



PLASTIC POLLUTION IN AFRICA

IDENTIFYING POLICY GAPS AND OPPORTUNITIES

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WWF is one of the world's largest and most experienced independent conservation organisations with over 6 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.



Dedication

This report is dedicated to Lara Muaves, a faithful colleague, friend, mother and daughter, who passed away unexpectedly in 2021. In her career as a biologist, researcher and conservationist, she not only contributed to the conservation of marine life through her work in climate change and plastics but also transformed the way in which countless fishing communities today develop their relationship with nature. Lara will always be remembered with great affection. May her soul rest in peace.



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ABOUT THIS REPORT

There is currently no comprehensive report or reference available on the state and impacts of plastic pollution in Africa specifically, or on the policy and legal frameworks required to address this challenge from an African context and perspective. This report aims to fill this knowledge gap by providing a brief glance at the plastic pollution challenge in Africa, the policy options available to address it and recommendations on the policy frameworks still required to tackle the challenge urgently, holistically and in a coordinated manner. This report is primarily aimed at policymakers and experts working in the plastic policy landscape in Africa.

The report focuses on the role of policy and legal frameworks in addressing the plastic pollution challenge in Africa. Section 1 provides a continent-wide perspective of the plastic pollution challenge and the major impacts experienced across the African continent. In order to assess the extent to which existing policy and legal frameworks tackle the plastic pollution challenge, Section 2 highlights the gaps in these frameworks at the global, regional and national level. Case studies from various countries across the continent are used to illustrate examples of policy and legal frameworks at national level. Section 3 outlines the opportunities for policy and legal responses for Africa across all the life cycle stages of plastic, including the growing support for a new legally binding global treaty to combat plastic pollution. Voluntary initiatives and interventions that support policy are mentioned but not explored in detail.



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KEY MESSAGES

1. Plastic pollution contributes to impacts on human health, loss of livelihoods, greenhouse gas emissions, biodiversity loss and compromised ecosystem functioning in all Africa's land- and seascapes.
2. Plastic production and consumption are expected to increase globally and in Africa in the coming decades if "business as usual" continues.
3. The complexity of the plastic pollution challenge requires multi-stakeholder interventions and coordinated action to address failures across the full plastics life cycle.
4. The existing policy and legal frameworks are fragmented and ineffective due to policy gaps at the global, regional and national level.
5. There is an urgent need to address these gaps through policy interventions designed to stimulate action to combat plastic pollution systemically using circular economy principles.
6. At a global level, African governments should actively participate in negotiations towards a new global treaty in order to offer perspectives and priorities from the African context.
7. At a regional level, African governments should develop a strategy that is aligned with global actions and that considers regional, subregional and national contexts.
8. At a national level, African governments have the opportunity to develop specific policy responses across the full plastics life cycle, depending on their national context, priorities and plastic hotspots.

PLASTIC POLLUTION IN AFRICA

Africa is well known for its beautiful sunsets, pristine land- and seascapes and impressive wildlife. However, not too far from these idyllic nature-based tourism scenes are densely populated African cities. Most of Africa's rural towns and burgeoning cities, rivers and coastlines are increasingly becoming heavily polluted with discarded plastic packaging and other plastic waste.

Africa, unlike Asia, is not yet a regional plastic pollution hotspot, but that could change if “business as usual” continues.

NO PLASTIC IN NATURE

Plastic is not inherently bad; it is a man-made material that contributes multiple benefits to society. However, the current linear economic model of “take-make-waste” is the root cause of plastic pollution. The way plastic is produced, and the way products and packaging is designed, combined with how plastic items are managed after use, are highly unsustainable and damaging to both human health and nature.

This problem is far-reaching. Discarded plastic items found in nature fragment over time into smaller and smaller pieces called microplastics. Microplastics are found in the food we eat, the water we drink and the air we breathe. Animals, including livestock, can also confuse microplastics for food, which often leads to fatalities. Plus, marine life often gets entangled in single-use plastic bags, ropes or discarded fishing nets. Plastic pollution thus poses a threat to Africa's blue economy, affecting ocean-based economic activities such as tourism, fishing and maritime trade.

Plastic, and the subsequent impacts across its life cycle, are most visible

at the end-of-life stage when plastic items are thrown away after use. Yet plastic leakage into the environment is a symptom of failures at every stage of the plastics life cycle: from raw material extraction to polymer production and product design, to consumption and waste collection, to the management of plastic after use. The true lifetime cost of plastic pollution is not fully accounted for. These costs include greenhouse gas emissions, human and ecosystem health impacts and unmanaged plastic waste (Dalberg, 2021).

We need to think systemically across the full life cycle of plastic products. We must strive to keep our iconic African landscapes, seascapes and cities free from devastating plastic pollution. We need to improve integration and coordination of policy instruments to eradicate plastic pollution and accelerate a shift towards a circular plastics economy in Africa.

A GLOBAL CHALLENGE NEEDS A GLOBAL RESPONSE

Plastic pollution is not confined to an isolated country or continent because plastic waste may be moved around via atmospheric currents, transboundary waterways and ocean currents. While there are existing initiatives that aim to address various aspects of plastic

pollution at the national, subregional, regional and global levels, these initiatives are mostly fragmented and insufficient. At present, there is no global instrument in place to comprehensively tackle plastic pollution across the full plastics life cycle using circular economy principles.

Furthermore, the global plastics value chain exacerbates the transboundary nature of the plastic pollution challenge. The life cycle of one plastic item is spread across multiple countries, for example. The raw materials can be extracted in one country, plastic polymers can be produced in another, products and packaging can be designed and manufactured somewhere else, those products can be consumed in another place entirely and sometimes the waste management is done in a different country yet again.

However, there are increasing calls for a negotiation mandate for a new international legally binding treaty to combat plastic pollution.

The 2019 African Ministerial Conference on the Environment (AMCEN) – held in Durban in South Africa – emphasised the need to address plastic pollution at a continent-wide scale, with all African member states supporting a declaration calling for global action on plastic pollution.

THE PLASTICS LIFE CYCLE IN AFRICA

Key actors

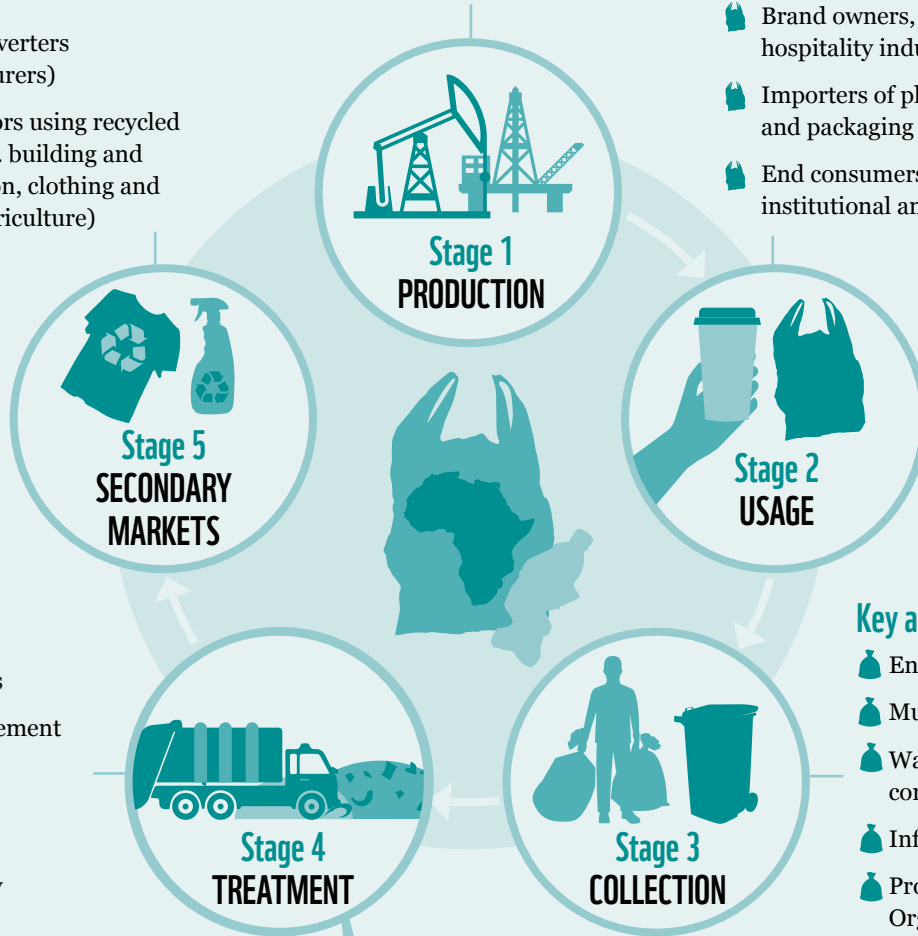
- Recyclers
- Plastic converters (manufacturers)
- Other sectors using recycled plastic (e.g. building and construction, clothing and textiles, agriculture)

Key actors

- Petrochemical companies
- Oil and gas companies
- Raw material importers

Key actors

- Plastic converters (manufacturers)
- Brand owners, retailers, hospitality industry
- Importers of plastic products and packaging
- End consumers (individual, institutional and commercial)



Key actors

- Municipalities
- Waste management companies
- Recyclers
- Producer Responsibility Organisations (collective or individual)

Key actors

- End consumers
- Municipalities
- Waste management companies
- Informal sector
- Producer Responsibility Organisations (collective or individual)

Leakage into the natural environment



1	2	3	4	5
PRODUCTION	USAGE	COLLECTION	TREATMENT	SECONDARY MARKETS
<p>Raw material extraction</p> <p>Manufacturing of virgin plastic from fossil fuels or bio-based materials</p> <p>Addition of chemical additives that make the plastic resistant, flexible (plasticisers), durable, grease-resistant or less flammable</p>	<p>Product and packaging design</p> <p>Manufacturing/ converting plastic resins into products and packaging</p> <p>Sale and distribution of products and packaging</p>	<p>Collecting plastic from end users and sorting it into various streams for treatment (formal and informal)</p>	<p>Treatment of plastic waste through landfilling, incineration, recycling and dumping</p> <p>Leakage into the natural environment</p>	<p>Reprocessing plastic into recycled plastic for use in secondary markets</p>

THE STATE OF THE PLASTICS LIFE CYCLE IN AFRICA

With 1,3 billion people living in Africa as of 2018 (16% of the world's population), Africa produces 5% and consumes 4% of global plastic volumes (according to 2015 data). Total global plastic production in 2020 was over 400 million tonnes (UNEP, 2021a). Most of the plastics are produced in China (28%), North America (19%) and Western Europe (19%). Interestingly, the same countries are the leading consumers of plastics, with China accounting for 20%, North America for 21% and Western Europe for 18% (Ryberg et al., 2018). Plastic consumption in Africa in 2015 was 16 kg per person, compared to the global average of 45 kg per person and 136 kg per person in Western Europe (Statista, 2016).

The countries with the largest economies in Africa are Egypt, Nigeria and South Africa. According to a 2019 study using data between 2009 and 2015, these three countries were also the highest producers and importers of plastic polymers and products. In the same study, but using available data between 1990 and 2017, plastic imports in the form of polymers and products from 33 African countries were analysed (Babayemi et al., 2019). The total amount of imported plastic consumption in these countries was 118 million tonnes over the 27-year period. Collectively, six countries – Egypt, Nigeria, South Africa, Algeria, Morocco and Tunisia – made up 75% of the total imported plastic consumption of those 33 African countries – 51% of the extrapolated total plastic consumption in Africa (1990–2017). However, other countries, including Ethiopia, Ghana, Kenya and Mozambique, have growing production and imports of plastic goods, as well as growing plastic distribution and manufacturing industries (Babayemi et al., 2019; Hasan, n.d.).

Plastic consumption demand is predicted to increase by 375% from 2015 to 2060 if “business as usual” continues. This expected exponential increase is fuelled by predicted gross domestic product (GDP) and

population growth (Lebreton and Andrady, 2019).

While these production and consumption figures in Africa are small compared to the rest of the world, the increase in imports of manufactured plastic products and packaging into African countries is concerning. Extrapolating data on imports from 1990 to 2017 from 33 African countries to 54 countries has found a steady increase in plastic product imports over the period. An estimated 230 million tonnes of plastic (primary material and products) entered Africa during this period. This is projected to remain on the upward trajectory with the business-as-usual scenario (Babayemi et al., 2019). This is corroborated by the fact that many global consumer brands are looking to grow their markets in Africa, which indicates an expected increase in imports, with few to no plans to invest in infrastructure to manage the end-of-life stages of these plastic products and packaging (Heinrich Böll Foundation, 2019).

Since the 1990s, there has been an increase in the presence of formal retail companies in many African countries, with a subsequent increase in plastic packaging being placed on the market (Mwamba and Qutieshat, 2021).

A myriad emerging challenges has also arisen, such as the cost of doing business, the lack of infrastructure and decreasing commodity prices in African countries. Because of this, a few formal retail chains have exited some countries. In turn, this has provided opportunities for the expansion of the informal market, including spaza shops and flea markets, which also makes use of plastic packaging (Mwamba and Qutieshat, 2021). Due to the ongoing Covid-19 pandemic, there has been a rise in e-commerce in various African countries. This has resulted in the rising consumption of plastic packaging, which is higher relative to the packaging consumed in physical stores.

Plastic consumption and subsequent waste generation, along with the additives and toxic chemicals needed to produce plastics, are growing in African countries due a few main factors. These include the opening up of markets across the continent via the African Continental Free Trade Area

(AfCFTA) agreement and an increase in the availability of consumer goods on the market, coupled with increasing rates of urbanisation and rising living standards (UNEP, 2018a).

THE STATE OF PLASTICS IN NATURE ACROSS AFRICA

It is perhaps not surprising that Egypt, Nigeria and South Africa are the largest contributors to plastic leakage on the continent. These countries are joined by Algeria and Morocco among the top 20 coastal countries in the world contributing to marine plastic pollution (Jambeck et al., 2018). The total amount of mismanaged plastic waste in coastal African countries was estimated at 4,4 million tonnes in 2010 (Jambeck et al., 2018). A more recent study estimates a much larger number, which also included contributions from landlocked countries. Africa generated a total of 19 million tonnes of plastic waste in 2015, of which 17 million tonnes were mismanaged. This is compared to the global amount of 60–99 million tonnes of mismanaged plastic waste in 2015, projected to triple by 2060 in the business-as-usual scenario (Lebreton and Andrady, 2019).

Geographical plastic leakage hotspots, stemming from land-based sources, have been identified in many rivers close to urban centres where there is high waste generation but poor waste management. Over a quarter of the total global mismanaged plastic waste was leaked into the watersheds of 14 major rivers around the world, including four big African rivers – the Congo, Niger, Nile and Zambezi (Lebreton and Andrady, 2019). These four river basins overlap with the urban regions of some of the largest cities in Africa where the bulk of the plastic waste is generated, causing their plastic leakage hotspot status. Furthermore, these four river basins are part of 63 major transboundary river basins in Africa (UNEP, 2010) and are therefore potential carriers of plastic waste to other African countries and, eventually, into the ocean.

Domestic consumption and subsequent waste generation is not the only driver of plastic pollution in Africa; large

amounts of plastic waste are also imported from other countries that do not treat this waste locally. With the 2018 ban on imports of plastic waste into China, plastic waste exports – mainly from developed countries including the United States of America and some countries in the European Union – were diverted to other developing nations largely in Southeast Asia, but also to certain African countries including Ethiopia and Senegal (McCormick et al., 2019). This could lead to increased plastic pollution in countries with poor and limited solid-waste management and recycling infrastructure, making it extremely important for African countries to limit the amount of imported plastic waste. The Basel Convention (see page 20), which revised amendments to improve control of transboundary movements of plastic waste, came into effect in January 2021. The aim is to ensure that importing countries provide prior informed consent for plastic waste entering into those countries. It is unclear what the effects of this amendment have been on the trade of plastic waste into Africa.

PLASTIC POLLUTION SOURCES AND HOTSPOTS

A global study by UN Environment Programme (UNEP, 2018a), based on 2015 data, indicated that the largest land-based activities contributing to both macro- and microplastic pollution are mismanaged solid waste and tyre abrasion. Ghost fishing gear, discarded plastic equipment from aquaculture activities and littering from ships are the main sea-based sources of plastic pollution.

Solid waste from households

According to the 2018 Africa Waste Management Outlook Report, plastic waste accounted for 13% of the municipal solid waste in sub-Saharan Africa. In Morocco, plastic accounts for 10% of household waste or 690 000 tonnes each year (Heinrich Böll Foundation, 2020b).

JOBS IN THE PLASTICS VALUE CHAIN

Africa's average unemployment rate is 12%. Angola, Namibia, Nigeria and South Africa have the highest unemployment rates, all of which are above 30%. A large proportion of the unemployed or vulnerably employed population consists of women and youth.

The plastics value chain provides several formal and informal jobs, but accurate and up-to-date data on the number and types of jobs in the plastics value chain in African countries is scarce. In South Africa, the total number of formal jobs provided by plastics converters (manufacturers) were approximately 60 000 in 2018 (Tsotsi and Jenkins, 2019). This high number can be attributed to the maturity of the plastics value chain in South Africa. This is not the case in other African countries, particularly those without production and manufacturing infrastructure. A further 7 892 formal jobs are provided in the plastics recycling sector in South Africa (Plastics SA, 2019). In Nigeria, the formal and informal waste sectors are estimated to provide over 100 000 jobs (Heinrich Böll Foundation, 2020a).

There is an argument that decreasing plastic production and consumption may result in job losses, which is a particular concern in African countries with high unemployment rates. However, research shows that circular economy interventions present an opportunity for job creation in many value chains, including plastics (Ribeiro-Broomhead and Tangri, 2021).

Informal waste collectors – also known as waste pickers or waste reclaimers – account for many more self-created livelihoods in the waste sector. They earn their livelihoods from collecting, sorting and aggregating waste found in streets and landfills, or sourced directly from households. They then sell recyclable waste, including plastic items, to buyback centres or formal recyclers. In South Africa, some researchers estimate that there are up to 215 000 waste reclaimers (Godfrey and Oelofse, 2017). In Morocco, the official estimate is between 7 000 and 10 000 informal waste collectors but other estimates indicate that there may be as many as 34 000 (Heinrich Böll Foundation, 2020b).

The collection and recycling of plastic and other waste are important activities in a circular economy as they help to divert plastic waste from landfill and thus reduce plastic leakage into nature. These services – collection and recycling – are largely the responsibility of municipalities and, more recently, product producers as mandated by emerging Extended Producer Responsibility (EPR) regulatory frameworks (see page 35). Yet the informal waste sector has been fulfilling this informal but vital “bridging service”, albeit in hostile living and working conditions and with minimal to no financial compensation. According to 2014 figures, the informal waste sector in South Africa saves local municipalities up to R750 million (~\$49 million) every year in landfill airspace for little to no cost (Godfrey et al., 2016).

In countries like Ghana and Nigeria, policies that exclude considerations for the informal waste sector are a major setback to improving the informal sector's operations (Zolnikov et al., 2021; Gall et al., 2020). As a result, the formal waste management system (municipalities and industry) remains largely exclusionary and exploitative in its approach to the activities of the informal waste sector (Oguge, 2019).

A recent study by the International Union for Conservation of Nature (IUCN) included a detailed analysis of plastic material flows in four African countries – Kenya, Mozambique, South Africa and Tanzania. That report provided updated data on the source of plastic pollution hotspots by sector, application and polymer, as well as the plastic leakage rates for these four African countries. A total of 190 000 tonnes of plastic leaked into the marine environment from these countries in 2018, with South Africa contributing the largest volume (107 000 tonnes) and Mozambique the least (17 000 tonnes) (Pucino et al., 2020).

Plastic packaging sector

Packaging is the sector with the highest absolute leakage (i.e. the total amount of leaked plastic) in all four countries. It is also the sector with the highest volumes of mismanaged waste. Plastic packaging is most likely the sector hotspot for the continent (Babayemi et al., 2019).

In terms of relative leakage (i.e. the amount of leaked plastic divided by the amount of waste generated), the most

problematic sectors are fishing and medical, followed by agriculture and automotive tyres. However, all these sectors contribute little to the overall absolute leakage compared to the packaging sector.

Textiles

Synthetic textiles contribute to both macro- and microplastic pollution throughout their life cycle. The rise of the “fast fashion” industry has resulted in increased consumption globally of clothing made from polyester fibre. Due to the markets being flooded with polyester textiles, clothing prices are continuously plummeting, resulting in 64% of clothing being disposed to formal waste treatment or informal dumps (Heinrich Böll Foundation, 2020b). On a global scale, the source of 98% of microplastic pollution is from land-based activities and the rest from activities at sea. One of the largest sources of microplastics is from the washing of synthetic textiles, which causes microfibres to enter wastewater streams (Boucher and Friot, 2017). In the four African countries listed in the infographics, the textile sector is ranked second in three of the four countries

regarding absolute plastic leakage, which includes macro- and microplastic leakage.

Plastic carrier bags

Plastic carrier bags have been identified as problematic in most countries globally due to their ubiquitous use and propensity to leak into the environment. By 2018, 127 countries had put into force some type of legislation to ban the use, manufacture, free distribution and import of plastic bags (UNEP, 2018b). African countries have taken the lead on regulating plastic bags, with 37 countries having some form of regulation on plastic bags in 2018. Even so, the enforcement of these bans have been a challenge due to various factors such as illegal trade and the exploitation of loopholes in regulations. Rwanda has been the most successful with plastic bag and other single-use plastic bans due to strict enforcement (Development and Cooperation, 2021). In other African countries, plastic bags remain a problem: this application has been identified as a hotspot in the case of Mozambique and Tanzania. The infographics on this and the next page present plastic leakage hotspots per sector, application and polymer for four African countries.

PLASTIC LEAKAGE HOTSPOTS (TOP 2)

COUNTRY	SECTORS	APPLICATIONS	POLYMER
 Kenya	<ul style="list-style-type: none">  Packaging  Textiles 	<ul style="list-style-type: none"> Other bottles (non-drinking) Lids and caps 	<ul style="list-style-type: none"> Polypropylene (PP) Polyethylene (PE)
 Mozambique	<ul style="list-style-type: none">  Packaging  Textiles 	<ul style="list-style-type: none"> Plastic bags Disposable nappies 	<ul style="list-style-type: none"> Polyethylene Terephthalate (PET) Low-density Polyethylene (LDPE)
 South Africa	<ul style="list-style-type: none">  Packaging  Automotive tyres 	<ul style="list-style-type: none"> Beverage bottles Disposable nappies 	<ul style="list-style-type: none"> LDPE PET
 Tanzania	<ul style="list-style-type: none">  Packaging  Textiles 	<ul style="list-style-type: none"> Plastic bags Lids and caps 	<ul style="list-style-type: none"> PET PP

Source: Adapted from Pucino et al., 2020

Plastic from the fishing sector

An analysis of the fishing sector shows that between 12% and 36% of the plastic used in fishing activities, which includes fishing nets and packaging used on board, leaks into the ocean. However, the absolute leakage from fishing activities usually contributes less than 1% of the total plastic leakage in each country (Pucino et al., 2020).

Disposable plastic medical gear

In the past two years, the Covid-19 pandemic has resulted in the increased use of personal protective equipment (PPE), including disposable surgical masks and gloves, by individuals beyond medical professionals. The recommended frequency of replacing surgical masks for hygiene reasons further adds to the increased generation of this waste stream. Evidence of these items being mismanaged after use, ending up as litter in city areas and the natural environment, has been reported in the major cities of Kenya, Nigeria (Arimiyaw et al., 2021) and South Africa (Langa, 2021; Olatayo et al., 2021). These waste items put

additional strain on the already limited waste collection and management infrastructure and exacerbate the impacts of plastic pollution, specifically blocked waterways and drainage systems (Arimiyaw et al., 2021).

Disposable water sachets and plastic bottles

In many African countries, the use of bottled or sachet drinking water is a growing business due to the lack of access to potable water, with tap water often being of a lesser quality (Nyarko and Adu, 2016). Unfortunately, these bottles (PET), lids, caps and sachets (LDPE or HDPE) are major plastic leakage hotspots in countries like Ghana and Nigeria (Babayemi et al., 2019). In the Ada East District of Ghana, an increase in plastic waste is noticeable, especially around the market region, consisting largely of water bottles and sachets. The accumulation of plastic fragments from plastic water sachets has led to soil pollution in the surrounding agricultural land, causing problems such as decreased water penetration into the soil due to blockages, contamination of groundwater and poor soil aeration (Nyarko and Adu, 2016).

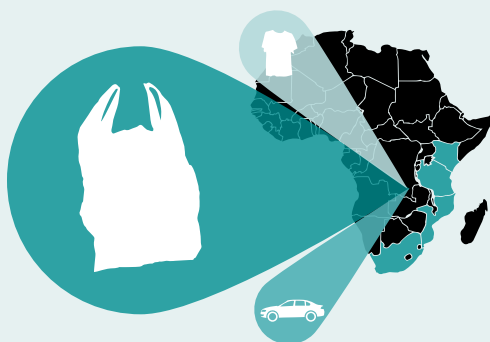
Disposable nappies

Single-use nappies (infant and adult) are a substantial contributor to plastic waste globally. A recent study by UNEP (2021d) has found that these items have environmental impacts across their entire life cycle and are also a leading cost for local authorities that are most often tasked with their disposal. The global disposable nappy market has experienced unprecedented growth in the last few decades and is expected to exceed \$71 billion by 2022. This growth in consumption is most prevalent in developing countries, including African countries, due to high birth rates, improving economies and urbanisation, and increased availability and marketing, among other factors (UNEP, 2021d). There is limited data on consumption and volumes for disposable nappies in Africa but a recent study in South Africa, which investigated the feasibility of pyrolysis plants to treat used nappies, found that a typical city generates between 67 000 to 160 000 tonnes per annum (DFFE, 2021). Less than 30% of these nappies are collected and taken to compliant or non-compliant landfills. The remaining volumes are uncollected and improperly disposed of, with significant volumes leaking into the environment (IUCN-EA-QUANTIS, 2021).

PLASTIC POLLUTION SOURCES AND HOTSPOTS

SECTOR HOTSPOTS

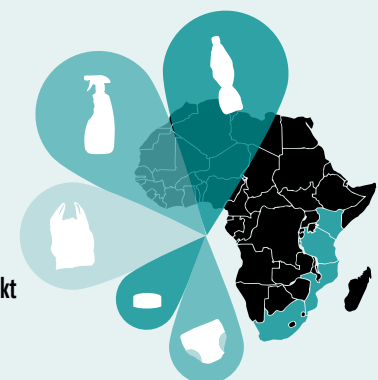
Textiles:
7,7 kt
Packaging:
114,2 kt
Automotive
tyres:
9 kt



Kenya	Mozambique	South Africa	Tanzania
Packaging 20,3 kt	Packaging 12,9 k	Packaging 63 kt	Packaging 18 kt
Textiles 4,4 kt	Textiles 0,7 kt	Automotive tyres 9 kt	Textiles 2,6 kt

APPLICATION HOTSPOTS

PET bottles: 13 kt
Other bottles
(non-drinking):
13,1 kt
Bags: 9,5 kt
Lids and caps: 3,1 kt
Nappies: 4,6 kt



Kenya	Mozambique	South Africa	Tanzania
Other bottles 5,4 kt	Bags 4,9 kt	PET bottles 13 kt	Other bottles 7,7 kt
Lids and caps 3,1 kt	Nappies 1,6 kt	Nappies 3 kt	Bags 4,6 kt



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PLASTICS LIFE CYCLE IMPACTS IN THE AFRICAN CONTEXT

Human health impacts – plastic exposure and ingestion

Studies have indicated that humans are ingesting microplastics due to bio-accumulation in various commercial marine species (EFSA CONTAM Panel, 2016) and other products, including bottled (Common and Szeto, 2018) and tap water, salt, fruit and vegetables (Conti et al., 2020). A recent study by Senathirajah et al. (2020) found that through routine food and beverage consumption, humans ingest up to 5 grams of microplastics per week. That is the equivalent of one credit card of plastic per week. This was a first attempt to determine a mass range of microplastic ingestion and a key contribution towards the assessment of microplastic ingestion on human health. Even though the human health impacts of ingestion via food intake or air is still unknown, it is clear that plastics are accumulating in human organs and tissue with future implications due to the absorption of embedded toxins.

In 2021, IPEN released two reports on research conducted in Africa on the impact of plastic waste in food chains on human health. The research found that the levels of persistent organic pollutants (POPs) present in free-range chicken egg samples show that current plastic waste sorting, dumping and open burning practices lead to severe contamination of the food chain in developing countries. Recycling of PVC and e-waste can also lead to serious contamination with POPs (Petrlik et al., 2021a). Another study analysed plastic used in children's toys and other consumable items for hazardous chemicals such as POPs (Petrlik et al., 2021b). The vast majority of items analysed presented dangerous levels of POPs and fall above the limit defined in the Stockholm Convention. These two studies provide evidence of significant human health impacts from hazardous materials used as additives in plastic.

Human health impacts – exposure to disease and toxic emissions

Contaminated solid waste is a vector for disease. With the limited waste collection in many African cities, open dumps are prevalent in lower-income and marginalised communities, putting residents in nearby communities, and especially people who collect this waste, at risk. Plastic and other solid waste can trap water or clog sewer lines, resulting in stagnating water that acts as a breeding ground for diseases such as malaria and cholera, as reported in Kenya and the Democratic Republic of the Congo (DRC) (UNEP, 2018a; Webster 2018).

Marginalised or “fence-line” communities are in many cases situated near refineries and chemical facilities. Exposure to toxic substances places these communities at a higher risk for heart disease, cancer and respiratory problems, such as asthma and emphysema, related to poor air quality (UNEP, 2021c). Various practices for heating or discarding purposes, such as the open burning and incomplete incineration of plastic waste, cause the release of dangerous toxic gases and POPs into the atmosphere. These substances, such as dioxins, furans, mercury and polychlorinated biphenyl, are harmful for human inhalation (Verma et al., 2016). In Kenya, for example, recent assessments estimated the air pollution caused by noxious chemical gases from open burning of mismanaged plastic at 233 kilotonnes in 2018 (IUCN-EA-QUANTIS, 2020).



Socio-economic impacts

According to a 2021 WWF report authored by Dalberg, *Plastics: The Costs to Society, Environment and the Economy* (Dalberg, 2021), the minimum life cycle cost that was imposed on South Africa by the plastic produced in 2019 is approximately \$60,72 billion ($\pm 28\%$). This includes damage to livelihoods and key economic industries such as tourism and fisheries, clean-up costs incurred by the government and threats to the population's health. A study conducted in Cape Town, South Africa, found that plastic pollution on beaches has a major impact on the tourism sector, potentially reducing tourism revenue and employment by up to 91% (Jain et al., 2021). The City of Cape Town spends R13 million (~\$819 000) on regular beach clean-ups per year, and through this avoids damage of an estimated R8,5 billion (~\$536 million) to the local tourism sector. For every rand (~\$0,06) spent on beach clean-ups, 1,9 g of plastic litter is collected, and R665 (~\$42) is saved in tourism revenue.

The life cycle cost of plastic in other African countries is also understood to be significant and is an additional burden on developing countries compared to higher-income countries. In Tunisia in North Africa, the island of Djerba is a major tourist destination that was visited by 1,8 million tourists in 2018. Here, the hotels alone account for up to 40% of the total waste generated on the island, 11% of which is plastic (Heinrich Böll Foundation, 2020b). The estimated cost of environmental degradation caused by waste and pollution on the island was calculated at TND14,1 million (~\$85 million) in 2014.

Infrastructure impacts

Poor and marginalised communities are more vulnerable to the impacts of plastic pollution. These include the blockage of waterways and urban drainage systems, causing urban flooding and related damage. In South Africa, after a heavy rainfall event, the Port of Durban is often forced to close due to the accumulation of large volumes of plastic and other wastes. This also causes damage to the engines of the ships docked in the area, all of which result in high costs of clean-up and repair.

In the DRC, reports on the major cities of Kinshasa (Webster, 2018; Kubanza and Simatele, 2016) and Lubumbashi (Mpinda et al., 2016) highlight that there are limited formal waste management services in these cities, particularly in areas with informal settlements. As a result, households resort to crude waste management methods such as open dumping, burying of waste and open burning. These methods cause further negative environmental and health impacts. Open burning, in particular, can damage roads, waste skips and other municipal infrastructure and release noxious chemicals into the environment.

The Hulene rubbish dumpsite is the largest of its kind in Maputo, Mozambique. It is situated next to an informal settlement, where residents would scavenge for food, recyclables and other items to sell. In February 2019, after heavy rains, the dumpsite collapsed and buried several houses in the settlement. At least 17 people died and several were injured (BBC News, 2018).



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Ecosystem impacts – focus on agriculture and fisheries

In terrestrial environments, landfills, urban surroundings and agricultural fields may be among those most contaminated by plastic (Ng et al., 2018). Cases of land animals, such as camels and cows, dying from ingesting plastic have also been reported (Plastic Soup Foundation, 2018; Priyanka and Dey, 2018). These impacts on livestock, in turn, have negative downstream impacts on African communities who depend on livestock farming for subsistence and/or livelihoods.

In addition, subsistence fishing for food is significant in coastal communities in Africa. Plastic pollution caused by ghost fishing gear and discarded aquaculture equipment poses a threat to food security and, most importantly, marine ecosystems (Jambeck et al., 2018).

Ecosystem impacts – focus on wildlife

Much research has focused on the impact of plastic pollution in the marine environment, but there is a significant increase in research in other environments, including inland water bodies and terrestrial environments. Globally, plastic pollution has affected 914 marine species through entanglement and/or ingestion (Kuhn and Van Franeker, 2020). In Africa, 59 research papers were analysed by Akindele and Alimba (2021), which found plastic ingestion or entanglement in zooplankton, annelids, molluscs, fish, birds and marine species in the inland and coastal waters of Africa. The toxicological implications of this ingestion are detrimental to aquatic health and ecosystem services in Africa.



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Ecosystem impacts – focus on mangroves

Plastic waste from urban areas is often washed away by rainwater and deposited in surrounding mangroves in many tropical countries with mangrove forests (Van Bijsterveldt et al., 2021). In Mozambique, this occurs in the cities of Beira, Dondo, Inhambane, Maputo, Maxixe, Pemba and Quelimane, as well as the district towns in the coastal zone of Mozambique. Plastic litter in mangroves directly interferes with the ecosystem, creating disturbance to the life of invertebrates, fish in nurseries and frequently visiting birds. Plastic pollution also interferes with the natural regeneration of mangroves, hindering the natural process of tidal transport of propagules and seeds, as it creates barriers that block circulation and hamper the establishment of seedlings.

Climate change impacts

Plastic pollution and climate change are closely linked because plastic is primarily derived from fossil fuels. Fossil-fuel companies see plastics as a diversification strategy in the light of the increasing pressure for climate action.

Greenhouse gas (GHG) emissions occur at every stage of the plastics life cycle – from oil extraction and refining, transport and plastic production to usage and final disposal of waste (UNEP, 2021c). The total GHG emissions from the plastics life cycle was 1,7 Gigatonnes (Gt) in 2015, which was 3,8% of total global emissions. By 2050, considering planned expansion by the petrochemical industry, total life cycle GHG emissions are projected to increase fourfold to 56 Gt, which will be 15% of the global carbon budget. Coupled with findings that plastic pollution interferes with the life cycle of zooplankton in the ocean, which is the largest natural carbon sink on the planet (Shen et al., 2020), this should be cause for serious concern and immediate attention.

SYSTEM FAILURES

There are multiple system failures at every stage in the plastics life cycle – and some cutting across all the stages – that lead to increasing plastic pollution, as shown on the next page.

SYSTEM FAILURES IN THE PLASTICS LIFE CYCLE

System failures specific to each life cycle stage



Stage 1 PRODUCTION

- × Virgin plastic still largely dependent on the fossil-fuel industry
- × Fossil-fuel industry projects have increased investments into plastic production
- × Toxic or hazardous chemical additives used in the production of plastic products
- × Producers not accountable for the end-of-life stages of materials or products



Stage 2 USAGE

- × Prevalence of single-use, problematic and unnecessary plastic product and packaging design and unsustainable business models
- × No incentives for upstream innovation at the product design stage
- × A lack of standards for sustainability, safety and circularity in product design and accurate labelling
- × A lack of individual or collective business commitments to transition to sustainable and circular plastics
- × Multiple barriers for end consumers to make sustainable choices about plastic products and packaging, including inconvenience, a lack of access and the high costs of sustainable options/alternatives



Stage 3 COLLECTION

- × Limited infrastructure and capacity for collection and sorting
- × A vulnerable and marginalised informal waste sector – not compensated or supported for their collection services
- × A lack of separation-at-source or deposit-return schemes
- × A lack of information to empower consumers to reuse, refill and separate plastic correctly



Stage 4 TREATMENT

- × The majority of plastics ever manufactured are not recyclable
- × A limited supply of quality plastic waste as input
- × A limited recycling infrastructure
- × Recyclable plastic not collected and still sent to landfills or leaking into nature
- × Some landfills still non-compliant, with open dumping and open burning of uncollected waste
- × Imports of plastic waste from other countries



Stage 5 SECONDARY MARKETS

- × Low profitability and high costs in the recycling sector and secondary markets for recycled plastic
- × The price of virgin plastic competitive with the price of recycled plastic
- × A lack of secondary markets for recycled plastic
- × Issues with the quality of recycled plastic, specifically for food-grade applications

System failures cutting across all life cycle stages

- × A lack of a common framing that outlines a clear, common vision for the plastics system, incorporating circular economy principles; and common standards of action to combat plastic pollution, addressing the full life cycle impacts
- × A lack of accountability among stakeholders for the true life cycle cost of plastic, with a historic narrative skewed towards blaming the consumer for plastic pollution
- × Weak or inadequate policy and regulatory frameworks, including limited capacity for enforcement and compliance
- × A lack of coordination among stakeholders across life cycle stages to ensure circular product and business model design and material circulation and to prevent leakage
- × A skewed perception that the majority of actions to combat plastic pollution are failing because they merely address the symptoms through clean-ups and waste management
- × A lack of technical capacity and understanding among all actors in the plastics value chain
- × A lack of monitoring and reporting on plastic volumes across the plastics life cycle stages
- × A lack of resources and investment into circular economy solutions

SECTION 1 KEY FOCUS

10 PRIORITIES TO ADDRESS PLASTIC POLLUTION IN AFRICA

Based on the current system failures, the key priorities for addressing plastic pollution systemically can be summarised in 10 key areas.

1. **Adopt a common framing** of the plastic pollution challenge with a systems view, across the full plastics life cycle, within a circular economy framework. This framing should underpin the rationale behind policy and legal frameworks and subsequent implementation plans.
2. **Commit to a clear, continent-wide vision with common and coordinated standards of actions**, including agreed definitions, sustainability standards and reporting methods, to adequately prepare for the projected increase in plastic production and consumption in Africa and the threat of increased imports of foreign plastic waste.
3. **Create an enabling socio-economic environment** for small, medium-sized and micro-enterprises founded on circular economy principles while leveraging opportunities to provide safe, decent jobs for particularly vulnerable populations, including women and youth.
4. **Ensure accountability throughout the system** by developing appropriate policy instruments and effective implementation to ensure private sector accountability, and support investment into infrastructure and solutions relevant for the country context.
5. **Develop contextualised policy toolkits** to support circular economy interventions informed by regular, accurate and transparent data monitoring and reporting on plastic material flows throughout the plastics life cycle.
6. **Prioritise actions to address current plastic leakage hotspots based on best available data**, using coordinated sector-based approaches for the packaging, textile and fishing sectors. Also, encourage targeted collaborative interventions to address product hotspots, particularly drinking water containers (bottles and sachets), and disposable PPE and nappies.
7. **Mobilise resources** linked to levies to support accountability within the system, invest in circular economy interventions to design circular products, infrastructure and technologies, and support the informal waste sector.
8. **Strengthen existing local production and manufacturing capacity** to adapt to circular economy product design and business models, while prioritising non-toxic and low-carbon processes.
9. **Build capacity across value chains** and share knowledge about the circular economy policy frameworks and solutions to comprehensively address plastic pollution.
10. **Launch and implement behaviour change programmes** to ensure that governments, businesses and citizens are aware, educated and mobilised to support circular economy policies and interventions, and to minimise the unintended consequences of false solutions such as incineration, open burning and the indiscriminate use of alternatives to conventional plastic, including biodegradable plastic.

SECTION 2

PLASTIC POLLUTION POLICY GAPS ACROSS AFRICA

Existing policy and legislation to adequately address plastic pollution in Africa does not take a systemic, life cycle approach. Some of the major limiting factors of existing policy and legislation may arise from the fact that, historically, environmental protection policy focused solely on waste management, one of the last stages of the plastics life cycle.

The end-of-life focus on waste hinders progress to address the root causes of plastic pollution at the production (Stage 1) and usage (Stage 2) life cycle stages. This is coupled with the fact that the concepts of the circular economy and a life cycle approach are still vague. It is also evident that policy frameworks or legislation is only as good as a government's capacity to enforce and effectively implement its policies as legislation, which in many cases is a major issue in African countries.

This section explores the most significant gaps in policy frameworks

and legislation at a global, regional and national level, linked to the plastics life cycle failures outlined on page 16. The aim is to uncover potential opportunities to close those policy gaps so as to adequately address plastic pollution in Africa.

INTERNATIONAL POLICY AND LEGAL FRAMEWORKS

There are a number of international policy frameworks that include measures to address plastic pollution

and related issues such as marine litter and pollution, the circular economy and the blue economy. African countries that are parties or signatories to these frameworks are expected to translate these laws to national level. The effectiveness of national implementation depends on what is outlined in the policy framework as well as the country's capacity and resources to fulfil the requirements. Although voluntary initiatives are useful, the current global governance structure is fragmented and ineffective to tackle the plastic pollution challenge at the necessary pace and scale.



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EXISTING GLOBAL GOVERNANCE FRAMEWORKS RELEVANT TO PLASTIC POLLUTION

1972: Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (London Convention)

- Regulation requires parties to report dumping of plastic waste at sea by any vessels (ships) and aircrafts.
- No regulation of plastic waste leakage into nature from land-based activities that contribute to marine pollution, nor of dumping in inland waters, rivers and estuaries.
- No compliance mechanism.

16 African countries have ratified the London Convention

1973/1978: International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V (entry into force in 1983)

- Annex V prohibits disposal of garbage, including plastic waste, from operational or accidental causes.
- Regulation only covers pollution from ships, not other sources.
- Compliance requirements differ for vessels depending on tonnage, the number of persons the vessel carries and whether it is fixed or floating, and penalties are set according to each country.
- Exemptions include many fishing vessels, which are large contributors to pollution from ghost fishing gear.

36 African countries have ratified MARPOL Annex V

1982: UN Convention on the Law of the Seas (UNCLOS)

- A global agreement that establishes a legal framework for all marine and maritime activities.
- Countries are required to “adopt laws and regulations to prevent, reduce and control pollution” from land-based sources and dumping. However, no detail is provided on how this should be done. As a result, separate or supplementary arrangements are required to fill this gap, such as MARPOL and the London Convention.
- Encourages the establishment of global and regional rules, standards and recommended practices to achieve the UNCLOS mandate, but does not provide these.
- General provisions prohibit dumping of waste in rivers and estuaries.

47 African countries have ratified and five have signed the Convention but fewer than half of coastal countries have fully maximised their maritime zone benefits through UNCLOS, which compromises its implementation (Surbun, 2021).

1992: Convention on Biological Diversity

- A global agreement that covers all aspects of biological diversity: the conservation of biological diversity, sustainable use of its components and the fair and equitable sharing of benefits arising from genetic resources.
- Aichi Biodiversity Target 8, adopted in 2010, called for the reduction in pollution that is detrimental to ecosystem functioning and biodiversity by 2020, with particular focus on marine litter, including plastics. This target was not achieved.
- Decision XIII/10, adopted in 2016, included voluntary guidelines for preventing and mitigating the impacts of marine litter.

54 African countries have ratified, acceded to or accepted the Convention

timeline continues...

1992: Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention)

- Aims to reduce the generation of hazardous and other waste, promote its environmentally sound management and regulate its transboundary movements.
- The 2019 amendments extend the scope of the convention to incorporate certain categories of plastic waste.
- Data on the transboundary movements of hazardous waste in Africa is not readily available due to the lack of reporting to the Convention Secretariat by African countries.

53 African countries have ratified or acceded to the Convention

CRITICAL AMENDMENTS TO THE BASEL CONVENTION

At its 14th Conference of the Parties (COP14) in 2019, the Basel Convention adopted amendments to three annexes to incorporate certain categories of plastic waste under its scope. These included giving parties the right to prohibit the import of plastic waste and to obtain prior written informed consent for the export of plastic waste. The amendments provide exemptions from the obligations for uncontaminated plastic waste, provided that it is “destined for recycling in an environmentally sound manner”. These exemptions were added to avoid creating barriers to recycling. However, in the face of weak border enforcement and corruption, these exemptions potentially provide a loophole to bypass the prohibitions, making transboundary trade more prevalent. Countries are expected to implement the law nationally, but it is unclear how many countries have already done so.

The Basel Convention COP14 also adopted a decision for further action on plastic waste, which included, among others, updating the technical guidelines for plastic waste management and establishing a partnership on plastic waste.

These amendments obtained great media coverage and were seen as a statement from the 187 member countries to address the plastic pollution problem. Since then, the world has seen developing countries, specifically the Philippines and Indonesia, sending back shipments of plastic waste to the countries of origin including the USA, the UK and Australia (Ellis-Petersen, 2019).

1995: The UN Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement)

- Includes obligations for parties to minimise pollution, waste and abandoned gear (ghost fishing gear).
- Covers areas beyond national jurisdiction; however, the scope is limited to specific species, thus does not cover all fishing activities resulting in ghost gear.

13 African countries have ratified or acceded to the Convention and seven have signed the Convention

1996: Protocol to the London Convention (entry into force in 2006)

- Added a compliance mechanism to the London Convention.
- Introduced a “reverse list” of items that may be dumped at sea – plastic waste is not included and is therefore prohibited from being dumped.

10 African countries have ratified the Protocol

1997: Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention)

- Requires parties to take appropriate measures to prevent harm in international watercourses (e.g. rivers, lakes or other surface water bodies that fall under the jurisdiction of two or more countries).
- This includes preventing, reducing and controlling pollution, which includes plastics.

13 African countries have ratified or acceded to the Convention

2001: Convention on Persistent Organic Pollutants (Stockholm Convention)

- Requires parties to implement measures to reduce or eliminate the release of persistent organic pollutants (POPs), which are harmful to human health and the environment.
- This includes measures to restrict or eliminate the production, use and disposal of POP-based additives in the manufacture of plastic products, and has relevance in the recycling, disposal and remanufacturing of plastic products containing POPs.

53 African countries have ratified or acceded to the Convention

-
- 2014:** **UNEA-1 – First meeting of the UN Environment Assembly**
UNEP/EA.1/Res.6: Marine plastic debris and microplastics
- Highlighted marine litter and microplastics as an emerging global environmental problem and noted the need for more research in this regard.
-
- 2016:** **UNEA-2**
UNEP/EA.2/Res.11: Marine plastic litter and microplastics
- Requested UNEP to undertake an assessment of the effectiveness of relevant international, regional and subregional regulatory frameworks, governance strategies and approaches to combat marine plastic litter and microplastics, and identify possible gaps and options to address these gaps.
-
- 2017:** **UNEA-3**
UNEP/EA.3/Res.7: Marine litter and microplastics
- Adopted a global zero-emission vision, which aims to eliminate the discharge of litter and microplastics into the oceans in the long term.
 - Called for the UN Environment Programme (UNEP) to play a stronger role in combatting marine litter and requested an overview of all voluntary commitments targeting marine plastics and microplastics.
 - Established an Ad Hoc Open-Ended Expert Group (AHEG) to study and propose solutions to the marine plastics crisis.
-
- 2019:** **UNEA-4**
UNEP/EA.4/Res.9: Addressing single-use plastic products pollution
- Requested UNEP to share information on addressing plastic pollution and the full life cycle impact of single-use plastic products.
- UNEP/EA.4/Res.6: Marine plastic litter and microplastics
- Extended the mandate of the AHEG.
 - Called on UNEP to continue strengthening scientific and technological knowledge on marine plastics.
 - Stressed the importance of coordination and collaboration.
-
- 2021:** **UNEA-5.1**
- As a result of the circumstances posed by the Covid-19 pandemic, UNEA-5 was split into two sessions. The first was held virtually in February 2021 to discuss urgent matters.
 - Expressed continued aspirations towards launching negotiations on a global agreement to address plastic pollution.
 - Announcement of the first ministerial conference on marine litter and microplastics.
- Ministerial Conference on Marine Litter and Microplastics**
- The conference was hosted in September 2021 by Ecuador, Germany, Ghana and Viet Nam, in a hybrid format.
 - The Ministerial Statement commits “to take the next decisive steps by working towards the timely establishment of an Intergovernmental Negotiating Committee (INC) on Marine Litter and Plastic Pollution at UNEA-5.2, with the aim of achieving a new Global Agreement with ambitious goals, wide participation and means of implementation”.
- 65 countries endorsed the Ministerial Statement, among them 10 African countries**
(Burkina Faso, Cameroon, Cote d’Ivoire, the DRC, Ethiopia, Ghana, Kenya, Mauritania, Somalia and Sudan)
- World Trade Organization (WTO) informal dialogue on Plastics Pollution and Environmentally Sustainable Plastics Trade**
- In October 2021, members discussed a roadmap to support global efforts to reduce plastics pollution and to transition towards environmentally sustainable plastics trade.
- 18 WTO members co-sponsored the informal dialogue, including four African countries**
(Cabo Verde, Central African Republic, The Gambia and Morocco)
-

REGIONAL POLICY, LEGAL AND INSTITUTIONAL FRAMEWORKS

There are various existing regional frameworks indirectly related to addressing plastic pollution through linkages with other issues such as marine litter, solid-waste management, the blue economy and the circular economy. Plastic pollution has only started to emerge as a stand-alone issue in regional forums in recent years.

Agenda 2063: The Africa We Want

The African Union's 2015 Agenda 2063 focuses on inclusive and sustainable development actioned through 10-year implementation plans. These plans call on African cities to commit to recycling at least 50% of urban waste by 2023. The agenda also recognises that sustainable consumption and production measures are important for the blue economy (AU, 2015).

Agreement Establishing the African Continental Free Trade Area

The African Union's 2018 African Continental Free Trade Area (AfCFTA) agreement entered into force in 2019. The AfCFTA is a flagship initiative of Agenda 2063 and aims to facilitate the trade and movement of goods and services across Africa. The AfCFTA is expected to boost economic growth, reduce poverty, promote economic inclusion and strengthen regional value chains (World Bank, 2020). The agreement and its related protocols contain provisions for protecting environmental and human health and upholding domestic restrictions on production or consumption such as product bans.

The AfCFTA may have an important role to play in strengthening customs processes that are required to implement international and regional regulatory frameworks covered under the Basel and Bamako conventions. This will ensure more effective control of the trade in hazardous waste, including plastic waste and e-waste (Van der Ven and Signé, 2021). In addition, the AfCFTA may facilitate

the trade of plastic waste intended for recycling, and of recycled plastic intended for remanufacturing.

Africa Blue Economy Strategy

The African Union's Blue Economy Strategy for Africa recognises pollution from chemicals and plastics as a key threat to the blue economy (i.e. fisheries, aquaculture and tourism sectors). It also encourages African countries to "adhere to national, regional and global instruments, standards and practices" to address pollution from chemicals and plastics (AU-IBAR, 2019). However, it does not clearly outline these measures.

African Union Plastic Pollution Initiative

Initiated by the African Union Commission, the African Union's plastic pollution initiative began with a high-level working session on "Banning Plastics in Africa: Towards a pollution-free Africa" in 2019. This event involved the African First Ladies in collaboration with the United Nations Environment Programme.

African Ministerial Conference on the Environment

In November 2019, in Durban, South Africa, the 17th session of the African Ministerial Conference on the Environment (AMCEN) presented the ministerial outcome, which is now referred to as the **Durban Declaration** (AMCEN, 2019). For the first time, Ministers of the Environment from Africa committed to various actions to enhance the circular and blue economies and to address plastic pollution as a collective. Plastic pollution was initially raised in the agenda on the circular economy as one of the major issues to address through circular economy interventions and policy frameworks. However, it was then elevated to a separate item in the declaration to commit to supporting global action, given the transboundary nature of plastic pollution.

The Durban Declaration further emphasises two options to engage more effectively on global governance,

including "reinforcing existing agreements and the option of a new global agreement". This added Africa's collective voice to leaders of the Council of the European Union, the Pacific Islands and the Caribbean, and the Nordic Council of Ministers for the Environment and Climate, who had expressed in their regional declaration and statements the need for a new global agreement to address plastic pollution.

In 2021, at the 18th session of AMCEN, African ministers for the environment strengthened their commitment, stating "We will work towards having a new global legally binding agreement on marine litter and plastic pollution that takes a comprehensive approach to address the full lifecycle of plastics, from production and design to waste prevention and management, while ensuring coherence and coordination of activities undertaken by existing regional and international instruments, and create a supporting structure for implementation in developing countries..." (AMCEN, 2021, Appendix I, paragraph 10).

AMCEN further undertook to support the draft resolution on marine litter and plastic pollution, co-drafted by Rwanda and Peru and co-sponsored by over 40 UN Member states, including Guinea, Kenya, Madagascar, Senegal and Uganda as of December 2021. The draft resolution suggests elements to define the mandate on the agreement of the Intergovernmental Negotiation Committee, to be negotiated at UNEA 5.2. Lastly, African Ministers of the Environment agreed to develop a common regional approach for Africa on engagement on the proposed draft resolution.

"WE, AFRICAN MINISTERS FOR THE ENVIRONMENT [...] CALL UPON THE RESUMED FIFTH SESSION OF THE UNITED NATIONS ENVIRONMENT ASSEMBLY TO ESTABLISH AN INTERGOVERNMENTAL NEGOTIATING COMMITTEE TO PREPARE AND NEGOTIATE A GLOBAL LEGALLY BINDING AGREEMENT TO COMBAT MARINE LITTER AND PLASTIC POLLUTION."

– AMCEN, 2021, Annex I, paragraph 10(f)

AFRICA'S SUPPORT FOR A NEW GLOBAL TREATY ON PLASTIC POLLUTION

Ministerial statements from AMCEN 17 and 18 and the Bamako Convention Decision 3/8 support the call to start negotiations for a new global treaty. This was backed up by decisive leadership from Ghana as a co-host of the Ministerial Conference on Marine litter and Plastic Pollution, and Rwanda in co-drafting the first draft resolution on an internationally legally binding instrument on plastic pollution. However, most African governments have limited institutional and technical capacity to meaningfully engage in these forums, compared to developed countries. This is seen in the lack of expertise of government representatives on technical and/or political issues, the lack of participation of certain governments, and the lack of consistency and continuity in government representatives attending the discussions.

The impacts of Covid-19 pandemic lockdowns also meant that more policy forums were taking place virtually, which

compromised government participation due, at times, to unreliable access to internet infrastructure. However, as policy discussions start to move to hybrid formats, this challenge will hopefully be resolved.

African governments constantly have to manage very limited resources and capacity to attend to various immediate and long-term priorities, and often depend on foreign investment to carry out these tasks. With the Covid-19 crisis, many African governments are going further into unsustainable national debt (OECD, 2020). One of the major concerns for developing countries, specifically in Africa, when considering a new multilateral agreement on the environment such as the proposed global treaty, would be financial support and financing mechanisms to support implementation. These issues should be addressed when negotiations start to take place in order to ensure inclusivity and fairness.

Bamako Convention

The 1991 Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (the **Bamako Convention**) entered into force in 1998. The Bamako Convention was established as a result of reports of developed countries dumping hazardous wastes in the territories of developing countries, including African countries, who were of the view that the Basel Convention was not strict enough (UNEP, 2018a). The scope of the convention does not cover plastic waste (except that found in e-waste); however, in 2020, Decision 3/8 was taken to add all forms of plastic waste under its scope, following the similar Basel Convention amendments the year before. This decision also invites parties, who have not already done so, to implement bans on plastic bags and other single-use plastics. Furthermore, in response to the AMCEN Durban Declaration, it adds its call for a new

legally binding global agreement to combat plastic pollution.

Countries such as South Africa and Nigeria have not ratified the Bamako Convention based on the perceived risk that it may inhibit their recycling economies, which involve transboundary trade of goods such as e-waste and plastic waste (PMG, 2008, 2014). Some other countries are not party to the convention because of a lack of the high financial investments and dedicated and skilled personnel required for its effective implementation (Ouguerouz, 1993).

Regional Seas programme in Africa

The Regional Seas programme comprises 18 regional seas, four of them covering the coasts of Africa (East Africa, West Africa and North African countries in the Mediterranean and the Red Sea and Gulf of Aden regions) but excluding landlocked countries.

All the Regional Seas programmes are administered by the UN Environment Programme (UNEP), except for the Red Sea and the Gulf of Aden ones.

The Regional Seas Programme provides instruments relevant to plastic pollution, specifically marine plastic litter:

- Legally binding regional conventions
- Legally binding protocols on land-based sources and activities
- Voluntary assessments, action plans or strategies to protect the marine environment and address marine litter
- The protocols for land-based sources and activities provide the scope for measures to be adopted to address plastic pollution in the marine environment originating from land-based sources and activities. However, each protocol currently provides different levels of obligations to prevent, reduce, control and eliminate plastic pollution. In addition, there are large variances in terms of national implementation and compliance. Furthermore, three out of the four protocols have not yet entered into force.

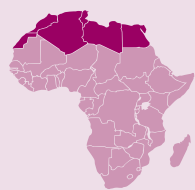
The Mediterranean Regional Seas programme is the only one in Africa with a marine litter action plan, which is also legally binding. The East African Regional Seas marine litter action plan is currently under development, while one for West Africa has been proposed.



31 African countries have ratified or acceded to the Bamako Convention

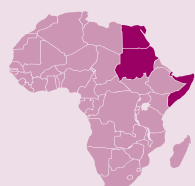
Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Egypt, Ethiopia, Gabon, Gambia, Guinea-Bissau, Liberia, Libya, Mali, Mauritius, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zimbabwe

REGIONAL SEAS PROGRAMMMES ALONG THE AFRICAN COAST



The Mediterranean

- 1976:** Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (**Barcelona Convention**, entered into force in 1978)
- 1995:** Barcelona Convention amended, entered into force in 2004
- 1995:** Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean
- 1996:** Land-based Sources and Activities Protocol
- 2013:** Regional Plan on Marine Litter Management in the Mediterranean (legally binding)



The Red Sea and Gulf of Aden

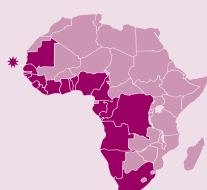
- 1976:** Action Plan for the Conservation of the Marine Environment and Coastal Areas of the Red Sea and the Gulf of Aden (revised in 1995; legally binding)
- 1982:** Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment (**Jeddah Convention**, entered into force in 1985)
- 2005:** Land-based Activities Protocol (not in force)
- 2018:** Regional Action Plan for the Sustainable Management of Marine Litter in the Red Sea and Gulf of Aden



East Africa

- 1985:** Convention for the Protection of the Marine Environment and the Coastal Region of the Western Indian Ocean (**Nairobi Convention**, amended in 2010, not in force)
- 1985:** East African Action Plan
- 2007:** A Regional Overview & Assessment of Marine Litter Related Activities in the West Indian Ocean Region
- 2010:** Land-based Sources and Activities Protocol (not in force)
- 2018:** West Indian Ocean Regional Action Plan on Marine Litter

* Comoros, Mauritius, & Seychelles



West Africa

- 1981:** Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region (**Abidjan Convention**, entered into force in 1984)
 - 1981:** Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the West and Central African Region
 - 2012:** Land-based Sources and Activities Protocol (not in force)
- Assessment and Marine Litter Action Plan proposed

* Cabo Verde

NATIONAL POLICY AND LEGAL FRAMEWORKS

The examples in this section are based on an assessment of plastic pollution policy and legal frameworks in eight African countries, with additional inputs from further desktop research. The eight countries that were assessed include the DRC, Kenya, Nigeria, the Seychelles and South Africa (WWF, 2019b). Existing policy frameworks and legislation specifically relating to the plastics life cycle in these countries were identified in the desktop study and include the major categories listed in Table 1. Examples of these pieces of legislation are given from various country perspectives, based on literature and policy and legal documentation available in the public domain.

At present there are no existing policies and legislation among African countries that address upstream activities

at the production stage (Stage 1), for example, to reduce the production of virgin plastic. Also, there is only a limited number of measures aimed at promoting sustainable, safe and circular product design, an aspect relating to consumption and use (Stage 2). The focus of policy and regulation up until now has largely been on the collection and treatment stages (Stages 3 and 4) rather than on a full life cycle approach to addressing plastic pollution.

In Table 1, the categories for existing national policy and legal frameworks and the plastics life cycle stage they aim to regulate are indicated.

The table is followed by case studies from various countries across the continent to illustrate examples of policy and legal frameworks at national level.

Table 1: Summary of categories for existing national regulation in the plastics life cycle

Categories of existing national policy frameworks and legislation	Stage 1 PRODUCTION	Stage 2 USAGE	Stage 3 COLLECTION	Stage 4 TREATMENT	Stage 5 SECONDARY MARKETS
Environmental management policies and legislation (including solid-waste management, water pollution, air pollution, coastal management and marine pollution)			■	■	
Bans on single-use plastic items (applied to the manufacturing, use, distribution, import or export of certain plastic products or waste items)		■			
Economic incentives and disincentives (such as taxes and fees, sometimes including product standards and labelling)		■			
Extended Producer Responsibility (EPR) schemes (including product standards and labelling)		■	■	■	■
Deposit-return schemes		■	■	■	■
Informal sector guidelines			■	■	
Waste trade regulations (e.g. the Basel Convention and the Bamako Convention)			■	■	
Constitutional elements	The national constitution provides an overarching framework for environmental protection and is the basis for governments to develop national policies and legislation to address plastic pollution. It therefore does not necessarily pertain to particular life cycle stages.				
Sustainable development and circular economy strategies	Cross-cutting strategies that apply to all five stages.				

Sustainable development and circular economy strategies

Sustainable development strategies and circular economy frameworks are opportunities for national governments to make commitments to address plastic pollution and waste management through a full life cycle approach.

In African countries, there are few specific circular economy policies and not much legislation particularly relating to plastic pollution. However, certain circular economy principles are included in frameworks for climate change mitigation, the green economy and sustainable waste management (Desmond and Asamba, 2019).



Kenya's Sustainable Waste Management Bill

The Sustainable Waste Management Bill of 2021 forms part of Kenya's third medium-term plan (2018–2022) for the country's development (Kenya Vision 2030, 2007). The Bill outlines that all public and private sector entities should account for the segregation of plastic, organic waste and other dry waste in their waste management plans. It also specifically mentions providing incentives for “private investors to expand investment in waste recycling and enhance circular economy”. It encourages waste reduction, reuse and the use of recycled content in products, driving up the value of plastic waste, which makes it less likely that waste will be dumped or sent to landfill. It also promotes the “polluter pays” principle, take-back schemes and the use of Extended Producer Responsibility frameworks. While this Bill is encouraging in its promotion of circular economy principles, its effective delivery requires tangible commitments through clear, time-bound, actionable targets and implementation plans.

LESSONS FROM ELSEWHERE



The European Union's Circular Economy Action Plan

The EU Circular Economy Action Plan (CEAP) was adopted by the European Commission in March 2020 and is one of the main components of the overarching European Green Deal, which sets the agenda for the EU to meet the goals of climate neutrality by 2050 and halt biodiversity loss. The development and adoption of the CEAP prioritises the transition to a circular economy, which supports the achievement of these 2050 policy goals. The CEAP addresses value chains holistically with interventions across the entire life cycle of materials through legislative and non-legislative measures. The measures in the CEAP aim to make sustainable and circular products the norm in the EU, empower consumers and public buyers, and prioritise sectors that are resource intensive with a high potential for circularity, such as packaging and plastics. All actions (CEAP Action Plan, 2021) are to ensure that less waste is generated and make circularity work for people, cities and regions, as well as support global efforts to create a circular economy. It is notable that the CEAP is integrated into policy and informs regional strategies for chemicals, industry, sustainable development, plastics, waste and recycling and the Zero-Pollution Action Plan.



France's Anti-Waste Law

Not only is waste generation per capita increasing in France, resulting in increased leakage into the environment, but, in addition, €630 million (~\$710 million) of unsold goods are destroyed each year, generating up to 20 times more greenhouse gas emissions than if the goods had been reused. This led to the development and adoption of the comprehensive Anti-Waste Law in 2020, which aims to eliminate waste and pollution at the design stage and transform the system of production, distribution and consumption from a linear to a circular economic model (Ellen MacArthur Foundation, 2021a). It encourages businesses across various sectors, as well as municipalities and citizens, to eliminate waste and adopt more circular practices through the following actions:

- Phase out single-use plastic packaging by 2040
- Eliminate waste by encouraging reuse and supporting charitable organisations
- Tackle planned obsolescence
- Promote a better resource management system from the design stage to the recovery of materials
- Provide better and more transparent information to consumers.

France is the first country to ban the destruction of unsold non-food products with the requirement that companies are to reuse, donate or recycle their unsold products. It is also the first time that a mandatory repairability index on electronic and electric products has been introduced to ensure that repairability is considered at the design stage and that consumers are aware of repair options when purchasing a device.

Importantly, the law aims to stimulate socio-economic transformation by creating 70 000 new jobs in reuse networks and encouraging the donation of unsold goods to charitable organisations. Social inclusion measures in policy are very relevant for African countries to address high unemployment, poverty and inequality.

Environmental management policies and legislation

Environmental management or protection policies and legislation provide an overarching framework for addressing pollution, including plastic pollution. This includes pollution-related issues such as solid-waste management, water pollution, air pollution, coastal management and marine pollution, to name a few. Countries have implemented various forms of these nationally or subnationally. The introduction of the waste hierarchy and circular economy principles is seen in some policies and regulation; however, these are not developed or implemented comprehensively across the full life cycle of plastics and other materials. Most of the environmental protection policies and legislation focus downstream on the collection (Stage 3) and treatment (Stage 4) stages. While solid-waste management, including waste collection and treatment, remains an end-of-pipe strategy to address plastic pollution, it is a key strategy while

upstream circular economy approaches, such as reduction and reuse, are in their infancy stages. Unfortunately, most African countries do not have the necessary infrastructure, capacity or finances to keep up with the increasing generation of solid waste.

In most African countries, the state or municipalities are responsible for solid-waste management service provision as per policy and legislation. However, municipal solid-waste service provision is largely ineffective, disparate and unreliable across African cities, resulting in large volumes of mismanaged waste, including plastic, leaking into nature (Jambeck et al., 2018). There are several political, economic and social reasons for this, including the lack of institutional technical capacity, the lack of sustainable financing mechanisms, the mismanagement of existing financial resources and an unstable political climate causing service disruptions. These issues highlight the need for mechanisms to ensure effective enforcement and compliance such as incentives or penalties.



Democratic Republic of the Congo's Law No. 08/016 of 2008

Law No. 08/016 of 2008 stipulates that it is the duty of each decentralised entity (urban, municipal and sectoral councils) in the DRC to organise the collection of public waste and the treatment of the waste. However, the historical civil conflict has meant that in most territories in the country, waste management is poor or non-existent due to a lack of funding and infrastructure. Some areas, for example the city of Goma, still carry out “salongo”. This is a local term for a civic duty whereby local people actively clean up their neighbourhoods on a Saturday, a task that was obligatory by law from 1965 to 1997 (Oldenburg, 2018). This civic clean-up is encouraged and sometimes still enforced by local authorities to raise public awareness of environmental problems, and to save the local authority from spending already stretched funds on waste collection (Habari DRC, 2019). Public funding of waste management is very poor in the DRC. In some cases, substantial external funding had been secured to establish waste management technical solutions, but once these solutions were handed to the state to manage, they immediately ceased to function as a result of a lack of funding, management skills and experience in the waste sector (Webster, 2018).

Bans on single-use plastic items

Altogether 127 countries around the world have put into force some type of legislation to ban the use, manufacture, free distribution and import of plastic bags. African countries are seen as leaders in this regard, with 37 countries regulating plastic bags in some way (Excell et al., 2018). These bans include different variations, such as the inclusion of a list of exemptions, specifications relating to material composition and thickness, bans on a list of single-use items besides plastic carrier bags, and bans in specific geographic areas (Excell et al., 2018). The East African Community (EAC) adopted the Polythene Materials Control Bill in 2016, which provides a subregional framework to prohibit the manufacture, sale, use and importation of polythene materials

on a national level in the subregion. The Bill is currently awaiting assent by EAC Heads of State (UNEP, 2018a).

However, the different variations and elements of these bans make coordination and enforcement of the bans difficult in the region and globally, specifically when it comes to transboundary plastic pollution and international trade. The effective enforcement of these bans differs from country to country, but common constraining issues include illegal trade taking place across porous borders and a lack of enforcement capacity. Furthermore, the unintended consequences of bans are a huge risk in the face of no life cycle assessments to drive the choice of the best available alternative to suit the local context, which may result in misperforming alternatives with a greater life cycle impact that might require further bans down the line.



Democratic Republic of the Congo's plastics decree

In 2017, the DRC's government published a decree “prohibiting the production, import, marketing and use of plastic bags, sachets, films and other packaging”. The decree banned plastics involved in the sale of food, water and any drink, as well as “bags, sachets, films and other non-biodegradable plastic packaging”. However, there appears to be a long list of exemptions, namely plastics used for medical or hygiene products, those used in agriculture, construction and public works, bin liners, luggage wrap, plastic bottles containing water and “other non-alcoholic beverages”, with some plastics also subject to licensing laws. Partially due to these exceptions, the decree has come under some heavy criticism, claiming that there are too many inconsistencies, limitations, contradictions and inaccuracies (Mihigo, 2018). Oldenburg (2018) reported that the plastics ban has resulted in less plastic in circulation in the city of Goma; however, local market traders struggle to find cheap alternatives and some turn to the illegal smuggling of plastic bags.

Economic disincentives

The purpose of economic disincentives is mainly to reduce production and consumption through the implementation of a levy, which in turn increases the price of certain products such as plastic carrier bags. However, there is often criticism that the funds should then be used to invest in collection, sorting and recycling activities and infrastructure to divert

plastic from the waste stream and reduce leakage into the environment. This is not always possible, especially when the levy is part of the national treasury where it is not ring-fenced for specific purposes.

Another gap is that in some cases the disincentive is not sufficient, in that the levy is not high enough to drive down consumption and subsequent production.

South Africa's environmental tax on plastic carrier bags

In 2003, the then Department of Environmental Affairs introduced an environmental tax that was levied on plastic carrier bags in South Africa. The aim with the levy was to reduce consumption to mitigate the increasing prevalence of plastic bags in the environment and its subsequent contribution to solid-waste volumes. The levy was introduced along with a ban on bags with a thickness below 24 µm. This levy was then shifted onto the consumer by retailers. Overall consumption initially declined but ultimately increased again. The levy continued to increase over subsequent years to address the high levels of consumption, bringing millions of rand into the national treasury. These funds are not ring-fenced. However, according to the Department of Forestry, Fisheries and the Environment, some of the funds are channelled to the National Regulator for Compulsory Specifications as gazetted through the Department of Trade and Industry. Funds can also be accessed for recycling activities through the submission of an approved business plan to the National Treasury. According to a 2020 WWF report, it is unclear whether any successful recycling projects using these funds have ever been implemented.

Extended Producer Responsibility

Extended Producer Responsibility (EPR) is widely considered across the globe to promote the “polluter pays” principle. It is an environmental policy approach in which a producer’s responsibility for a product is extended to the waste (end-of-life) stage of that product’s life cycle (Basel Convention, 2019). In practice, EPR involves producers taking responsibility for the management of products after these products become waste. This includes collection, pre-treatment (e.g. sorting, dismantling or depollution), preparation for reuse, recovery (including recycling and energy recovery) or final disposal.

EPR therefore not only promotes producers’ accountability for managing their packaging and products at the end-of-life stage but also encourages better packaging design for circularity to minimise costs at that stage. EPR schemes in various countries are set up and operate differently depending on the local context, but have common principles to ensure that producers assume the financial and/or operational responsibility of their products at end of life. The effectiveness of EPR schemes, mandatory or voluntary, relies on the active role of producers in contributing to the scheme and transparently reporting on various targets such as collection, recycling and post-consumer recycled content in packaging.

Nigeria's voluntary EPR scheme

In 2015, the National Environmental Standards and Regulations Enforcement Agency (NESREA) published operational guidelines on the enforcement of EPR policy in consultation with stakeholders in the food and beverage industry in Nigeria (Coca-Cola Africa, 2018). Earlier, in 2013, the Food and Beverage Recycling Alliance was set up by four companies to drive a self-regulatory post-consumer food and beverage packaging waste recovery and recycling system. The alliance now has nine members collaborating under a strategic action plan that includes public outreach, technological innovation, recycling, reuse, marine drainage clean-up and recovery, and buy-back schemes.

South Africa's mandatory EPR scheme

South Africa evolved from a voluntary to a mandatory EPR scheme in May 2021. Initially, a limited number of plastic packaging formats were covered by the scheme and there were several producer responsibility organisations (PROs). According to the Section 18 Notice in the National Environmental Management: Waste Act 59 of 2008, the government selected the packaging, e-waste and lighting waste streams to be regulated under EPR and required that the funds would be managed by the industry. In 2021, EPR plans were being developed by the PROs or individual company schemes for government approval and subsequent operational implementation in 2022. It is widely acknowledged that mandatory EPR is more effective than voluntary EPR because it covers all packaging formats regardless of market value. It will also provide the necessary financial and/or operational capacity to the inadequate solid-waste management function currently provided by municipalities in South Africa.

Deposit-return schemes

Deposit-return schemes (DRS) are complementary to Extended Producer Responsibility (EPR) schemes in that they support collection, sorting and resource management objectives within EPR. A deposit-return scheme is a market-based instrument that creates a financial incentive to ensure the effective collection of specific products (Ellen MacArthur Foundation, 2021c). This instrument provides an incentive to the customer through a monetary deposit that is paid upfront on the product. The deposit is then paid back to the customer

as cash once the product is returned. Deposit-return schemes can support reuse models and there is evidence of exceedingly high collection rates. Countries with DRS for polyethylene terephthalate (PET) bottles, for example, have collection rates reaching up to 98% (TOMRA, 2021). Several factors influence the collection rates of products under DRS, including the level at which the deposit is set alongside informative labelling and perceived convenience for the customer. Legislated DRS, in combination with EPR regulation, contribute to public cost savings and play a key role in scaling up collections for reuse and recycling.



The Seychelles' Waste Free Initiative

In support of their Solid Waste Management Plan, and enforced through the 2009 Excise Tax Act, the Seychelles government launched the Waste Free Initiative. This initiative included a partial deposit-return system for PET bottles and cans outside of the privatised waste services operated by a single entity (i.e. STAR Seychelles) to allow outside operators to recycle these items (Karapetyan, 2018). More recently, glass bottles have been included in the scheme. As part of the Waste Free Initiative, the government introduced a recycling scheme for PET plastic in the Seychelles through the PET Plastic Regulations (Trades Tax Imports Regulations) 2005, amended in 2007. It was based on an economic incentive model: a tax of up to 30% on all PET pre-form bottles and an additional levy of 70 cents per manufactured bottle. The consensus is that this has been a popular measure and successful in diverting plastic bottles from landfills and litter, largely owing to the role of informal collectors (Lai et al., 2016).

Informal waste sector integration guidelines

In recent years, extensive research on the informal waste sector across Africa points out its significant socio-economic and environmental contribution. However, in many countries, informal waste collectors are still not recognised as key stakeholders in the formal waste sector. Decisions affecting the informal waste sector's operations and livelihoods are usually made without the sector's knowledge or input. Engagements between municipal officials, informal waste collectors (waste pickers), residents and other actors in the

waste management and recycling sectors are emerging as a starting point to shift this skewed approach (Lubaale and Nyang'oro, 2013). Governments in Nigeria and Kenya have expressed commitment to policy shifts that would aid the sector, through mechanisms such as Extended Producer Responsibility (EPR), as these countries house large producers who can contribute to a more inclusive system (Naijalink Limited, 2021; Gall et al., 2020). The integration of the informal waste sector should be prioritised in Africa. This would include activities to ensure recognition, inclusivity, compensation and other forms of support.



South Africa's waste picker integration guidelines

Integration of the informal sector is beginning to emerge in the policy and legal frameworks that encourage a supportive and collaborative relationship between the formal and informal waste sectors. The waste picker integration guidelines, developed through a partnership between the sectors, encourage support for the informal sector with caution to retain the preferred autonomy of waste pickers and to elicit increased support from producers and municipalities (DEFF and DSI, 2020). In the slow conversation towards the implementation of South Africa's EPR regulations, separate engagements are under way between relevant actors on ways to better include the informal waste sector. Although the informal sector is not fully organised to make a sufficient contribution in these engagements, waste pickers operating under non-profit organisations and cooperatives are represented at these talks.

VOLUNTARY, NON-BINDING INITIATIVES

GLOBAL INITIATIVES

- The 1995 **Global Programme of Action for the Protection of the Marine Environment from Land-based Activities** (GPA), hosted by UNEP, was the first intergovernmental initiative to address marine litter. It operates primarily through the Regional Seas Programme.
- The 2006 **Strategic Approach to International Chemicals Management** (SAICM) is a global policy framework relevant in the context of plastic pollution with regard to the chemical additives used in the manufacture of plastics. The overall objective is the sound management of chemicals throughout their life cycle and that by 2020, chemicals are produced and used in ways that minimise significant adverse impacts on the environment and human health. Although this target was not achieved, the mandate of the SAICM is ongoing.
- The 2011 **Honolulu Strategy** aims to connect marine litter programmes and to foster collaboration through sharing best practices and lessons learned. The strategy also specifically provides for monitoring and evaluating progress on projects, and for various possible actions that may be undertaken by different stakeholders.
- The 2012 **Global Partnership on Marine Litter** (GPML) was initiated to reduce the impacts of marine litter through multi-stakeholder collaborative partnerships.
- The **2030 Agenda for Sustainable Development**, which included 17 Sustainable Development Goals (SDGs) and 169 targets, was launched in 2015. The most notable targets relating to addressing plastic pollution, both directly and indirectly, include targets 6.3, 11.6, 12.4, 12.5 and 14.1.

REGIONAL AND SUBREGIONAL INITIATIVES

Across Africa there are examples of voluntary regional and subregional initiatives to address the gaps in data collection, monitoring and reporting. These initiatives may play a role in informing policy and legislation.

- The **Africa Circular Economy Alliance** was established by the governments of Nigeria, Rwanda and South Africa in 2017. Benin, Burkina Faso, Cote d'Ivoire, Ghana and Sudan joined later. It aims to steer the transition to a circular economy in Africa to deliver economic growth, jobs and positive environmental outcomes. Plastic packaging falls within the broader theme of manufacturing, which is one of three priority sectors identified for its potentially transformative impact on the continent (ACEA, n.d.).
- The **Western Indian Ocean Marine Science Association** (WIOMSA) conducted marine litter monitoring in Kenya, Madagascar, Mauritius, Mozambique, the Seychelles, South Africa and Tanzania and produced guidelines (WIOMSA, n.d.).
- The IUCN/UNEP compiled **national plastic pollution hotspotting guidelines and assessment reports** for Kenya, Mozambique, South Africa and Tanzania (IUCN, 2020).

NATIONAL INITIATIVES

- The **New Plastics Economy Global Commitment** developed by the Ellen MacArthur Foundation is a vision that outlines commitments towards a circular economy for plastics that is signed by businesses, governments, academia and civil society organisations. The government of Rwanda, and the Environment Department and Ministry of Environment, Energy and Climate Change of the Seychelles, signed the Global Commitment in 2019 and 2018, respectively (Ellen MacArthur Foundation, 2020). Progress made since signing can be viewed for Rwanda in the Global Commitment Progress Report 2021 (Ellen MacArthur Foundation, 2021b).
- The Ellen MacArthur Foundation also developed the national **Plastics Pact** initiative. This is a collaborative platform for stakeholders across the plastics value chain with national targets relevant to each specific country. Stakeholders sign up to accelerate the transition to a circular economy for plastic packaging. The South African Plastics Pact was launched in 2020, and the Kenya Plastics Pact in 2021. There are also national Plastics Pacts being developed in Senegal and Morocco (MAVA Foundation, n.d.).

SECTION 2 KEY FOCUS

TOP FIVE GAPS IN PLASTIC POLLUTION POLICY

GLOBAL POLICY GAPS

1. No clearly articulated global ambition or target
2. No common obligation for countries to develop national action plans
3. No agreed standards for monitoring and reporting of plastics life cycle flows, including leakage
4. No specialised scientific body in place mandated to assess the status of the problem and provide policy guidance and direction to the diplomatic effort of preparing for and negotiating a treaty
5. No coordinated approach to combat plastic pollution.

REGIONAL POLICY GAPS

1. A lack of a continent-wide vision and targets to address plastic pollution and prioritise and outline common standards for action
2. A lack of regional coordination of existing policy frameworks and interventions relevant to plastic pollution across Africa and a general lack of an inventory of existing, successful policies and interventions on the continent
3. A lack of pan-African research and knowledge sharing to inform policy development for a circular plastics economy to address plastic pollution systemically
4. A lack of effective enforcement of plastic waste trade regulations into and across Africa
5. Delayed progress on addressing plastic pollution through policy and legislation due to competing developmental priorities, such as the Covid-19 pandemic relief and stimulus measures that are limiting resource availability and flows

NATIONAL POLICY GAPS

1. No clear national targets or action plans to transition to a circular plastics economy, with a large focus on waste management and not enough focus on upstream product and business model redesign for a full life cycle approach
2. A lack of accurate and comprehensive data and reporting to inform policy
3. A lack of policy instruments to ensure accountability across the value chain and create an enabling environment for circular enterprises
4. A lack of capacity and resources for the effective implementation of existing policies, strategies, actions, plans and initiatives
5. A lack of integration of, and support to, the informal waste sector

SECTION 3

POLICY OPPORTUNITIES TO ADDRESS PLASTIC POLLUTION IN AFRICA

With a growing global urgency to put measures in place to curb plastic pollution, the time is now for African governments to participate in shaping global action, strengthen regional coordination and boost the national ambition.

The OECD, UN Environment Programme (UNEP) and the Ellen MacArthur Foundation recommend various policy approaches to systemically combat plastic pollution

(Ellen MacArthur Foundation, 2021c; UNEP, 2021c; OECD, 2019). Some of these approaches, together with examples of policy instruments, are outlined and organised in the context

of seven policy opportunities for African governments. These opportunities hold the potential to support Africa's key priorities and address existing policy gaps at the global, regional and national levels.

SEVEN POLICY OPPORTUNITIES FOR AFRICAN GOVERNMENTS

7

Develop and implement interventions for behaviour change and capacity building across the value chain

6

Support the integration of the informal sector in policy instruments and strategies

5

Facilitate public-private collaboration to transition to a circular plastics economy



1

Actively participate in shaping a new global treaty and inter-governmental negotiating committee

2

Develop a regional strategy that is aligned with global actions and considers regional, subregional and national contexts

3

Ensure value-chain accountability through regulatory, economic and information-based policy

4

Set national targets informed by the local context and develop roadmaps for action



ACTIVELY PARTICIPATE IN SHAPING A NEW GLOBAL TREATY

A new legally binding global treaty to combat plastic pollution provides the opportunity to harmonise, coordinate and provide regulatory measures to holistically and comprehensively address plastic pollution. A new global treaty should address the five global policy gaps identified on page 31.

The majority of UN member states (79%) now support the development of a new global treaty to address marine plastic pollution (WWF, 2021b). More than 60 companies across the plastics value chain, and 25 financial institutions have also endorsed the call for treaty negotiations through a business manifesto as of November 2021 (Plastic Pollution Treaty, 2021). Over 600 civil society organisations and NGOs are calling for negotiations of a new global treaty (Global Plastics Treaty, 2021). In addition, over 2,1 million individuals have called on governments to voice their support for a new global treaty through WWF's petition (WWF, 2021c). At the upcoming Fifth UN Environment Assembly (UNEA 5.2, scheduled for February 2022) it is therefore anticipated that the mandate to start negotiations for addressing plastic pollution through a new global treaty will be secured through the establishment of an Inter-governmental Negotiation Committee (INC).

In preparation for UNEA 5.2, the African Union Commission in collaboration with WWF co-convened a virtual regional workshop in November 2021. The main aim of the regional workshop was to bring together representatives from governments, inter-governmental organisations, regional bodies, civil society organisations and experts in Africa to deliberate the key elements of a legally binding global agreement to address plastic pollution. The outcomes of this workshop have been a common regional understanding and alignment of Africa's perspectives on the key elements of a treaty, as well as a renewed commitment and a clear path forward for the region, leading up to and beyond UNEA 5.2.

The outcomes of this workshop were fourfold:

- 1. Regional alignment and commitment towards a treaty on plastic pollution:** Participants agreed to the need for a negotiation mandate for a legally binding global treaty to address plastic pollution to be decided at UNEA 5.2.
- 2. Africa's perspectives on the key elements of such a treaty:** Participants developed a common understanding and identified key elements of such a treaty from an African perspective, which include, among others:
 - Shared objectives
 - Common but differentiated responsibilities
 - National action plans and commitments
 - Clear reporting and monitoring
 - A scientific and technical body
 - A financial and technical support mechanism
 - A global clearing house mechanism
 - Inclusivity
- 3. Commitment from regional institutions and partners on the way forward:** Representatives from the African Union Commission and AMCEN reiterated their commitment to drive the outcomes of the workshop to UNEA 5.2. WWF and other partners were urged to continue supporting this process.
- 4. Clear recommendations guiding the way forward:** The African Union Commission, AMCEN and other partners recommended the following:
 - To take stock of existing experts in Africa on plastic pollution issues and develop an African group of experts.
 - The group of experts should be diverse.
 - To set up a group of negotiators in Africa to speak on behalf of Africa, in addition to those already identified, namely Rwanda and Ghana.
 - To prepare an African position ahead of UNEA 5.2, to be initiated by the AMCEN Secretariat and supported by the African Union Commission, WWF, UNEP and other interested parties.

African governments should actively participate in negotiations towards a new global treaty in order to offer perspectives and priorities from the African context.



DEVELOP A REGIONAL STRATEGY

African governments should develop a regional strategy that is aligned with global actions and considers regional, subregional and national contexts. The recommendations mentioned below are intended to address the five regional policy gaps identified on page 31 and can be used as a checklist.

Develop and adopt a continent-wide vision and strategy that encapsulates Africa's short-, medium- and long-term priorities and aligns with the ambition outlined by a new global treaty.

Capture an inventory of existing regional and subregional initiatives in order to effectively identify gaps, coordinate current and future measures to combat plastic pollution and build cross-border policy alignment.

Use existing regional bodies and platforms to enable knowledge sharing and support pan-African research and demonstration centres on best practices.

Mobilise new resources and effectively deploy existing resources in accordance with the regional strategy and implementation plan.

Leverage the African Continental Free Trade Area to ensure the effective enforcement of plastic waste trade regulations through strengthening of customs processes, while facilitating the trade of goods intended to accelerate the transition to a circular plastics economy in Africa.



ENSURE VALUE-CHAIN ACCOUNTABILITY

Policy instruments are approaches or techniques used by governing authorities to promote certain policies to achieve a predefined set of goals for that country. These policy instruments can be categorised as regulatory, economic or information-based and may be used to ensure the accountability of relevant stakeholders in the plastics value chain.

Regulatory instruments

Regulation is broadly defined as the imposition of rules by a government, backed by the use of penalties that are intended specifically to modify the economic behaviour of individuals and firms in the private sector (OECD, 2002). Regulations are not incentives or disincentives, but simply rules enacted and enforced by various levels of government. Recommended regulatory approaches for plastics are as follows:

Ban unnecessary and problematic plastic products and packaging, where appropriate, with consideration of the local context, e.g. through conducting a national hotspotting analysis.

Create product standards and certifications to mandate circular design for reuse, repair, increased durability (reduced obsolescence), recyclability and minimum levels of post-consumer plastic recycled content. This includes conventional, bio-based and biodegradable plastic products.

Mandate procurement and government funding conditions to require plastic products and packaging that aligns with circular product standards to support end markets for reusable, recyclable products with minimum levels of post-consumer recycled content.

Enact a waste collection and sorting policy (subnational government) that mandates the separation of waste at source with effective enforcement.

Review the classification and definitions of materials and waste in existing national and subnational law that hinder reuse, recycling and the flow of circular resources nationally and across borders.

Ensure that trade policy and agreements are aligned with circular economy principles, which include offering zero tariffs for circular products, integrating circularity aspects in sector-specific policies and regulatory actions, and promoting trade in circular and sustainable goods and services within a sector.

This will require product standards that are aligned internationally with circular economy definitions and standards for imports and exports.

Trade policy that prohibits the import of hazardous plastic products with high levels of persistent organic pollutants (POPs) should be enacted.

Review data and digital regulation to enable the generation of accurate and credible data on material flows and the use of technologies such as blockchain to enable material efficiency, connect informal waste reclaimers and buyers through e-commerce platforms, improve the manufacturing life cycle and contribute to the extension of product life cycles.

Economic instruments

Economic instruments include fiscal or other economic incentives or disincentives to influence national outcomes and stakeholder behaviour. Taxes are the most common economic instrument used. Here are some examples of economic instruments to employ for plastics:

Enforce mandatory Extended Producer Responsibility (EPR) schemes. EPR is an application of the “polluter pays” principle, where a fee is paid by the obliged industry to manage the end-of-life stage of its products. EPR regulation can also incentivise upstream innovation to reduce fees for end-of-life activities and infrastructure investment. Fair payment for services rendered by the informal sector should be included in EPR schemes.

Regulate deposit-return schemes (DRS) for specific packaging or products to complement EPR, with materials and revenue managed by the obliged industry. DRS are useful as an economic incentive to return products. It is also important to ascertain the impact of DRS on the informal waste sector.

Implement the following:

- Tax on the extraction of fossil fuels to produce virgin plastic to encourage substitution with recycled plastic
- Indirect taxation via a carbon tax for products with low levels of post-consumer recycled content
- Landfill taxes to encourage waste diversion from landfills, provided that the necessary infrastructure and monitoring systems are in place
- Tax exemptions and subsidies to incentivise research and development, and provide support for investments into circular opportunities across the full life cycle
- Tax incentives for businesses that develop innovative zero-waste solutions and models, reduce waste generation, include recycled content in their plastic products and collect and recycle plastic material, to keep them in operation to provide these essential services.

Information-based instruments

Information-based policy instruments are widely used by governments to communicate knowledge or information to shift stakeholder behaviour. The aim is to bring the behaviour of all stakeholders in line with existing policy and regulatory objectives or to improve policy development and compliance. Some examples of information-based instruments that support the above-mentioned regulatory and economic instruments are as follows:

- Develop a data-reporting and management system and centralised data repository at a national level that feeds into regional and global systems to monitor progress and inform policy and decision-making.
- Develop guidelines aligned with global and regional best practice for national plastic hotspotting methodology to support data reporting.
- Co-develop product and packaging guidelines aligned with and informed by product standards and certifications to support regulation such as Extended Producer Responsibility schemes. These should be managed by independent entities.
- Develop labelling, tariff codes, disclosure and taxonomy requirements for plastics for data transparency so that actors in the value chain (e.g. consumers, recyclers, waste collectors) can make informed choices and support the accurate reporting of plastic flows.



SET NATIONAL TARGETS

African governments should set clear, concrete national targets informed by the local context that can be used to develop roadmaps for action. Recommendations regarding national targets are listed below:

- Develop a circular economy action plan and policy strategy that is aligned with global and regional strategies in cooperation with all national government departments to inform the common vision and circular economy roadmap in the country.
This action plan should create an enabling environment for job creation and the development of small, medium-sized and micro-enterprises.
- Identify national priorities based on national plastic hotspotting methodology.
- Develop national targets based on priority areas and existing voluntary targets, informed by the circular economy action plan and roadmap and flowing from the common national vision. All stakeholders must collaborate in and endorse the final targets.
- Set up and fund reporting platforms that collect and generate credible data to monitor and evaluate progress towards combatting plastic pollution and shifting towards a circular plastics economy.
- Align national targets with the Paris Agreement and ensure that plastics life cycle emissions are included in Nationally Determined Contributions.



FACILITATE PUBLIC-PRIVATE COLLABORATION TO TRANSITION TO A CIRCULAR PLASTICS ECONOMY

Given the systemic nature of the plastic pollution challenge, it is essential that all stakeholders work together in the transition to a circular plastics economy for maximum impact. Recommendations to facilitate public-private collaboration are listed below:

Develop and agree to a common framing of the problem and the way forward, with alignment between the government and the private sector. Actions must be targeted across the plastics life cycle.

Adapt local production and manufacturing capacity to align with circular plastic principles. This includes the implementation of innovative product design and product delivery models.

Promote and support multi-stakeholder collaborative platforms on plastics stewardship, involving actors across the plastics life cycle, which include voluntary commitments or industry-led initiatives (e.g. national Plastics Pacts).

Develop an effective Monitoring and Evaluation function together with the private sector for the effective execution of policy and other initiatives.

Facilitate cooperation between the public and private sectors through Extended Producer Responsibility policy (see “Economic instruments” on page 35).

Prioritise and embed social inclusion, job creation and the development of small, medium-sized and micro-enterprises in circular economy policy and private sector action.



SUPPORT THE INTEGRATION OF THE INFORMAL SECTOR

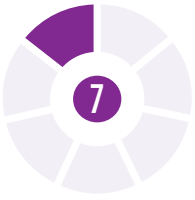
The informal sector provides essential waste collection services, which are a means of economic survival to many and instrumental in the recovery of materials to be recycled and reabsorbed into the economy of African countries. Recommendations to support the integration of the informal waste sector are listed below:

Co-develop informal waste sector integration guidelines with informal sector organisations, independent researchers and government support.

Include the informal waste sector integration guidelines in the planning and implementation of Extended Producer Responsibility schemes by local governments and obliged industries.

Support the implementation of integration guidelines by local governments and obliged industries with regular feedback and monitoring.

Include the informal waste sector integration guidelines in other national and subnational policies and strategies, such as circular economy action plans and roadmaps.



INTERVENTIONS FOR BEHAVIOUR CHANGE AND CAPACITY BUILDING ACROSS THE PLASTICS VALUE CHAIN

To ensure alignment and effective implementation of policy measures, behaviour change and capacity-building interventions are necessary for all actors in the plastics value chain. Recommendations for these interventions are listed below:

Draw on independent, credible sources based on scientific evidence to build capacity in the government, industry and other stakeholders in the plastics value chain. This will support the creation of a common vision and actions to address plastic pollution in national contexts.

Develop and implement behaviour change and awareness-raising campaigns for actors – including governments, businesses and citizens – for all stages of the plastics life cycle.

Establish school and tertiary education curricula and training programmes on circular economy design and principles with public funding and supported by the industry.



POLICY AND LEGAL RESPONSES FOR THE PLASTICS LIFE CYCLE

African governments have the opportunity to develop specific policy responses for each stage of the plastics life cycle, and/or to develop policy responses that can be applied across the full life cycle of a plastic product. Depending on the priorities

in each country, governments may select the appropriate entry point from the table to start (or continue) developing their measures for creating a circular plastics economy.

Policy and legal responses specific to each stage of the plastics life cycle



Stage 1 PRODUCTION

- ✓ Impose a tax or economic disincentive on virgin plastic
- ✓ Cap virgin plastic production



Stage 2 USAGE

- ✓ Phase out and/or ban unnecessary and problematic plastic items
- ✓ Develop guidelines and incentives on sustainable, safe and circular product and packaging design for reuse and recycling and the use of minimum recycled content
- ✓ Extend EPR to incentivise upstream innovation and standardise or rationalise plastic materials used
- ✓ Agree on definitions and sustainability standards (consumer labelling, etc.)



Stage 3 COLLECTION

- ✓ Encourage separation-at-source
- ✓ Invest in waste collection infrastructure to ensure 100% collection
- ✓ Support the integration of the informal waste sector into the system with mechanisms for compensation and necessary resources



Stage 4 TREATMENT

- ✓ Explore community solutions to prevent open burning and open dumping practices in low-income areas
- ✓ Ensure that existing landfills are maintained or are upgraded to adhere to compliance measures
- ✓ Disincentivise landfilling through higher landfill taxes and economic incentives for waste diversion
- ✓ Set ambitious recycling and landfill diversion targets



Stage 5 SECONDARY MARKETS

- ✓ Support secondary markets by generating a steady demand for recycled plastic
- ✓ Legislate green public procurement of plastic products and packaging that are recycled and reused and contain a minimum amount of post-consumer recycled content

Policy and legal responses that apply to all stages of the plastics life cycle

- ✓ Actively participate in shaping a new legally binding global treaty to combat plastic pollution
- ✓ Collaborate with industry, local government, NGOs and the informal waste sector to develop and implement accountability mechanisms to enable sustainable waste and material management and accurate reporting
- ✓ Establish a centralised data repository, in collaboration with academia and other experts, to develop baselines and inform policy and regulatory frameworks
- ✓ Develop an integrated and coordinated policy strategy across government departments to drive circular economy principles in the plastics life cycle to minimise waste, economic losses and resource extraction
- ✓ Build capacity across the value chain to support policy measures and interventions
- ✓ Introduce the circular economy concept into the education curriculum to prepare the next generation of researchers and industry professionals

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GLOSSARY

absolute leakage: the total amount of plastic leaked into the environment per leakage hotspot, i.e. by sector, product, polymer or geographic area

circular economy: an economy based on the principles of designing out waste and pollution, reducing consumption of non-renewable materials, keeping products and materials in use and regenerating natural systems

formal sector: waste management activities planned, sponsored, financed, carried out or regulated and/or recognised by the local authorities or their agents, usually through contracts, licences or concessions (IUCN, 2020)

ghost fishing gear: fishing gear that is abandoned, lost or otherwise discarded in either freshwater or marine environments

informal sector: individuals or a group of individuals who are involved in waste management activities, but are not formally registered or formally responsible for providing waste management services; informal waste collectors (often referred to as “waste pickers” or “waste reclaimers”) remain largely invisible and unrecognised in the waste sector but are an integral part of solving the plastic pollution crisis (IUCN, 2020)

mismanaged plastic waste: plastic that is either littered or inadequately disposed of, that is not formally managed and includes disposal in dumps or open, uncontrolled landfills, where it is not fully contained; mismanaged waste has a higher propensity of leaking into nature than managed waste (Jambeck et al., 2015)

plastic leakage: plastic that is not kept in a circular loop or properly managed at its end of life, and thus leaks into the environment, specifically into waterways and the ocean

plastic leakage hotspot: a component of the system that directly or indirectly contributes to plastic leakage and its impact, or a component that can be acted upon to mitigate leakage or its resulting impacts (IUCN, 2020) within a temporal or spatial dimension. Hotspots are identified as follows:

- **sector hotspot:** a sector that contributes directly or indirectly to plastic leakage and its impact
- **product/application hotspot:** a specific plastic product that contributes directly or indirectly to plastic leakage and its impact
- **regional hotspot:** a geographic area that directly contributes to plastic leakage and its impact
- **polymer hotspot:** an identified plastic polymer that is found to directly or indirectly contribute to plastic leakage and its impact

plastics life cycle: the stages through which plastic material moves, from the resin produced from fossil fuels, to consumption (manufacturing, product use), to end of life, and potentially to new life cycles if it is recycled or reused after the first life cycle

problematic and unnecessary plastic (defined as follows by the Ellen MacArthur Foundation):

- It is not reusable, recyclable (technically and/or economically not recyclable) or compostable.
- It contains, or its manufacturing requires, hazardous chemicals that pose a significant risk to human health or the environment.
- It hinders or disrupts the recyclability or compostability of other items.
- It has a high likelihood of being littered or ending up in the natural environment.

recycled plastic: a new raw material made from existing plastic products (which were originally made from virgin or recycled plastic) that have already been used, either in an industrial process or by a consumer, and is now used to make new products or applications; often referred to as secondary plastic raw material

relative leakage: the amount of leaked plastic divided by the amount of waste generated per leakage hotspot

secondary markets: economic markets that absorb recycled plastic (secondary plastic raw materials)

separation-at-source: the activity of separating different waste streams after product use at the place where the product is used to minimise contamination and make it easier to redirect these materials to different treatment facilities

unnecessary plastics: plastic items that can be avoided (or replaced by a reuse model) while maintaining utility; these items have limited social utility – no alternative is required for them and they can be phased out without significant behavioural or infrastructural change

virgin plastic: the polymer resin produced directly from a fossil-fuel feedstock, such as coal, natural gas or crude oil, which is used for the manufacture of plastic products



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