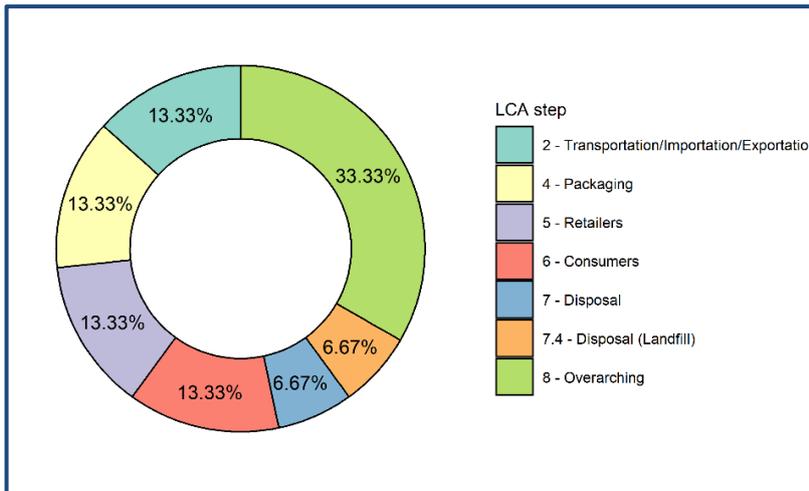
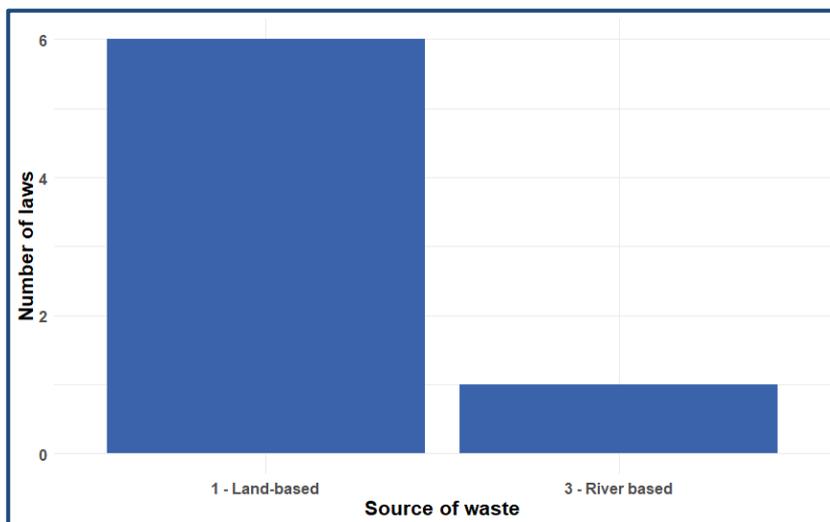
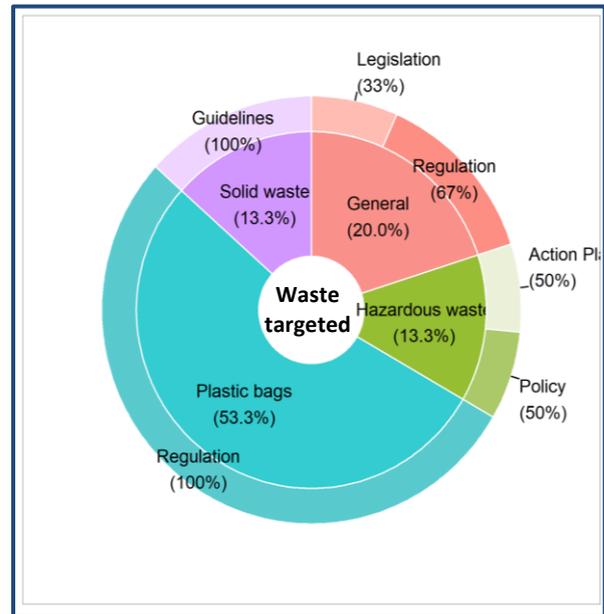


Figure 69. Percentage of adopted national legislation in Uganda that address waste at different steps in the waste life cycle.

Approximately 53% of the legal framework addresses plastic bags through regulation (Figure 70). Approximately 20% of the frameworks address general waste through legislation (33%) and regulation (67%). Solid waste is governed by 13% of the framework through guidelines and frameworks addressing hazardous waste and accounts for 13% of the legal waste framework through policy (50%) and action plans (50%).

Figure 70. Percentage of adopted national laws governing different types of waste in Uganda, with percentages of different types of the legal frameworks.



Upstream, there is no national legal framework that addresses the first LCA step of raw materials and processing (Figure 69). About 13% speak to transportation/exportation /importation, and no frameworks govern waste at a manufacturing stage. Midstream, approximately 13% govern packaging, retailers, and consumers, respectively. Downstream, about seven percent speaks to disposal and landfills, respectively. Approximately 33% govern waste in an overarching sense. There are no national legal frameworks addressing recovery, reuse, or recycling.

Approximately six laws or regulations govern waste on land, and one law is river-based (Figure 71).

Figure 71. The amount of land, marine and river-based laws pertaining to the different LCA stages in Uganda.



Legal Framework Gaps in Uganda

In Uganda, with regards to upstream, there is no national legal framework that addresses the first LCA step of raw materials and processing, and no frameworks govern waste at a manufacturing stage. There are no national legal frameworks that address E-waste. There is no national legal framework that addresses microbeads. There is no national legal framework that addresses the informal sector.

ZIMBABWE

International	Regional	National	Total
12	5	6	23



Table 31. List of national legal frameworks adopted in Zimbabwe related to the life-cycle approach steps.

List of the Zimbabwe legislation, policy, strategies, and guidelines pertaining to waste:	LCA steps
Environmental Management Act [Chapter 20:27], 2005	Overarching
Environmental Management Act (Effluents and Solid Waste Disposal) Regulations, 2007	Transportation/Importation/Exportation, Disposal (Landfill)
Environmental Management Act (Hazardous Waste Management) Regulations, 2007	Transportation/Importation/Exportation, Disposal (Landfill)
Environmental Management (Importation and Transit of Hazardous Substances and Waste) Regulations, 2009	Transportation/Importation/Exportation
Plastic Packaging and Plastic Bottles Regulation, 2010	Packaging, Retailers, Consumers
Ban on Styrofoam Products, 2017	Consumers

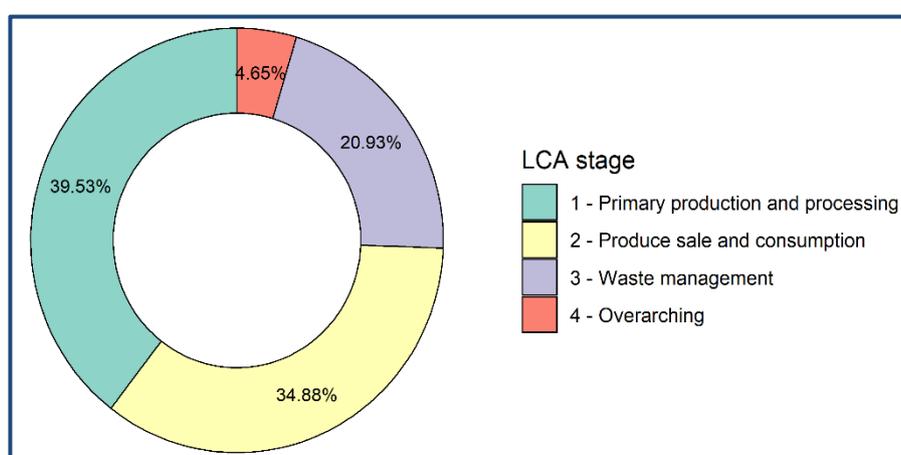
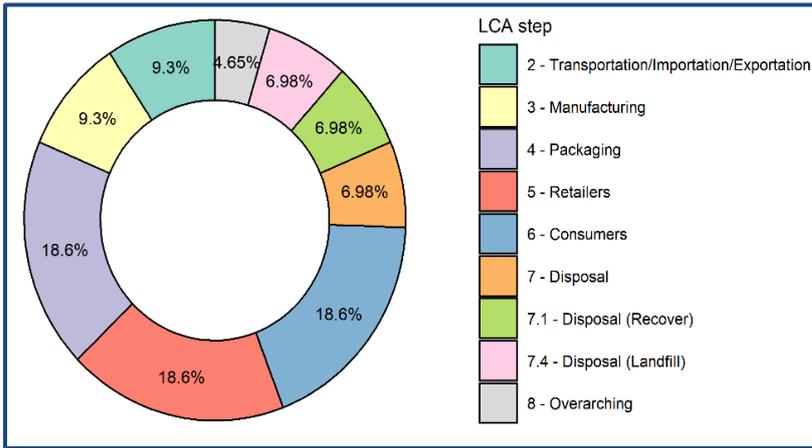


Figure 72. Percentage of adopted national legal frameworks in Zimbabwe that address waste at different stages in the waste life cycle.

In Zimbabwe, most legal frameworks (approximately 75%) govern the first two steps of the life cycle stages, namely primary production and processing and product sale and consumption (Figure 72). Roughly 21% targets waste management. Therefore, it was found that Zimbabwe's legal framework addressed all three LCA stages directly, with less legal framework addressing waste in general, overarching legislature.



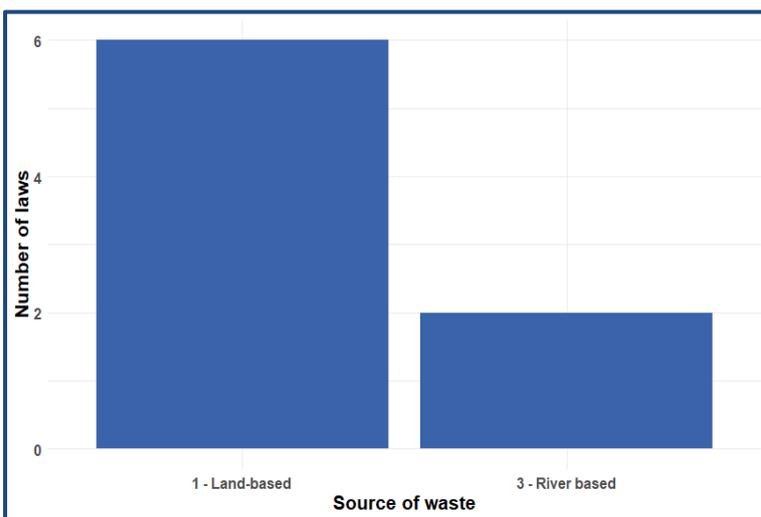
The legal framework predominantly governs the packaging, retailers, and consumers where the use of plastic bags and other single-use plastic products are banned (Figure 73). Zimbabwe was found to have legal framework addressing most LCA steps, however, there was no legal framework found for raw materials and processing or

Figure 73. Percentage of adopted national legislation in Zimbabwe that addresses waste at different steps in the waste life cycle.

Most legal framework found addressed plastic waste specifically (72%), with the legal framework targeting plastic waste using regulations. Solid waste (7%) and hazardous waste (16%) was specifically targeted with regulations, and waste was generally addressed in overarching legislature (Figure 74).



Figure 74. Percentage of adopted international, regional and national laws governing different types of waste in Zimbabwe, with percentages of different types of the legal frameworks.



The legal framework in Zimbabwe is focused on combating pollution at source, on land, with fewer laws regulating pollution sources (Figure 75).

Zimbabwe is a landlocked country and therefore did not have any marine-based sources governed by their legal framework. Six laws were found to regulate waste sources on land, with two laws targeting river-based pollution, respectively.

Figure 75. The amount of land, marine and river-based laws pertaining to the different LCA stages in Zimbabwe.



Legal Framework Gaps in Zimbabwe

Zimbabwe's legal framework was found to cover many of the LCA stages and steps. However, there was no legal framework found addressing the raw materials and processing LCA step. Reuse was also not addressed in their legal framework, though recycling was mentioned in legislation and/or regulations, but in a limited capacity. Zimbabwe has, however, placed bans on plastic bags and other single-use plastic products and shows commitment to protecting their environment from plastic pollution, as it is a member of the #breakfreefromplastic initiative. There was no legal framework found that specifically addressed e-waste in Zimbabwe, and neither is the informal waste sector covered. Bans on some single-use plastic products are in place, but there was no legal framework regarding microbeads.

MAURITIUS

International	Regional	National	Total
12	5	14	31



Table 32. List of national legal frameworks adopted in Mauritius related to the life-cycle approach steps.

List of the Mauritius legislation, policy, strategies, and guidelines pertaining to waste:	LCA Steps
Environment Protection Act, 2002	Overarching
Environment Protection (Collection, Storage, Treatment, Use and Disposal of Used Oil) Regulations, 2005	Disposal, Disposal (Recover), Disposal (Landfill)
Environment Protection (Industrial Waste Audit) Regulations, 2008	Disposal
Environment Protection (Standards for Effluent Discharge into the Ocean) Regulations, 2003	Disposal
Environment Protection (affixing of posters) Regulations, 2008	Retailers, Consumers
Environment Protection (banning of plastic banners) Regulations, 2008	Retailers, Consumers
Local Government (Registration of Recycler and Exporter) Regulations, 2013	Transportation/Importation/Exportation, Disposal, Disposal (Recycling), Disposal (Recover), Disposal (Reuse)
Local Government (Dumping and Waste Carriers) Regulations, 2003	Disposal, Disposal (Recover), Disposal (Landfill)
National Environment Policy, 2007	Overarching
Excise Duty on Non-Biodegradable Plastic Containers	Packaging
The Finance (Miscellaneous Provisions) Act, 2020	Transportation/Importation/Exportation, Manufacturing
Fisheries and Marine Resources (Prohibition of the Use of Hooks of Small Size) Regulations, 2011	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Environment Protection (Control of Single-Use Plastic Products) Regulations, 2020	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers
Plastic Bag Ban, 2016	Transportation/Importation/Exportation, Manufacturing, Packaging, Retailers, Consumers

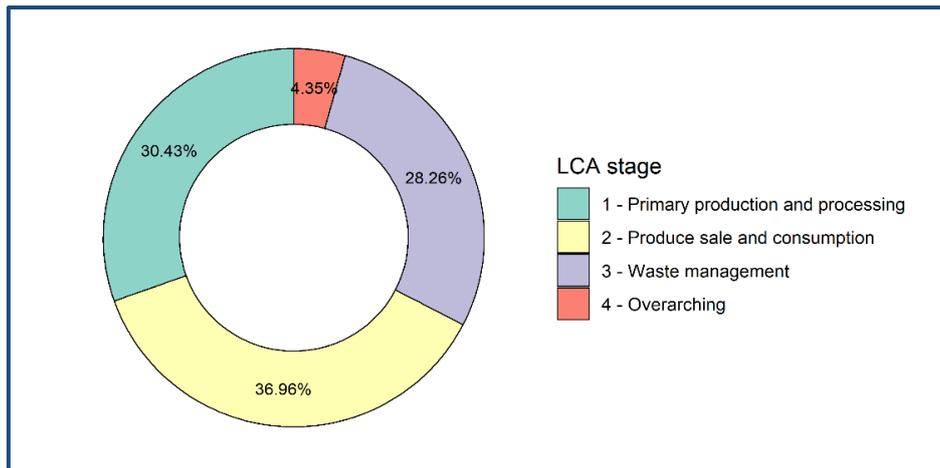


Figure 76. Percentage of adopted national legal frameworks in Mauritius that address waste at different stages in the waste life cycle.

In Mauritius, most legal frameworks (approximately 36%) govern associated waste at the product sale and consumption stage of its life cycle. Approximately 30% of legal frameworks address potential waste at the primary production and processing stage, and around 28% speak directly to the final stage of waste management (Figure 76). The smallest percentage (approximately four percent) speaks to legal framework that addresses waste in an overarching manner. This shows legal frameworks address the upstream, midstream, and downstream components of the waste life cycle.

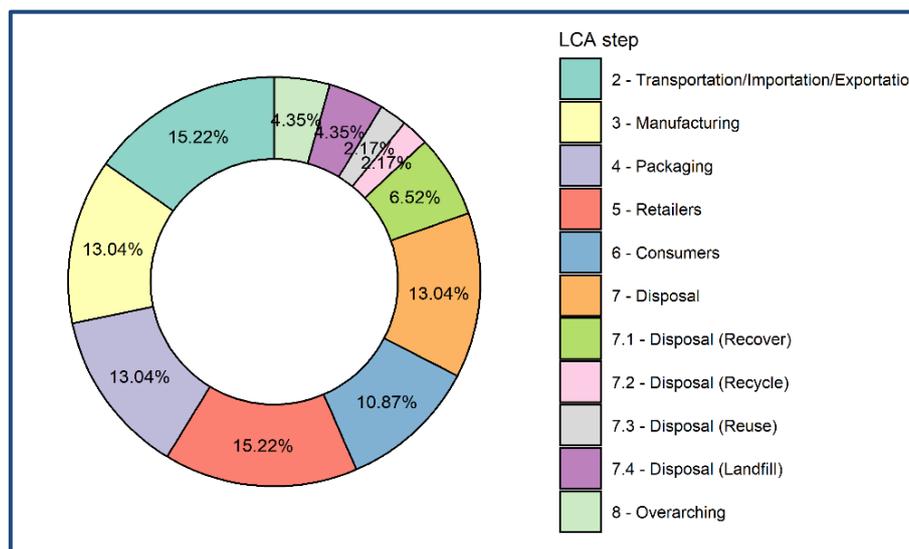


Figure 77. Percentage of adopted national legislation in Mauritius that address waste at different steps in the waste life cycle.

The legal framework in Mauritius addresses most LCA steps, except for raw materials and processing (Figure 77). Disposal is addressed by 13% of the legal framework, with reuse and recycle specifically addressed by 2.17%. Upstream and midstream components are addressed in Mauritius' legal framework, with most of them pertaining to the regulation of plastic waste in manufacturing. All sub-categories of disposal are also covered with Recovery, Re-use, Recycling, and Landfill addressed.

Plastic waste is addressed by 45% of the legal frameworks found around waste and marine litter (Figure 78). Solid and hazardous waste are also specifically addressed by regulations. 15% of the legal framework addresses waste generally, with legislation, policy, and regulation around it. Plastic bags are regulated by the legal framework.

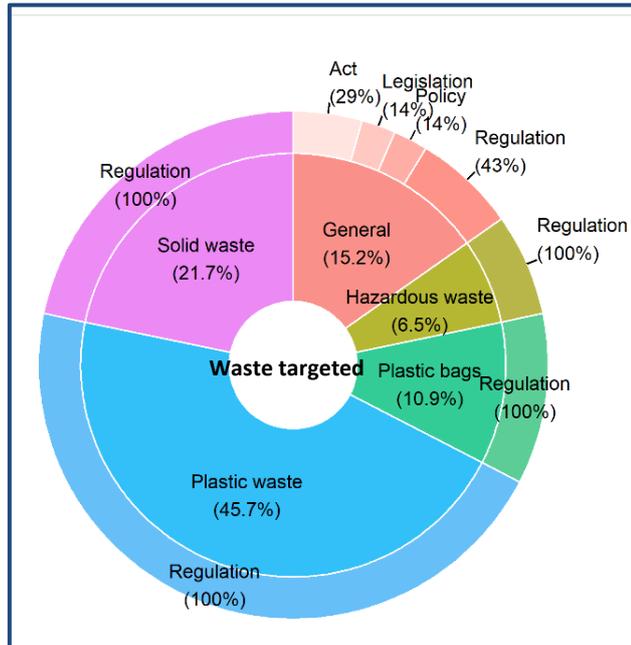


Figure 78. Percentage of national laws governing different types of waste in Mauritius, with percentages of different types of the legal frameworks.

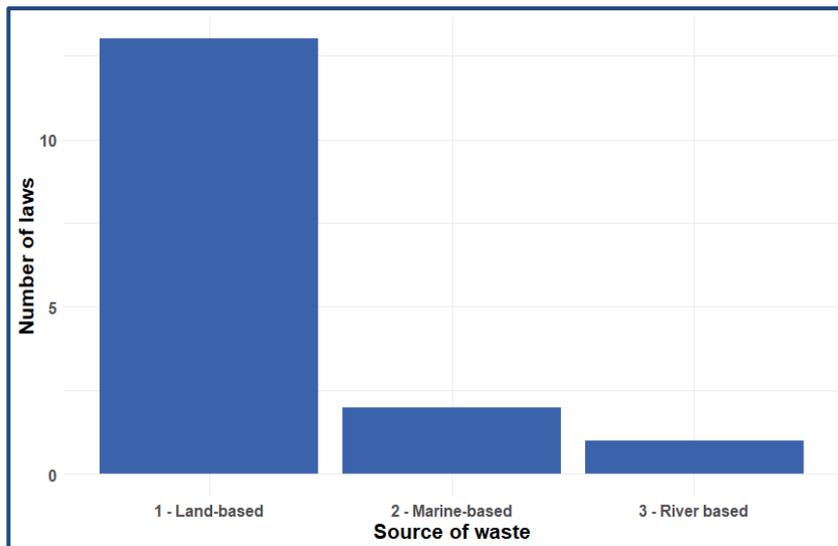


Figure 79. The amount of land, marine and river-based laws pertaining to the different LCA stages in Mauritius.

The legal framework in Mauritius has laws addressing land, marine, and river-based sources of pollution (Figure 79). Most of its laws address land-based sources, followed by marine and then river-based sources of pollution. Approximately 13 laws or regulations govern waste on land, with three laws targeting marine-based and river-based pollution, respectively.



Legal Framework Gaps in Mauritius

Mauritius' legal framework addresses single-use plastics quite extensively, with all governed by legally binding regulations. There is a smaller proportion of their legal framework that addresses waste management with minimal allocation to the recycling and reuse of plastics. Mauritius also does not address E-waste in their legal framework beyond general EPR practices that have been implemented. Therefore, there is no legal framework for downstream E-waste management. Other types of waste were found to be addressed specifically. Mauritius maritime law was found to govern marine dumping and fishing-related waste; however, it does not cover harbour or port waste reception in its legal framework. Mauritius is party to various international and regional agreements; however, it is not party to specifically plastic addressing soft law. Microbeads and the informal waste sector were not found in Mauritius' legal framework.

SEYCHELLES

International	Regional	National	Total
15	4	5	24



Table 33. List of national legal frameworks adopted in Seychelles related to the life-cycle approach steps.

List of the Seychelles legislation, policy, strategies, and guidelines pertaining to waste:	LCA Steps
Environment Protection Act, 1994	Overarching
Environment Protection (Landscape and Waste Management Agency) Regulations, 2008	Disposal, Disposal (Recover), Disposal (Landfill)
National Waste Policy 2014 - 2018	Manufacturing, Overarching
Environment Protection (Restriction on Importation, Distribution and Sale of Plastic Utensils and Polystyrene Boxes) Regulations, 2017	Transportation/Importation/Exportation, Packaging, Retailers, Consumers
Maritime Zone Act, 1977	Overarching

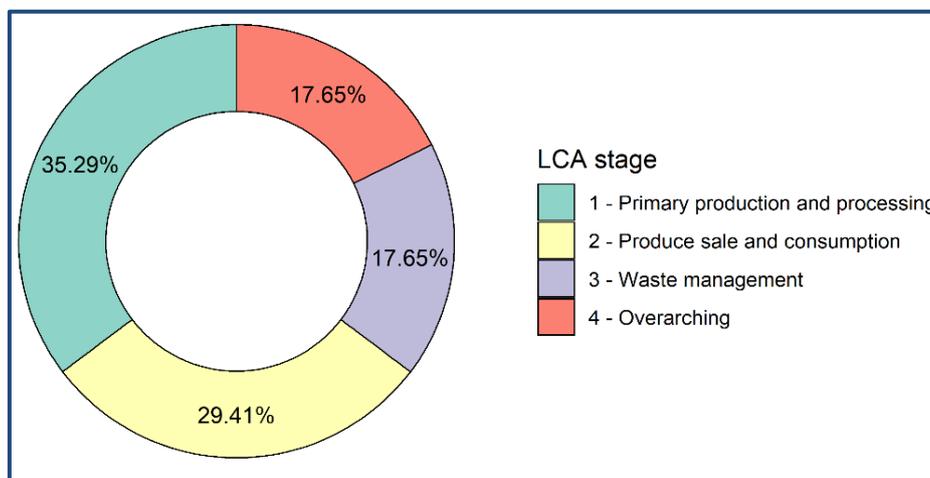


Figure 80. Percentage of adopted national legal frameworks in Seychelles that address waste at different stages in the waste life cycle.

In Seychelles, most legal frameworks (approximately 35%) govern associated waste at the primary production and processing stage of the life cycle (Figure 80). Approximately 30% of legal frameworks address produce sale and consumption stage, and only around 17% speak directly to the final stage of waste management. This legal framework, therefore, does address the upstream, midstream, and downstream components of the waste life cycle. Approximately 17% of legal frameworks govern general waste in overarching legislation with no specific reference to a life cycle stage or step.

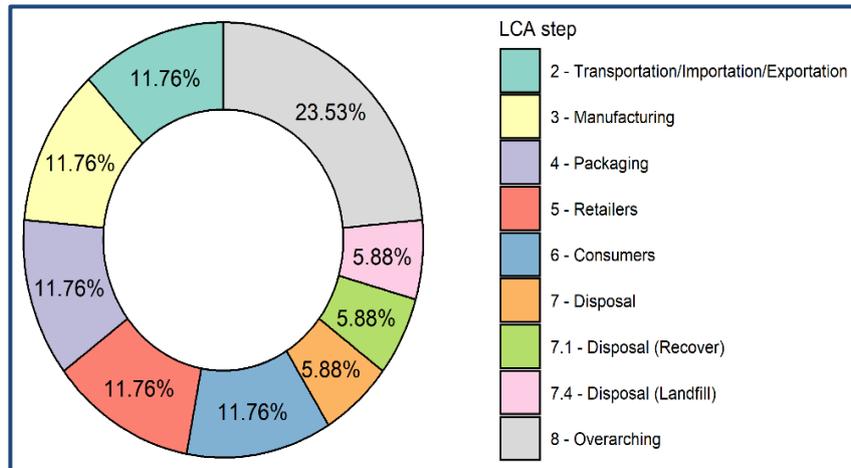


Figure 81. Percentage of adopted national legislation in Seychelles that address waste at different steps in the waste life cycle.

The legal framework mainly governs associated waste in an overarching sense (23%) (Figure 81). Most LCA steps are addressed by the legal framework in Seychelles, however, it does not address the raw materials and processing step or the recycling and reuse sub-categories of disposal. Governing focuses on the transportation/importation/exportation, manufacturing, and consumer, packaging, and retailers' phases of the waste life cycle (approximately 56% of the legal framework address these steps). Roughly 15% of the legal framework addresses waste management LCA steps.

Approximately 47% of the legal framework addresses plastic waste through regulations (Figure 82). Solid waste was also specifically addressed with regulation. The remaining waste is addressed more generally through legislation (33%) and policy (67%). E-waste and hazardous waste were not specifically addressed in the legal framework; however, hazardous waste is included in general waste.

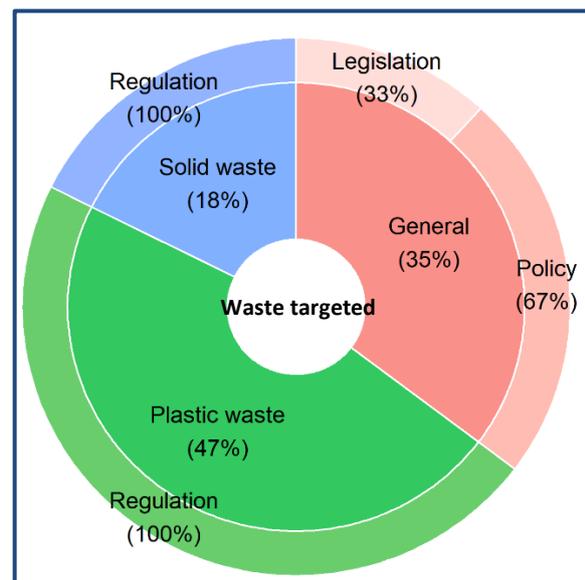
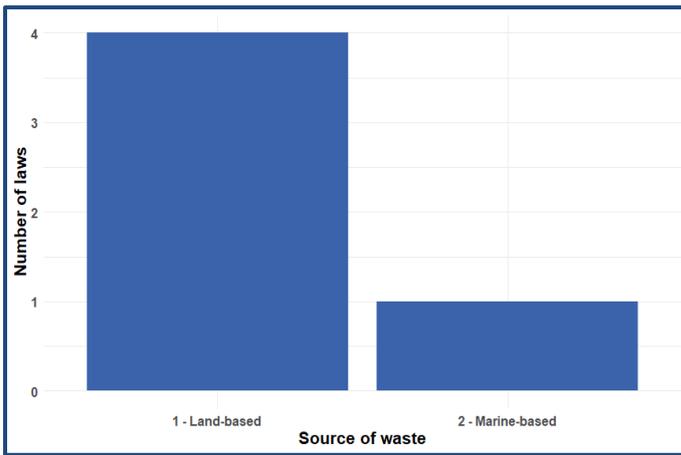


Figure 82. Percentage of adopted national laws governing different types of waste, with percentages of different types of the legal frameworks.



The legal framework in Seychelles is focused on combating pollution at source, on land, with very few laws or regulations addressing marine-based and river-based pollution sources (Figure 83). Approximately four laws or regulations govern waste on land, with only one law targeting marine-based pollution.

Figure 83. The amount of land, marine and river-based laws pertaining to the different LCA stages in Seychelles.



Legal Framework Gaps in Seychelles

In Seychelles, there is no legal framework that explicitly addresses waste during the first LCA step, raw materials, and processing. Seychelles has banned plastic bags and other types of single-use plastic products, and this is specifically addressed in the legal framework. However, recycling and reuse were not. Therefore, more downstream components of waste management may stand as a potential gap. Maritime law in Seychelles addresses marine dumping and fishing waste but does not cover harbour or port waste management in its legal framework. E-waste is partially covered in more general legislature, but it is not specifically addressed. There are plans for Extended Producer Responsibility (EPR) principle use, and currently, there is a plastic bag levy in place. Microbeads and the informal waste sector were not included in legal frameworks.

3.4.2.1. DISCUSSION OF NATIONAL GAPS

The use of the life cycle approach (LCA) at a national level allowed for a critical analysis of gaps in existing legal frameworks (on land, at sea, and in rivers) at every step of the value chain. It also allowed for potential legislative gaps for different types of waste, including hazardous, solid, plastic, and e-waste streams. One of the most significant gaps was the lack of national legal frameworks addressing the first LCA step (raw materials and processing). Though this demonstrates a legislative gap, context is important as not all studied countries processed raw materials. South Africa, Nigeria, and Ghana have substantial raw materials industries (oil and gas); however, South Africa has the largest plastics raw materials production in Africa, producing around 1,270,000 tonnes of virgin plastic in 2018 (Sadan and De Kock, 2020).

Other African countries may not have raw materials and processing sectors; however, the few countries with raw material production industries, namely, Kenya, Tanzania, and South Africa. While the countries with plastic manufacturing industries were found to have bans on plastic bags, including their importation and manufacturing, South Africa is the only country with EPR currently in effect. In contrast, Kenya has EPR policy, but no legislation, and Tanzania has no EPR legal framework in place.

The transportation of hazardous waste was found to be well addressed through countries' national legal frameworks. All countries govern hazardous waste at the transportation/importation/exportation phase; this is one of the only examples of law that started at an international level before being incorporated into a regional platform and finally into the national frameworks of the countries examined. South Africa and Zimbabwe have national legal frameworks that address potential leakages of hazardous waste at the packaging, retailers, and consumer steps; however, the countries examined with the LCA approach were found to govern the disposal stage of hazardous waste.

In general, national legislation was found to address solid waste at the disposal phase; however, it is important to note that although solid waste is generally well covered by national legislation, different types of waste are not all adequately targeted. Plastic waste and e-waste emerged as the major gaps. Plastic waste has consistently been identified as a major constituent of marine litter (Alliance to End Plastic Waste, 2019; Raubenheimer and Urho, 2020b; Sadan and De Kock, 2020). It can be difficult to manage leakages throughout a products life cycle without targeted legal frameworks (The Pew Charitable Trusts, 2020). Plastic waste has been largely addressed through plastic bag bans (present in 14 of 19 LCA analysed countries). However, the effectiveness of implementing these plastic bag bans remains an issue. With 30 of Africa's 54 countries adopting bans since 2000, some countries have had profound turnaround, while others continue to struggle (Kobo, 2021). Without viable alternatives to replace single-use plastic, the implementation of bans may remain difficult. Ghana, Nigeria, and Zambia were found to have implemented policies/action plans which set objectives to address plastics throughout its entire life cycle. However, the remaining countries either only address aspects of the plastic value chain, or do not address it at all. None of the countries in the study addressed microbeads in their regulatory texts.

Legislation and policy around the informal waste sector was explored. It was found that, of the countries included in the study, only South Africa and Morocco had legislation around the informal waste sector. This lack of legislation is a major gap, as the informal waste sector is an integral component of waste management in many African countries (ACCP, 2019; The Pew Charitable Trusts, 2020; UNEP, 2018).

Few countries in the study (only 40% of coastal countries in our analysis) had national laws to address the safe disposal of vessel solid waste streams at ports and harbours. Specific sector waste, like fishing, was mentioned in national legislation (except in Namibia); however, waste leakages and their safe disposal were not addressed adequately. When considered alongside other factors; such as that many African countries do not have sufficient sanitary landfill sites (e.g., 19% of waste in Kenya is disposed at unsanitary landfill), the high cost for the disposal of vessel waste, and lack of regulation in the tracking of the demand and receipt of waste disposal (e.g., in South Africa); this lack of legislation presents a major challenge in mitigating sea-based waste legislatively (APWC (Asia Pacific Waste Consultants), 2020; Randall, 2020).

3.5. Priority country analysis results

To provide qualitative details and information on the drivers for the development of the existing regulatory frameworks, interviews were sought with representatives from their national governments in the five focus countries. The list of the representatives who provided feedback via semi-structured interviews or questionnaires is provided in Appendix 2. Unfortunately, due to time and scheduling constraints, no representative from Comoros was available to participate in the study.

A summary of the responses obtained from the respondents on key topics concerning the development of regulatory frameworks is provided in the table below.

Table 34. Summary of interview responses on key topics.

Topic	Responses
Current state of regulatory framework	<ul style="list-style-type: none"> • Lesotho was found to have significant gaps in its national legislation. It was highlighted that there were no specific legal frameworks addressing waste management in Lesotho and that all waste management was enacted under certain sections of the National Environmental Act of 2008. There is a lack of cohesion between different ministries. Currently, there are no regulated landfills, instead 'legal dumping sites' are used. • Mauritius is taking various steps to move towards creating a more circular economy • South Africa overall has a good overall regulatory framework, with quite detailed legislation and regulations around waste management • Regulatory framework on marine litter in Morocco is well developed, although a specific strategy on marine litter is still lacking • Mozambique currently has a good overall regulatory framework however some elements are still lacking • Currently, Tanzania has no specific e-waste management legislation present, and e-waste is managed through solid waste and hazardous waste regulations • The regulatory frameworks of the Central African Republic (CAR) and Guinea are more limited
Background and drivers	<ul style="list-style-type: none"> • Focus on marine litter in Morocco was driven by their involvement in the Barcelona Convention. This has resulted in implementation of regulatory measures (such as the National MSW management programme in 2008) and monitoring activities (through the Barcelona Convention's MED POL programme and the EU's Horizon 2020 programme). They have received support from the World Bank for the development of a 'Plastic-free coastline' strategy • The blue economy strategy of the Indian Ocean Commission (IOC) provided an economic roadmap for the development of blue economy laws and strategies (in Mauritius), promoting the sustainable use of marine resources, protection of marine ecosystems, and waste management. • The regulations of the CAR are the result of its participation in the Rio Conference in 1992. Key laws on environment, water and public hygiene were developed to ensure national legislation was in accordance with international and regional conventions on waste (Basel, Bamako, Stockholm, Rotterdam and Minamata) • In South Africa, to address international best practice, there was a drive for Extended Producer Responsibility (EPR) policy objectives to encompass changes in both upstream and downstream components • E-waste is currently considered under hazardous waste by Basel and Bamako convention standards. This means that products under the guise of second-hand electronics are imported into Tanzania (and other African countries) when they are actually end-of-life/obsolete products.
Adaptation to local context	<ul style="list-style-type: none"> • Lesotho has a large informal waste sector and waste pickers play an important role in reducing the tonnage of waste. • To implement a more circular economy approach, private sectors in Mauritius have developed various activities to recover energy and metal from old batteries and electronic waste (e-waste). Additionally, a private sector scheme has also created an initiative that recycles glass bottles into construction and decoration material • The development and implementation of regulations and strategies in Morocco and the

	<p>CAR involves consultation with relevant stakeholders including households, private industry, and the informal sector. In the CAR proposed measures are also discussed between government ministries.</p> <ul style="list-style-type: none"> • In Guinea (as for other African countries) household waste is the key aspect to consider
Strong points of the existing regulatory framework	<ul style="list-style-type: none"> • To reduce single-use plastic consumption, Mauritius has placed a duty excision on non-biodegradable plastic food containers. They have also introduced a home composting scheme whereby compost bins are provided to households • In Guinea, an enforcement body for environmental legislation exists, although sanctioning of offenders is rare • A plastic bag ban is one of Kenya's the most notable step toward the reduction of single-use plastics • The purpose of the recently gazetted mandatory EPR in South Africa is to provide the framework for the development, implementation, monitoring, and evaluation of EPR schemes by producers to ensure the effective and efficient management of the identified product at the end of its life, and enable implementation of circular economy initiatives • An importation levy placed on electronic products in 2015 reduced the rate of e-waste flow into Tanzania. • In the CAR, legislation is clear and understandable and defines bodies for controlling and monitoring waste and enforcement • Regulations in Morocco are implemented with the necessary means, with collaboration stakeholders and accompanied by education and a transition period • In Mozambique, the legislation adopts a prevention approach
Key challenges	<ul style="list-style-type: none"> • Lack of infrastructure and governmental organisation (Lesotho) • Ambiguity within the plastic ban regulation causes misinterpretations which makes enforcement complicated (Kenya) • Ambiguities in the definition of Producer suggests that the entire value chain is legally considered to be "Producers", which means that no singular party can be held accountable. Additionally, South Africa's EPR legislation is overly prescriptive limiting its ability to evolve. As such, the South African regulations should have initially addressed the most pressing challenges rather than attempting to implement EPR across the board, resulting in a confusing regulatory framework that is difficult to manage well and enforce. • Social acceptance of measures (Morocco) • Importation of good is necessary which creates a key challenge with used packaging, • Lack of knowledge of waste management legislation within responsible authorities (Mozambique) <p>Definition of e-waste under international agreements such as the Basel and Bamako conventions make halting the importation of end-of-life electronic products into African countries</p> <ul style="list-style-type: none"> • Enforcement of existing laws (Morocco, Guinea, Mozambique) • Increasing quantity of waste requiring management (CAR, Guinea) • Material and/or financial means (CAR and Guinea) • Lack of political will to address the issue of marine litter (Guinea) • Need for training on enforcement of existing laws and education of the public on environmental issues (Guinea)
Needs to further develop the regulatory framework	<ul style="list-style-type: none"> • Financial, technical and governance support (Guinea, Lesotho, and CAR) • Full domestication of the IOC's blue economic strategies would strongly address the issue of waste, particularly plastics, through its entire lifecycle, from reduction of consumption to recycling and reuse (Mauritius) • Development of national, regional, and international legal frameworks to address the importation of e-waste (Tanzania and other African countries) • Improvement to capacity to control, monitor and enforce legislation (CAR) • Guidance documents to assist with implementation of existing legislation by responsible authorities (South Africa, Kenya, and Mozambique)

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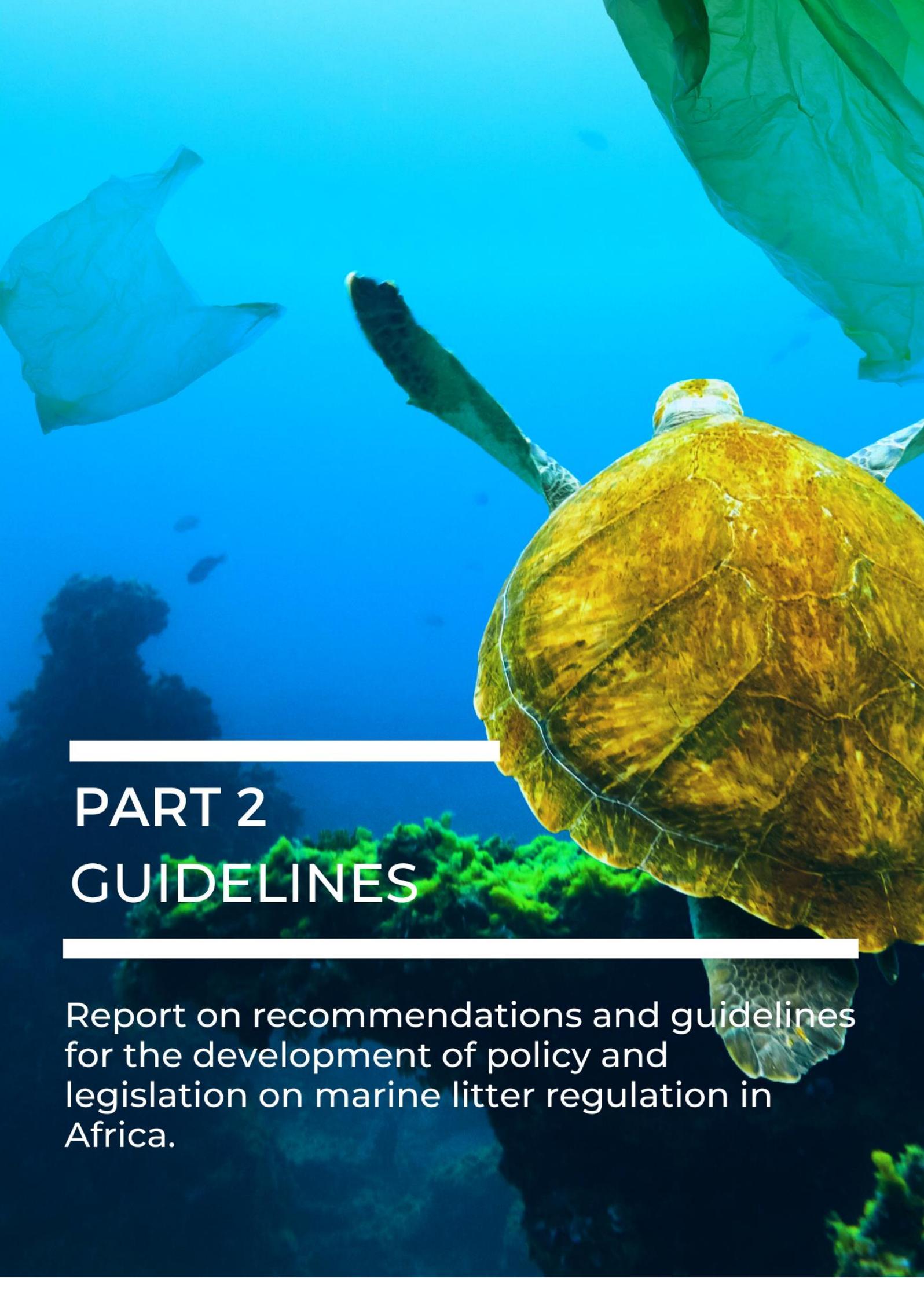
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PART 2 GUIDELINES

Report on recommendations and guidelines for the development of policy and legislation on marine litter regulation in Africa.

1.1. Development of the guidelines

While undertaking the gap analysis, several African-based examples of regulatory texts on marine litter were identified that may serve to inspire and lead countries in adjusting or developing further regulation on marine litter. Section 1.3 of Part II, presents example regulatory texts on marine litter which were selected as they met one or more of the following criteria:

- The approach is innovative or novel
- Addresses social and/or economic aspects of waste management
- Has been based on a life cycle approach
- Considers plastic as a main component of marine litter or key source of pollution
- Considers transboundary shared resources (such as lakes and rivers)
- Addresses aspects that have not yet been widely adopted across the studied countries
- Addresses key aspects in the prevention of leakages into the marine environment

Example texts were identified from among the international-, regional- and national-level elements of the regulatory frameworks studied in the gap analysis.

1.2. Example regulatory texts

The following section presents examples of texts reviewed as part of the gap analysis which may assist in providing inspiration to countries wishing to further develop their regulatory framework on marine litter. It should be noted however, that these are intended to serve as examples only and integration or addition of these elements into the regulatory framework should be undertaken in accordance with the guidelines presented in Section 4 of this report.

Sources for each of the texts cited are contained within the corresponding tab (international, regional or national) of the compendiums. The main provisions and other text are taken verbatim from the original regulatory texts which are cited in the title of the table examples below. We acknowledge with thanks the documents which are cited.

1.2.1. International level example

Title	Amendments to Annexes II, VII and IX to the Basel Convention, 2019
Country/Countries	Algeria, Benin, Democratic Republic of Congo, Ghana, Guinea, Ivory Coast, Kenya, Lesotho, Liberia, Malawi, Mauritius, Morocco, Namibia, Niger, Nigeria, Rwanda, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Uganda, Zambia, Zimbabwe
Entry into force	1 January 2021
Type of instrument	Amendments to a Multilateral Environmental Agreement (MEA)
Scope	International
Objective	To enhance the control of the transboundary movements of plastic waste and clarifying the scope of the Convention as it applies to such waste.
Main provisions	<p>Through decision BC-14/12, the COP approved the following changes to three annexes to the Convention:</p> <ul style="list-style-type: none"> Annex II (waste that requires special consideration: subject to the PIC procedure): addition of new entry Y48 covering all plastic waste, including mixtures of plastic waste, except for the plastic waste covered by entries A3210 (in Annex VIII) and B3011 (in Annex IX) Annex VIII (waste presumed to be hazardous: subject to the PIC procedure): addition of new entry A3210 covering hazardous plastic waste Annex IX (waste presumed to not be hazardous: not subject to the PIC procedure): addition of new entry B3011, replacing current entry B3010 after a specific date, covering plastic waste consisting exclusively of one non-halogenated polymer or resin, selected fluorinated polymers or mixtures of polyethylene, polypropylene and/or polyethylene terephthalate, provided the waste is destined for recycling in an environmentally sound manner and almost free from contamination and other types of wastes
Relevant innovative instruments	<ul style="list-style-type: none"> Amended to include plastic waste as hazardous waste Mandating how signatories of this treaty manage plastic waste

Title	United Nations Watercourses Convention, 1997
Country/Countries	Benin, Burkina Faso, Chad, Ghana, Guinea Bissau, Ivory Coast, Morocco, Namibia, Niger, Nigeria, South Africa
Entry into force	17 August 2014
Type of instrument	Multilateral Environmental Agreement
Scope	International
Objective	To prevent, reduce, and control the pollution of international watercourses that may cause significant harm to other watercourse States and/or to their environment.
Main provisions	<p>Part IV: Protection, Preservation and Management</p> <p>Article 20: Protection and preservation of ecosystems Watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses.</p> <p>Article 21: Prevention, reduction and control of pollution</p> <p>1. For the purpose of this article, “pollution of an international watercourse” means any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct.</p> <p>2. Watercourse States shall, individually and, where appropriate, jointly, prevent, reduce and control the pollution of an international watercourse that may cause significant harm to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse. Watercourse States shall take steps to harmonize their policies in this connection.</p> <p>3. Watercourse States shall, at the request of any of them, consult with a view to arriving at mutually agreeable measures and methods to prevent, reduce and control pollution of an international watercourse, such as:</p> <p>(a) Setting joint water quality objectives and criteria</p> <p>(b) Establishing techniques and practices to address pollution from point and non-point sources</p> <p>(c) Establishing lists of substances, the introduction of which into the waters of an international watercourse is to be prohibited, limited, investigated or monitored</p> <p>Article 22: Introduction of alien or new species Watercourse States shall take all measures necessary to prevent the introduction of species, alien or new, into an international watercourse which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse States.</p> <p>Article 23 – Protection and preservation of the marine environment Watercourse States shall, individually and, where appropriate, in cooperation with other States, take all measures with respect to an international watercourse that are necessary to protect and preserve the marine environment, including estuaries, taking into account generally accepted international rules and standards.</p> <p>Article 24 – Management</p> <p>1. Watercourse States shall, at the request of any of them, enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism.</p> <p>2. For the purposes of this article, “management” refers, in particular, to:</p> <p>(a) Planning the sustainable development of an international watercourse and providing for the implementation of any plans adopted; and</p> <p>(b) Otherwise promoting the rational and optimal utilization, protection and control of the watercourse.</p> <p>Article 25 – Regulation</p> <p>1. Watercourse States shall cooperate, where appropriate, to respond to needs or opportunities for regulation of the flow of the waters of an international watercourse.</p> <p>2. Unless otherwise agreed, watercourse States shall participate on an equitable basis in the construction and maintenance or defrayal of the costs of such regulation works as they may have agreed to undertake. 103. For the purposes of this article, “regulation” means the use of hydraulic works or any other continuing measure to alter, vary or otherwise control the flow of the waters of an international watercourse.</p>

	<p>Article 26 - Installations</p> <p>1. Watercourse States shall, within their respective territories, employ their best efforts to maintain and protect installations, facilities and other works related to an international watercourse.</p> <p>2. Watercourse States shall, at the request of any of them which has reasonable grounds to believe that it may suffer significant adverse effects, enter into consultations with regard to:</p> <p>(a) The safe operation and maintenance of installations, facilities or other works related to an international watercourse; and</p> <p>(b) The protection of installations, facilities or other works from wilful or negligent acts or the forces of nature.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Establishment of a shared responsibility and management of international watercourses • Accountability for the well-being and functioning of shared watercourses

1.2.2. Regional level examples

Title	Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean (WIO) from Land-based Sources and Activities
Country/Countries	Kenya, Mauritius, Seychelles, Comoros, Madagascar, Somalia, and Tanzania
Entry into force	31 st March 2010
Type of instrument	Multilateral Environmental Agreement – Protocol
Scope	Regional
Objective	To achieve better protection of the marine and coastal environment of the Western Indian Ocean (WIO) region from pollution from land land-based sources and activities.
Main provisions	<p>Article 4</p> <p>(1) The Contracting Parties shall individually or jointly take appropriate measures in conformity with international law and in accordance with the Convention and this Protocol, to prevent, reduce, mitigate, combat and, to the extent possible, eliminate the pollution or degradation of the Protocol area from land-based sources and activities, using for this purpose the best practicable means at their disposal and in accordance with their respective capabilities.</p> <p>Article 6</p> <p>(1): The Contracting Parties shall take all necessary measures to prevent, reduce, mitigate, combat, or eliminate, as appropriate, the pollution load from diffuse sources, in particular, agricultural activities affecting the marine and coastal environment of the Protocol area with a view to complying with environmental quality standards and environmental quality objectives as may be established under this Protocol</p> <p>Article 8</p> <p>(1) Where pollution from land-based sources and activities originating from any Contracting Party has affected or is likely to affect the marine and coastal environment of another Contracting Party, the Contracting Party from where the pollution originates shall inform and consult the affected Party and all other interested parties and cooperate in taking measures to reduce or prevent the effects or likely effects of that pollution.</p> <p>(2) Where discharges or releases to a watercourse or body that flows through or traverses the territories of two or more Contracting Parties or forms a boundary between them, cause or are likely to cause pollution of the marine and coastal environment of the Protocol area, the Contracting Parties shall cooperate to ensure the full application of the Protocol.</p> <p>(3) Each Contracting Party shall endeavour to cooperate with non-Contracting Parties to prevent transboundary pollution into the Protocol area to make possible the full application of this Protocol.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Accountability of actions for implicated states.

Title	ECOWAS Integrated Maritime Strategy
Country/Countries	ECOWAS (Economic Community of West African States): Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, the Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo
Entry into force	August 2014
Type of instrument	Strategy
Scope	Regional
Objective	A prosperous, safe and peaceful ECOWAS maritime domain for all its peoples that will allow environmentally sustainable development and wealth creation based on efficient management and good governance.
Main provisions	<p>Action 3.1 – prevent and combat pollution</p> <p>55 i) Ensure the implementation of the Abidjan Convention adopted in 1981 and implemented in 1984 as the Convention for Cooperation in the Protection, Management and Development of the Marine Environment of the Atlantic Coast of the West, Central and Southern African Region.</p> <p>ii) Ensure that all appropriate measures are in place to prevent, reduce, combat and control pollution caused by normal or accidental discharges/dumping from ships and aircraft, and ensure the effective application of internationally recognised rules and standards to control this type of pollution.</p> <p>iii) Prevent, reduce, combat and control pollution caused by industrial, agricultural and domestic discharges into rivers, estuaries and coastal establishments, and outfalls or coastal dumping emanating from any other sources in the ECOWAS region.</p> <p>vii) Establish a cooperative network based on coastal observation stations and remote sensing techniques to provide data on trends in marine environment, beach and coastal water pollution.</p> <p>ix) Cooperate in activities with other parties, including ECCAS, MOWCA, GGC and other strategic partners and interested organisations, directly and through their secretariats, on the dissemination of information on the transboundary movement of chemical and hazardous and other wastes, especially e-waste, to improve the environmentally sound management of such waste and to prevent illegal traffic.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Support for the implementation of the Abidjan convention by all member states (coastal and landlocked) • Addressing international aspects of marine litter (transboundary movement of waste) • Support of cooperation between countries and regional bodies on data collection and controlling transboundary movement of e-waste

Title	Annexe 1 of the water charter for the Niger basin
Country/Countries	Niger Basin Authority: Benin, Burkina Faso, Cameroon, Chad, Guinea, Ivory Coast, Mali, Niger, Nigeria
Entry into force	30 September 2011
Type of instrument	Charter
Scope	Regional
Objective	<p>Ensure appropriate protection of the environment of the basin on the basis of sustainable, concerted and participatory management of the environment in accordance with the objectives of sustainable development.</p> <p>It is adopted in application of articles 2, 12 and 33 of the Niger Basin Water Charter, whose provisions on environmental protection it specifies and completes.</p>
Main provisions	<p>Article 51 - General obligation to combat pollution The Authority and the States Parties undertake to work together to prevent and reduce pollution of any kind in the Niger Basin.</p> <p>Article 52 - Scope of the fight against pollution The fight against pollution concerns in particular: c) the protection of the environment from hazardous substances, including wastes...</p> <p>Article 54 - Combatting pollution within States The States Parties shall cooperate closely with the Authority for the prevention, control and reduction of pollution in their respective territories. They shall undertake individually and collectively through the Authority to control and combat any action likely to affect the integrity of the environment of the basin and in particular to modify significantly the characteristics of the environment. They shall give priority to preventing pollution at source.</p> <p>Article 55 - Preventing and combatting transboundary pollution States Parties shall cooperate closely with each other and within the Authority to prevent transboundary pollution in connection with the activities they undertake or permit within their respective territories in the course of their economic and social development. However, in the event of transboundary pollution, the State in whose territory the pollution is located, and the State affected by the effects of the pollution shall inform the Authority and shall immediately enter into consultations with a view to stopping the pollution and, where appropriate, to considering ways and means of correcting the damage. Compensation for damage caused by transboundary pollution shall be made in accordance with the principles and rules of international law.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Addressing international aspects of marine litter (transboundary movement) • Support of coordinated national and regional actions to limit pollution, preferably at source

1.2.3. National level examples

Title	National E-Waste Management Policy for Rwanda
Country/Countries	Rwanda
Entry into force	August 2018
Type of instrument	Policy
Scope	National
Objective	To ensure the effective and efficient management of electronic waste (E-waste) for a safe environment and human health protection, to minimize adverse effects of e-waste on environment and human health; Promote the establishment of e-waste management facilities and investment in e-waste management; Increase the knowledge capacity of stakeholders by promoting investment, education, and awareness.
Main provisions	<p>This policy is built on the following principles:</p> <ol style="list-style-type: none"> 1) Device life cycle: Reduce, re-use and recycle: Reduce and reuse approach can help minimize E-waste through expanding the life span of electronic devices and reusing those EEE which are still in good condition. Example: electronic devices that have been discarded by government institutions can be refurbished and reused by academic institutions. 2) Resource recovery: E-waste recycling involves collection and dismantling to recover valuable metals from EEE such as gold, copper, etc. These can be used as raw materials for the manufacturing of other products. 3) Protection of human health and environment: all hazardous materials in E-waste should be treated properly to avoid harming or endangering human health and the environment. 4) Job creation and private sector development: this policy will foster investment and job creation in E-waste management and control, which will promote creativity and innovation especially for young entrepreneurs. 5) Sustainability: Through this policy, the prevention of environmental and health-related hazards as well as the creation of income generation opportunities will contribute to the sustainable development of Rwanda.
Relevant innovative instruments	<ul style="list-style-type: none"> • Life cycle approach • Reduce, re-use, recycle, refurbish • Cross-cutting approach to stakeholder engagement

Title	National Policy on Plastic Waste Management
Country/Countries	Nigeria
Entry into force	October 2020
Type of instrument	Policy
Scope	National
Objective	To promote sustainable use of plastic through its life cycle management and to phase out single use plastics, effective levy and EPR use, using a plastics life cycle approach.
Main provisions	<p>Section 2.1.3 sets mandatory targets for recycling, EPR schemes and phasing out of certain plastics by specified dates:</p> <ul style="list-style-type: none"> • Limit the impact of littering of single-use plastic packaging product and waste materials • Reduce plastic waste generation by 50% of its baseline figure of 2020 by year 2025 • Phase out single-use plastic bags and Styrofoam, effective December 2028 • Ban plastic bags, cutlery, Styrofoam and straws, effective January 2025 • Transform all plastic products, packaging materials and its waste to resource materials • Ensure that all plastic packaging in the market meet at least two criteria of being recyclable or biodegradable or compostable or reusable by 2030 • Promote sustainable use of alternatives to single use plastics including jute bags, leaves, paper, glass bottles, etc. from May 2020 • Generate a database on plastics, amongst others.
Relevant innovative	<ul style="list-style-type: none"> • Mandatory targets for recycling

instruments	<ul style="list-style-type: none"> • EPR schemes • Phasing out of certain plastics and promote sustainable alternatives.
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Title	National Solid Waste Management Strategy for Zambia
Country/Countries	Zambia
Entry into force	September 2004
Type of instrument	Strategy
Scope	National
Objective	<ul style="list-style-type: none"> • Minimise generation of waste • Maximise the collection efficiency of waste • Reduce the volume of waste requiring disposal and maximise the economic value of waste • Develop and adopt environmentally sound treatment and disposal methods/practices
Main provisions	<p>4.2 Principles for the strategy</p> <p>This strategy aims to introduce and promote environmentally sound waste management practices in Zambia. The following principles are cardinal in the implementation of the strategy.</p> <p>Polluter pays principle: This principle entails the costs of preventing, abating pollution i.e., potential polluter acts to prevent pollution, and pays for remedying the eliminating and/or compensating for damage to the environment must be borne by the party responsible.</p> <p>Integrated life-cycle principle: The substances and products should be designed and managed in such a way that environmental impacts are minimised during generation, use, recovery, and disposal.</p> <p>Source reduction principle: This implies any practice that reduces the amount or toxicity of waste materials generated. The focus is on how to generate less waste rather than what to do with waste. Source reduction practices may include the following:</p> <ul style="list-style-type: none"> • Reduce material use in product manufacture • Increase production efficiency resulting in less production waste • Decrease toxicity • Material reuse or more efficient consumer use of materials (e.g., reusable shopping bags) This may be achieved by using appropriate plant and process designs. <p>Precautionary principle: This implies that where there is uncertainty over the consequences of an activity or project, no action should be taken. A risk assessment exercise is undertaken before proceeding with a project that is likely to have negative impacts.</p> <p>Principle of Co-operation: This principle emphasises that co-operation among all social groups is vital to solving environmental problems</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Combination of principles and approaches to waste management to create a more rounded approach to solid waste management.

Title	Waste Picker Integration Guideline for South Africa
Country/Countries	South Africa
Entry into force	August 2020
Type of instrument	Guideline
Scope	National
Objective	<p>This Guideline is designed to provide all parties involved in recycling and waste picker integration with information and analysis necessary to develop a common understanding of:</p> <ul style="list-style-type: none"> • what waste picker integration is • the principles that underpin waste picker integration • why it is important • how it is related to formal recycling programmes • the forms that waste picker integration can take • key issues related to waste picker integration that need to be considered • how to develop and implement a waste picker integration programme and plan through an agreed participatory process that includes waste pickers as key partners
Main provisions	<p>Section H (4)</p> <p>Developing waste picker integration plans Successful waste picker integration requires a programmatic approach that gives effect to the Waste Picker Integration Principles. Waste picker integration plans (WPIPs) are an important tool to help achieve this goal. The objectives of waste picker integration plans are to:</p> <p>(a) involve waste pickers in all decisions that affect their work, livelihoods and lives</p> <p>(b) ensure that waste pickers and their 'separate at source' system are integrated into formal systems to collect recyclables and all levels of the value chain</p> <p>(c) develop locally relevant, cost-effective programmes aligned with the waste picker integration principles that increase current diversion of recyclable and reusable materials from landfills and grow the recycling economy</p> <p>(d) generate data required to develop a comprehensive understanding of the intended and unintended effects of each integrated recycling option, and make evidence-based decisions when selecting options</p> <p>(e) ensure that waste pickers' conditions and livelihoods are improved and not worsened by formal recycling and waste picker integration programmes</p> <p>(f) minimise and mitigate harm caused to waste pickers by existing recycling and waste picker programmes to the greatest extent possible</p> <p>(g) create alternatives for affected waste pickers when negative effects cannot be avoided</p> <p>(h) develop a coherent waste picker integration plan with a clear budget, timeline and allocation of responsibilities to ensure effective implementation</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Integration of waste pickers and informal sector • Improved working conditions • Recognition, respect, and social inclusion

Title	Law of the merchant marine code
Country/Countries	Mauritania
Entry into force	15 October 2013
Type of instrument	Legislation (Law)
Scope	National
Objective	Legislation governing the maritime waters under the jurisdiction of, and vessels registered in the Islamic Republic of Mauritania.
Main provisions	<p>Article 2 The provisions of the following international conventions ratified by the Islamic Republic of Mauritania, or to which it has acceded, as well as amendments to the said conventions, or any other international conventions which it may ratify or accede to in the future, are applicable as of right in their entirety:</p> <ul style="list-style-type: none"> • International Convention of 1972 on the Prevention of Marine pollution resulting from the dumping of wastes and its Protocol of 1996 (LC 72) • International Convention of 1973 for the Prevention of Pollution from Ships and its Protocol of 1978 relating thereto (MARPOL73/78) <p>Article 291 Notwithstanding any other provisions relating to the safety of ships or the prevention of marine pollution, the Port Authorities or managers of loading and unloading facilities or terminals are required to:</p> <ul style="list-style-type: none"> • Take all specific measures to prevent and avoid the pollution of the water bodies of ports, facilities and terminals by ships using these facilities • Make available to vessels in port fixed reception facilities to receive ship-generated waste and cargo residues <p>Where the following definitions apply:</p> <ul style="list-style-type: none"> • “Ship-generated waste” is all wastes including wastewater and residues other than cargo residues generated during the operation of the ship and defined in Annexes I, IV and V of MARPOL 73/78 as well as cargo-related wastes as defined in the guidelines for implementation of Annex V of MARPOL 72/78 • “Cargo residues” is any remains of cargo on board remaining in the holds or tanks after the completion of unloading and cleaning operations, including excesses and quantities spilled during loading and/or unloading operations • “Fixed reception facilities” is any fixed, floating or mobile facility that can be used for the collection of ship-generated waste or operational waste <p>Article 292 The port authority or manager of a loading or unloading facility or terminal shall establish and implement a “Waste Reception and Treatment Plan”, approved by the maritime authority. This plan must be updated every 3 years and/or following any significant change to operations of the port or terminal.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Waste management at ports through the provision of waste management facilities and a waste management plan • Implementation of relevant international conventions (MARPOL and London Convention) at national level

Title	Regulation on the Management of Solid Urban Waste										
Country/Countries	Mozambique										
Entry into force	31 December 2014										
Type of instrument	Legislation (Decree)										
Scope	National										
Objective	To establish nationwide rules for the management of MSW										
Main provisions	<p>Article 11 The obligations of producers, transporters and operators of MSW are to:</p> <p>c) guarantee the segregation and conditioning of the waste in different categories in accordance with the provisions in article 14 of this Regulation</p> <p>f) ensure that the transportation of waste is carried out in an appropriate way, ensuring that there is no dispersion of the MSW along the route to the treatment site or final destination</p> <p>h) keep a detailed annual record of the origins, quantities and types of waste handled, transported, treated, recovered or disposed of</p> <p>Article 13</p> <p>1. The selective collection system must be approved by the Municipal Councils or District Governments, and the waste must be separated according to the categories set out in Article 14, paragraph 1.</p> <p>2. The selective collection system mentioned above should promote the participation of cooperatives or other forms of associations of collectors of reusable and recyclable materials.</p> <p>3. Implementation of the selective collection system should be undertaken by the Municipal Councils or District Governments, by the private sector, or by associations or cooperatives of reusable and recyclable materials.</p> <p>Article 14 Segregation and collection of MSW</p> <p>1. Under the terms of this Regulation, MSW should be segregated according to the following categories:</p> <table border="0" data-bbox="486 1164 1197 1332"> <tr> <td>a) Organic matter</td> <td>f) Metal</td> </tr> <tr> <td>b) Paper or cardboard</td> <td>g) Textiles</td> </tr> <tr> <td>c) Inert waste/debris</td> <td>h) Rubber</td> </tr> <tr> <td>d) Plastic</td> <td>i) Bulky household waste</td> </tr> <tr> <td>e) Glass</td> <td>j) Special waste</td> </tr> </table> <p>2. The entities that produce or handle MSW must have adequate waste pre-collection storage conditions, so that waste can be deposited in the containers intended for this purpose and be done in such a way as to avoid its dispersion onto public roads.</p> <p>3. The conditions for pre-collection waste storage to be adopted under paragraph 2 of this article should allow for clear identification of the recipients or containers and the places where the waste is to be stored, according to the categories indicated in paragraph 1 of this article.</p> <p>Article 18 Municipal councils and district governments should:</p> <p>a) Promote public awareness education programmes on the importance of proper municipal waste management, with emphasis on reduction, prevention and control of pollution, and the benefits of reuse and recycling</p> <p>b) Disseminate information on good waste management practices, involving local communities, local leaders, schools, universities, media, private sector and non-government organisations</p> <p>c) Publish the calendar of urban waste management activities</p>	a) Organic matter	f) Metal	b) Paper or cardboard	g) Textiles	c) Inert waste/debris	h) Rubber	d) Plastic	i) Bulky household waste	e) Glass	j) Special waste
a) Organic matter	f) Metal										
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c) Inert waste/debris	h) Rubber										
d) Plastic	i) Bulky household waste										
e) Glass	j) Special waste										
Relevant innovative instruments	<ul style="list-style-type: none"> • Promoting inclusion of the informal sector (cooperatives/associations of collectors) • Allowing for source-separation of MSW • Rules for pre-collection and transport to minimise unintentional losses • Requirement for the gathering of data to assist in monitoring waste generation and management • Encouraging local governments to engage in public awareness raising 										

Title	Decree promulgating the law of waste management and disposal
Country/Countries	Morocco
Entry into force	22 November 2006
Type of instrument	Legislation (Decree)
Scope	National
Objective	Prevent and protect human health, fauna, flora, water, air, soil, ecosystems, sites and landscapes and the environment in general against the harmful effects of waste.
Main provisions	<p>Article 12</p> <p>Within five (5) years from the date of publication of this law, the territory of each prefecture or province shall be covered by a prefectural or provincial master plan for the management of household and similar waste.</p> <p>This plan determines in particular:</p> <ul style="list-style-type: none"> • the objectives to be achieved in terms of collection and disposal rates for MSW • the appropriate sites intended for the installation of waste elimination and storage facilities, taking into account the guidance of town planning documents • a five (5) and ten (10) year forecast inventory of the quantities of waste to be collected and disposed of according to their origin, nature and type • an investment program for the same duration including the evaluation of the costs of controlled landfills and treatment, recovery, storage or disposal facilities for this waste, as well as the rehabilitation of non-controlled landfills • the necessary financial and human resources • the measures to be taken in terms of information, awareness and advice <p>The prefectural or provincial master plan is established on the initiative and under the responsibility of the governor of the prefecture or province in consultation with a consultative commission composed of representatives of the councils of the communes and their groupings, the provincial council, the administration, professional bodies concerned with the production and disposal of such waste and neighbourhood associations as well as environmental protection associations operating in the prefecture or province concerned.</p> <p>The master plan takes into account the needs and potential of neighbouring areas outside the territory of its application, as well as the possibilities of inter-prefectural or inter-provincial cooperation in this field.</p> <p>The plan is subject to public consultation. It is approved by order of the wali or the governor after opinion of the prefectural or provincial council.</p> <p>Article 13</p> <p>The prefectural or provincial master plan is developed for a period of ten (10) years. It may be revised whenever circumstances require, following the same procedure followed for its elaboration.</p> <p>The modalities for the elaboration of this plan and the procedure for the organization of the public consultation are fixed by regulation.</p> <p>Article 15</p> <p>In the absence of the prefectural or provincial master plan provided for in Articles 10 and 12 above, the administration shall establish, by regulation, the places, conditions and technical requirements for the management of such waste.</p> <p>Article 16</p> <p>The municipal public service for managing MSW includes the collection, transport, disposal, treatment, recovery and, where appropriate, sorting of this waste.</p> <p>This service also includes the cleaning of roads, squares and public places as well as the transport and disposal of the waste collected, under the same conditions of management of household waste.</p> <p>To this end, the communes or their groupings are required to establish, within a period of time fixed by regulation, a communal or inter-communal management plan for MSW which defines the operations of pre-collection, collection, transport, dumping, elimination, treatment and recovery and, if necessary, sorting of this waste.</p> <p>Article 17</p> <p>The communal or inter-communal plan must take into account the orientations of the</p>

	<p>prefectural or provincial master plan for the management of MSW. It defines in particular</p> <ul style="list-style-type: none"> • the zones where the communes or their groupings are required to ensure the operations of collection, transport, elimination, or recovery of MSW • the routes, the rate, and the hours of collection of this waste • the methods of waste collection • the frequency of cleaning operations by zone • the areas where the transportation and disposal of this waste are the responsibility of the waste generators. <p>This plan is established for a period of five (5) years and approved by order of the governor of the prefecture or province concerned.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Creation of waste management plans including consultation with stakeholders as part of its development and consideration of the resources required • Attribution of responsibility for the collection, transport, recovery and disposal of MSW as well as collection and disposal of waste in public places

Title	Decree fixing the modes of solid waste management
Country/Countries	Mali
Entry into force	6 September 2001
Type of instrument	Legislation (Decree)
Scope	National
Objective	<ul style="list-style-type: none"> • Prevention and reduction of the volume of solid waste and its harmfulness • Recovery of solid waste through recycling • Promotion of landfills • Organization of solid waste disposal and the rehabilitation of contaminated sites • The fight against the harmful effects of plastic waste on human health, soil, water, fauna and flora • Limiting, monitoring and controlling the transfer of solid waste
Main provisions	<p>Article 8 Any producer and any distributor who markets or uses in its professional activities plastic materials or other non-biodegradable packaging in their professional activities and any person responsible for their first placing on the market, if the producer and distributor are unknown, is obliged to take back their used plastics and packaging for recycling.</p> <p>Article 9 The persons referred to in Article 8 are required to:</p> <ul style="list-style-type: none"> • take back the plastic materials they place on the market for reuse or recovery • establish a system for taking back plastic materials, collecting them and directing them for reuse or recovery <p>Article 10 Any public or private establishment that uses quantities of plastic materials greater than five kilograms per day is required to register with the competent administration and to communicate to it every six months the methods of treatment of the aforementioned plastic materials.</p> <p>Article 18 Solid waste should be stacked in an orderly fashion or tied in a bundle to prevent scattering and facilitate its removal.</p> <p>Article 19 Any means of transport used for the purpose of solid waste removal shall be watertight and not allow solid waste to fall to the ground.</p>
Relevant innovative instruments	<ul style="list-style-type: none"> • Conditions for the pre-collection and transport of MSW to minimise unintentional losses • Basis for an EPR scheme for used plastics and packaging • Requirement for generators of plastic waste to contribute to data collection activities

1.3. Guidelines

The following section presents the guidelines for the development of legislation addressing marine litter for African countries. These can be applied regardless of the type of measure being considered (strategic, incentive, restrictions, etc.).

As the guidelines have been developed to be relevant to all African countries, each user will need to consider the particular local and regional context when applying them. Furthermore, the guidelines are intended to be used regardless of a country's current level of advancement on the management of marine litter.

The guidelines presented here address regulatory or legal frameworks only and it is assumed that countries using this guide will be doing so with the ambition of improving their regulatory framework on marine litter. Challenges in the implementation of these frameworks do not form part of this study.

1.3.1. International level

Ratify the United Nations Watercourses Convention

River-based pollution was found to have the least legislative protection compared to land- and sea-based sources of pollution. The United Nations Watercourses Convention, 1997, is the only international Multilateral Environmental Agreement (MEA) that addresses the prevention and reduction of pollution in shared watercourses. Africa has several Great Lakes and shared watercourses that hold ecological and socio-economic significance. It is recommended therefore, that lacustrine and riverine countries should accede to such international agreements and integrate more protective legislative frameworks regionally, and nationally, to reduce river-based sources and river-borne pollution.

Redefine electronic waste under the Basel Convention

Recently the Basel Convention created specific guidelines to address the transboundary movement of electronic waste (e-waste). However, this is only effective if the products are labelled as e-waste. Second-hand and near end-of-life electronic equipment and other plastic products enter some African countries under market pretences (e.g., for repairs), even though many of these products are largely obsolete electronic waste. This loophole in the importation of e-waste creates a problem in effectively controlling the movement of electronic waste into Africa. It is recommended that more specified terminology is adopted to mitigate the entry of e-waste as electronic products.

Implement the MARPOL Convention at the national level

Currently, there are legislative gaps around the effective monitoring of vessel waste disposal. Though waste reception at harbours is addressed under MARPOL, many ships still dump illegally, especially between Asia and Africa. Most countries have ratified or acceded to the overarching global frameworks of MARPOL, but implementation is weak. It is recommended that waste is logged from port to port, and port waste receptions are effectively monitored to ensure that waste is correctly transported to landfills. The Basel Convention has recently included plastics as hazardous waste, which is expected to allow for better monitoring of plastics.

1.3.2. Regional level

Address international aspects of marine litter

It is widely recognised that marine litter is an international issue that cannot be address by one country in isolation. The regulatory framework should reflect the transboundary nature of the issue through the minimisation of marine litter not only for the benefit of the implementing country itself, but also for neighbouring countries. This applies particularly to marine litter generated from marine-based sources and transboundary rivers.

Create common goals across regions (Regional best practice guides)

At the regional level, set goals for waste management and combatting marine litter to create a common ambition across nations. The existence of common targets and goals can assist in driving national-level change and allows for the exchange of information, experiences, and resources.

Regional bodies should develop a comprehensive document based on a value chain, life cycle or source-based approach for regional and national contexts. This is expected to improve the development of national laws, guide sound policy development and implementation. Additionally, the use of a common regional approach would create improved regional collaboration and ensure sustainable waste management solutions.

Harmonise objectives across all levels

Regional level bodies, particularly the Regional Conventions, have documentation directly targeting marine litter which can guide or support the national-level regulatory frameworks. In the development of additional national legislation, ensure that the objectives at the national level are in accordance with or exceed those at the regional (and international) level.

Increase the role and capacity of existing regional entities

Several regional conventions, regional economic communities, and regional river basin organisations and commissions have taken the responsibility to address waste streams in Africa. Regional economic communities including the Southern African Development Community (SADC), the Economic Community of West African States (ECOWAS), and the Intergovernmental Authority on Development; are well aligned to better implement environmental issues regionally and nationally. Currently, these organisations largely address economic and social issues. Environmental issues are beginning to be incorporated with higher priority status; however, environmental issues, and more specifically waste management, should be widely integrated into regional and continental agendas for countries to follow. It is recommended that regional coordination of marine litter legislation should be spear-headed by these intergovernmental organisations.

1.3.3. National level

Consider local context

The development of the regulatory framework should consider the specific context of the country or region in which it will be implemented. This includes factors such as:

- Demographic information such as population size and density, socio-economic status, economic development and other relevant social and economic information, especially where such information will inform and create circular waste economies.
- The marine litter context (proximity of coastlines and waterways, impact on marine litter pathways, type of waste being targeted)
- Cultural and social factors that may influence acceptance of the proposed measure by the general public and private stakeholders/industry
- Integration into the existing waste management systems (including the informal sector if present)
- Anticipated impacts across all areas and sections of society (for example urban and rural areas, high- and low-income groups, formal and informal sectors)
- Success of previously implemented similar measures
- Results of monitoring activities (e.g., major types of litter/marine litter observed, key waste streams, collection, and recycling rates, etc.)

Create an overarching guidance document

The creation of a strategy, including objectives and measurable targets, helps to guide future actions and ensure that new regulatory measures are consistent with the overall goal. In relation to marine litter, ideally a specific strategy should be created that addresses this one key issue, although more general measures can be incorporated into a waste management strategy. Once this document is established, more specific aspects of the regulatory framework can be addressed which act to implement the changes and achieve the targets defined in the strategy. Ideally, the strategy would be created and implemented by a dedicated national agency.

Integrate soft laws into binding legislation

Fishing-related waste disposal is mainly covered by soft laws, apart from MARPOL (which is legally binding). Soft laws such as the Honolulu Strategy, and Conduct for Responsible Fishing, address many of the areas of concern around waste management of fishing vessels. These soft laws have reasonable implementation strategies even though they are not legally binding. However, the incorporation of these soft laws into national legal frameworks is often lacking and needs to be addressed by many African countries. It is recommended that consideration should be given to translating selected soft laws into national legal frameworks.

Inclusion of the Informal Sector

The informal sector plays a significant role in the waste industry in Africa. Waste pickers play an important role in reuse and recycling of waste (mostly e-waste and metal). However, legal frameworks are not presently integrating the informal waste sector into waste management policy, which means there is a lack of protective factors for people within this industry. It is recommended that countries create inclusive frameworks that encourage and formalise this sector to provide workers with health and safety rights within national legislation. Relevant stakeholders are encouraged to positively engage with informal waste sector workers and unions to ensure provisions are in keeping with the needs of those within the sector.

Focus on 'priority areas'

A well-functioning waste management system (particularly the collection, treatment, and disposal of waste) is vital in the prevention of marine litter. When considering regulations for the prevention of marine litter, countries should firstly examine the existing regulatory framework and ensure that this supports an effective waste management system and is up to date in terms of the types and sources of waste being generated and potential waste management technologies. Priorities should be identified based on the current level of advancement on marine litter (and waste management in general), local considerations, and adopting a life-cycle approach. Key areas that may be lacking include:

- Avoidance of waste upstream (e.g., limiting the production and/or use of plastic bags through restrictions or incentives)
- A legislated collection system for MSW, including attribution of responsibility for waste collection to local, municipal, or national authorities
- Setting internationally accepted standards for the siting, construction and management of landfills to limit their impact on the coastline and waterways and reduce the generation of marine litter
- Ban littering and illegal dumping of solid waste and effluents in all environments (on land, at sea, and at ports)

Once these fundamental aspects of the regulatory framework have been established, additional aspects that may be addressed through legislation include:

- Avoidance of single-use plastics (such as microbeads, straws, cutlery, plates, stirrers, cotton buds and take-away food containers)
- Implementation of systems to support and improve recycling rates such as separate waste collections, container deposit systems or Extended Producer Responsibility schemes, particularly for plastic bottles (PET) as these contribute significantly to marine litter, yet have a high potential for recycling

- Definition of rules for the pre-collection and transport of MSW such as ensuring receptacles and collection vehicles are sealed to minimise unintentional losses
- Implementation of a system for the collection and disposal of solid waste in stormwater drains
- Reduction of the use and disposal of microplastics (microbeads) such as those found in cosmetic and cleaning products and in the wastewater from washing machines
- Improvement in the tracking, receipt, and disposal of vessel waste from port-to-port to provide increased accountability between port reception facilities
- Requirement for the wrapping of nurdles (plastic pellets) to ensure their safe transportation by land or sea

 ***Consider the means required for implementation, monitoring and enforcement***

The implementation, monitoring, and enforcement of regulations require material, financial and/or operational means. The need for these may depend on many factors including:

- The degree of the change being implemented
- The number of stakeholders involved and attitudes towards the proposed measures
- The geographical distribution of the planned measures
- The existence of monitoring and/or enforcement bodies their capacity to integrate additional activities into their existing operations
- Availability and environmental impact of alternatives when considering avoidance strategies

An understanding of the means required prior to the finalisation of legislation enables these needs to be planned for and therefore be available from the date of implementation of the measure.

The need for any external assistance (for example cooperation from neighbouring countries or regional bodies, technical or financial assistance) should also be considered and, if required, discussed with the relevant organisations during the development of the legislation.

When considering potential options for new regulations, it is preferable to adopt measures that are simple and easy to implement than changes that are too broad and/or complex. The results of monitoring activities should provide ongoing feedback on the success of the measure following implementation. This information can be used internally to guide future actions, as well as externally to provide other countries with relevant case studies.

 ***Discuss with relevant stakeholders during the development***

Consultation with stakeholders prior to the implementation of measures has been found to assist in the success of new regulatory measures. Cooperation and support from various stakeholders, including inter-departmental collaboration, aides in implementation and the achievement of the desired objectives of the measure, and reduce the means required for its enforcement. Discussions should be held with relevant stakeholders during the development of proposed legislation. These stakeholders may include:

- Other governmental departments, enforcement agencies or monitoring bodies
- Regional bodies and organisations
- Industry groups, small and medium enterprises, and the informal sector
- Local community groups, NGOs
- General public

It is important to recognise the role of the private sector as not only a source of waste generation but as an important part of the economy, a source of employment and provider of recycling other technology solutions in moving towards a circular economy.

Based on the feedback obtained from the relevant stakeholders, alterations may be made to improve the proposed legislation by considering the local context, needs, limitations and concerns. A transition period may also be considered to distribute information and education on the upcoming changes and allow stakeholders time to adjust to new systems and requirements.

Ensure documentation is clear

To assist all concerned parties to comply with new legislation, all documents should be clear in defining objectives, and the specific measures or requirements being put in place to achieve this objective. The text should also attribute **responsibilities** for monitoring, enforcement, and, where relevant, defined penalties for infractions.

Integrate E-waste into national legislation

Electronic waste is addressed in the national legal frameworks of a few countries. Many African countries lack regulatory systems to handle, process, and dispose of e-waste adequately. This is a significant gap as there are serious ramifications to human and environmental health, especially given the volume of electronics/e-waste that are imported into Africa. It is recommended that countries adapt their national legislation to include e-waste in their regulatory frameworks. Moreover, it is important for countries to better define different types of waste streams in their legal frameworks. It is recommended that e-waste regulations specify how to safely handle, process, and dispose of e-waste and that the needed infrastructure is provided or maintained to make this possible.

Including Extended Producer Responsibility (EPR)

Extended Producer Responsibility (EPR) is a financial mechanism that allows for responsibility of recycling/disposal to be placed on manufacturers and retailers. Several countries, including South Africa, Kenya, Ghana, and Nigeria have incorporated EPR into their legislative frameworks. Voluntary EPR schemes have been found to be viable in South Africa as a short to medium term solution while mandatory EPR provides incentives to prevent waste at the source, promote eco-design, drive consumer choice for well-designed products, support the achievement of public recycling while enhancing efficiency and transparency of the system. Countries should adopt EPR to build capacity, strengthen collection mechanisms and improve consumer responsibility to reduce mismanaged waste.

Create viable end-markets for Reuse, Recycling and Repurpose

There is a need to create a financially viable market through incentives to increase the size of the recycled goods market. An example would be governments seeking tenures with companies that produce goods out of recycled materials. In the context of Africa, where most countries are developing, creating a financially viable end-market will allow for higher success in companies buying into sustainable markets as countries look to increase their GDP. In the instance where countries are presently struggling with the management of waste streams but have committed to reducing plastic waste, national governments should develop enabling legislation to achieve these goals. For example, develop favourable tax regulations to incentivise the development of recycling enterprises, such as duty-free importation of equipment, and where possible, dispensations on costs of land and operating costs should be considered. It is recommended, that at the local-level sustainable end markets could be secured by municipalities undertaking to use recycled materials, like bricks, paving stones, and tiles with plastic content in municipal developments and operations.

1.3.4. Country-specific recommendations

Country-specific recommendations arising from expert interviews include:

Tanzania

Tanzania is in the process of developing an Integrated Waste Management Plan that addresses all types of waste streams at different stages of its lifecycle. It is suggested that a life cycle approach is followed which looks at potential leakages at all stages of the lifecycle for all waste types (municipal solid waste, E-waste, hazardous waste, and plastic waste). It is also recommended this Integrated Waste Management Plan includes regulations on waste monitoring, recycling, the informal waste sector, and general data

storage.

Mauritius

The current available Solid Waste Management Strategy (2011-2015) does not include a life cycle approach for different types of waste. It is recommended that in the process of updating this strategy, all waste types (MSW, E-waste, hazardous waste, plastic waste, and construction, and demolition waste) are considered at each stage of its life cycle. Further, it is recommended that provisions be made for waste monitoring, recycling, and general data storage.

Lesotho

A lack of appropriate resources and infrastructure in Lesotho makes effective management difficult. Currently, there is no waste management division within the Lesotho National Environmental Secretariat, nor at the local government (municipal) level, and there are no specific legal frameworks addressing waste management. There are also no existing regulated landfills in Lesotho, rather there are “legal” dumping sites. With only ~25% of Lesotho receiving municipal waste collection, illegal dumping is prevalent. It is recommended that Lesotho formalise a waste management division within the National Environmental Secretariat, and specified regulatory frameworks are implemented which includes establishing well-regulated landfills.

Appendices

Appendix 1: Ocean Conservancy 2019 litter survey results

Data from African countries of the top 10 litter items found (internationally) during Ocean Conservancy's 2019 survey.

Appendix 2: List of experts consulted in development of the guidelines and to inform country specific legal frameworks

Experts consulted in the development of the guidelines

Country	Weight collected (kg)	Coastline surveyed (km)	Total items collected	Number of items collected										
				Food wrappers	Cigarette butts	Plastic beverage bottles	Plastic bottle caps	Straws, stirrers	Plastic cups, plates	Plastic grocery bags	Plastic take-away containers	Other plastic bags	Plastic lids	Other items of marine litter
Cameroon	30,063	1.6	36,502	2,002	-	5,980	10,260	-	-	-	2,083	-	3,836	...
Cape Verde	1	3.6	1	-	1	-	-	-	-	-	-	-	-	...
Egypt	119	1.6	1,909	47	555	143	136	9	-	164	46	33	-	...
Ghana	181,211	37.8	6,819,715	43,611	531,376	109,761	87,030	122,790	318,981	27,402	117,999	40,371	100,872	...
Kenya	100,008	516.2	256,793	18,359	3,816	34,061	26,987	8,168	6,213	9,522	7,814	4,396	11,033	...
Malawi	305	1.2	21,914	282	412	1,449	1,608	19	866	12,719	188	275	185	...
Mauritius	452	5.0	18,043	1,220	3,620	2,853	606	140	774	389	234	1,178	201	...
Morocco	246	2.4	3,000	-	-	-	-	-	-	-	-	-	-	...
Mozambique	1,275	6.1	5,052	80	236	190	363	137	41	124	17	52	273	...
Nigeria	35,314	10.8	982,432	356,904	1,850	117,212	66,195	22,186	8,864	4,076	20,990	3,934	67,867	...
Senegal	200	1.6	725	45	-	44	18	12	-	212	3	21	-	...
Seychelles	316	270.3	12,831	83	178	648	374	114	6	1	8	12	48	...
South Africa	4,462	124.8	90,437	7,420	8,390	3,043	6,563	6,872	177	2,462	955	590	1,227	...
Tanzania	15,448	13.3	2,405	112	86	117	447	55	6	52	69	259	25	...
Africa Total	369,420	996.3	8,251,759	430,165	550,520	275,501	200,587	160,502	335,928	57,123	150,406	51,121	185,567	...
International Total	9,422,199	39,358	32,485,488	4,771,602	4,211,962	1,885,833	1,500,523	942,992	754,969	740,290	678,312	611,100	605,778	...
Proportion of int'l total in Africa	4%	3%	25%	9%	13%	15%	13%	17%	44%	8%	22%	8%	31%	-

Country	First Name	Surname	Organisation/Company	Designation	Sector/Stakeholder Group	Communication
Central African Republic	Gilbert	Molekpo	Director general of sustainable development, Focal point of the Rotterdam convention		Government	Questionnaire
Guinea	Mamadou	Barry	Sustainable development Focal point, Embassy of the Republic of Guinea in the Federal Democratic Republic of Ethiopia, Permanent Mission to the Commission of the African Union and the ECA		Government	Interview
Kenya	Stellamaris	Muthike	Kenya Maritime Authority	Director General	Government	Questionnaire
	D. P.	Ashitiva	National Environment Management Authority	Coastal, Marine and Fresh waters	Government	Questionnaire
	Stephen	Katua	National Environment Management Authority (NEMA)	Deputy Director and Head of Coastal Marine & Fresh waters	Government	Questionnaire
Lesotho	Moleboheng	Petlane	Department of Environment	Environment Officer (Pollution control)	Government	Interview
Malawi	Memory	Kamoyo	Environmental Affairs Department	-	Government	Questionnaire
Mauritius	Gina	Bonne	Indian Ocean Commission (IOC)	Program coordinator	Intergovernmental organisations	Interview
Morocco	Mohammed	Amounas	Head of Solid waste services		Government	Interview
	Bouchra	Dahri	Head of Service implementation and pilot projects		Government	Interview
	Khaoula	Lagrini	officer at the Ministry for the Environment		Government	Interview
	Khalid	Margaa	Head of Programmes division		Government	Interview
	Naoual	Zoubair	Head of Coastline services		Government	Interview
Mozambique	Badru	Hagy	Ministry of the Sea, Inland waters and Fisheries		Government	Questionnaire
Namibia	Thandiwe	Gxaba	Benguela Current Convention (BCC)	Acting Executive Secretary	Government	Questionnaire
Nigeria	Anthony	Akpan	Pan African Vision for the Environment (PAVE)	Founder/President	NGO / NPO	Questionnaire
Rwanda	Dismas	Karuranga	Department of Environment	Pollution Control Specialist	Government	Questionnaire
Seychelles	Marie-May	Jeremie-Muzungaile	Environment Department	Director General of the Biodiversity Conservation and Management Division	Government	Questionnaire
South Africa	Koebu	Khalema	Africa Institute	Program Officer	Intergovernmental organisations	Interview
	Peter	Manyara	IUCN	Marine Plastics & Coastal Communities South Africa Country Office	Research institutions	Interview
Tanzania	Aboud	Jumbe	Ministry of Blue Economy and Fisheries	Principal Secretary	Government	Interview