Environmental Governance and the Global Plastic Pollution Problem: Driving Kenya Towards a Circular Economy

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Abstract

This paper elaborates on the use of environmental governance instruments to address plastic pollution, addressing conflicting interests between stakeholders involved in the global plastic trade with the overall aim of contributing to sustainable development. Taking the plastic bag ban in Kenya as a case study, this paper examines the global discussion on addressing plastic pollution. Taking the directive from the Cabinet Secretary for Environment as an example, it argues that some Governments may adopt approaches that may not be in concordance with the direct interests of all parties at the outset. However, such actions may drive change and achieve an acceptable solution in collaboration with stakeholders, moving countries a step closer towards achieving a circular economy.

1. Introduction

In March 2019, 170 countries at the United Nations Environment Assembly pledged to "significantly reduce" the use of plastics by 2030.[1] This was a significant milestone and a result of global efforts to address the increasing plastic pollution problem, plaguing countries around the world and prompting

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[1] United Nations Environment Assembly, 'Addressing Single-Use Plastic Products Pollution' <https://papersmart.unon.org/resolution/uploads/k1900861.pdf#overlay-context=node/271> accessed 20 February 2020; BBC, 'UN Pledges Plastic Reduction by 2030' *BBC News* (15 March 2019) <https://www.bbc.com/news/science-environment-47592111> accessed 3 February 2020.

various initiatives to explore sustainable solutions. Single-use plastics make up an estimated 40% of all plastics produced worldwide.[2] While plastic has its advantages in that it is cheap, lightweight, versatile, and durable, on the negative side single-use plastics like bottles, straws, shopping bags, cups, and food packaging degrade slowly, and causing harm and even death when animals ingest them.[3,4] Furthermore, when plastic does break down, it degrades into smaller particles called microplastics that enter our water supply, the air, and the animal products we eat (e.g. fish), which may also create a human health risk.[5] These plastics are often not recycled, and even when they are, they are usually only recycled once and then still end up in a landfill or in the ocean. Additionally, estimates suggest that plastic production is responsible for around 6% of global oil consumption (equivalent to the global aviation sector).[6]

An appreciation of the benefits and negative impacts of plastic have in recent years come to the forefront not only at the global level, but also at regional and national levels, driving conversations in communities and households. As Africa leads the world with over 31 countries on the continent having adopted legislative measures to address plastic pollution,[7] regional bodies such as the African Union continue to explore avenues towards achieving pollution-free

[2] Laura Parker, 'Plastic Bag Bans Are Spreading. But Are They Truly Effective?' (*National Geographic Society*, 17 April 2019) <https://www.nationalgeographic.com/environment/2019/04/plastic-bag-bans-kenya-to-us-reduce-pollution/> accessed 19 February 2020.

[3] United Nations Environment Programme, 'Clean Seas: Plastic Management' <https://wedocs.unep.org/bitstream/handle/20.500.11822/21511/CleanSeas_final_Infographic.pdf?sequence=1&isAllowed=y> accessed 3 February 2020.

[4] Hannah Ritchie and Max Roser, 'Plastic Pollution' [2018] Our World in Data <https://ourworldindata.org/plastic-pollution> accessed 13 May 2020.

[5] ibid.

[6] Ellen MacArthur Foundation, World Economic Forum and McKinsey & Company, 'The New Plastics Economy: Rethinking the Future of Plastics' (World Economic Forum 2016) <http://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf> accessed 23 November 2017.

[7] Ephrat Livni, 'Africa Is Leading the World in Plastic Bag Bans' (*Quartz Africa*, 18 May 2019) <https://qz.com/africa/1622547/africa-is-leading-the-world-in-plastic-bag-bans/> accessed 20 February 2020.

economies.[8] While solutions must be sought, the question of whether it is possible to embrace a plastic-free life has been the subject of widespread debate, which continues in earnest.[9]

A post on social media about a recent development by a local supermarket in Geneva, Switzerland stirred attention online. The supermarket had introduced a product where juicy, red tomatoes were on sale for half the average market price. Yet, the person posting was outraged. Shouldn't they be pleased that such a drastic reduction in price was offered for good quality tomatoes, one might ask. The problem lay in the packaging: these tomatoes on offer were wrapped in two thick layers of plastic. For regular priced tomatoes, a customer would handpick them and place them in a biodegradable bag provided by the supermarket, and the customer would weigh and pay the value for the weight. Yet for these well-priced ones, as a pre-packaged selection the customer would in essence be unwittingly coerced to agree to plastic packaging. The concerned citizen referred to this as an attempt by the manufacturing industry to offload a burden of its own plastic packaging by passing it off to the consumer who then would be responsible for proper disposal.

This is not an isolated occurrence. It draws attention to various aspects of the prevailing global debate on plastic pollution, where issues relating to consumer versus corporate power, inequality, incorrect placing of values, and sustainable development find centre stage.

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[8] African Union, 'High Level Working Session on Banning Plastics in Africa: Towards a Pollution-Free Africa' (*African Union*, 10 February 2019) <https://au.int/fr/node/35821> accessed 20 February 2020.

[9] Steven Kurutz, 'Life without Plastic Is Possible. It's Just Very Hard.' *The New York Times* (16 February 2019) <https://www.nytimes.com/2019/02/16/style/plastic-free-living.html> accessed 20 February 2020; Rachel Obordo, 'Is It Possible to Live without Plastic? Readers' Tips for Tip-Free Living' *The Guardian* (17 January 2018) <https://www.theguardian.com/environment/2018/jan/17/is-it-possible-to-live-without-plastic-readers-tips-for-for-tip-free-living> accessed 20 February 2020; Deutsche Welle, 'How Hard Is Living without Plastic?' (*DW.COM*, 11 October 2018) <https://www.dw.com/en/how-hard-is-living-without-plastic/a-45829332> accessed 20 February 2020.

This paper is based on a desk-based review of available literature at the global, regional, and national level, including laws, court decisions, reports, and articles. It offers reflections on plastic pollution, the proliferation of plastics in everyday use, and marine plastics and micro-plastics challenges. It examines efforts to address the conflict between current and ideal approaches to dealing with the proliferation of plastics. The examination focuses on countries in Africa, including highlighting the judicial decision concerning the plastic bag ban in Kenya. It concludes that there is an ever-increasing need for concerted effort for States, businesses, consumers, and other stakeholders to explore alternatives to single-use plastic and to adopt measures to protect future generations in the ends of sustainable development.

2. Plastic pollution: A global conflict

"An exciting opportunity for researchers and people generally interested in scientific studies!"

This was the gist of a tag line inviting interested applicants for a volunteering programme for one month in the Antarctic.[10] The small team of researchers would join one of the world's first extensive studies of how micro-plastics travel around the world from the points of production and disposal, to what can be referred to as the ends of the earth. Through collecting samples of snow and ice which would then be examined for the particles of what would have then disintegrated from the bottle, container, straw, or other similar item, the findings would provide insights into the use of plastics from different countries. This contributes to decades of studies that have been prepared to illustrate the unsustainability of present day manufacture, use, and disposal of plastic and plastic products.

Plastic is currently embedded in everyday life, a reality that has increasingly manifested since large-scale plastic production began in the 1950s.[11] Its inherent properties make it an ideal material for myriad uses – from construction, to consumer packaging, components of electronics, tools, cars,

[10] Airbnb, 'Wanted: Five Volunteers to Join Scientific Research Mission to Antarctica' (*Airbnb Newsroom*, 24 September 2019) <https://news.airbnb.com/antarcticsabbatical/> accessed 20 February 2020.

[11] Roland Geyer, Jenna Jambeck and Kara Law, 'Production, Use, and Fate of All Plastics Ever Made' (2017) 3 Science Advances e1700782.

photographs, utensils, and an endless list of products. Once produced, however, plastics are one of the most persistent materials in existence, and for hundreds of years will continue to form part of ecosystems until when – and if – they disintegrate. There lies the problem. While plastics might break down from an integral product into smaller and yet smaller particles – microplastics to nano-plastics and so on – there lies the question of whether it is possible for them to completely "go away" from existence. Once produced, as some authors describe them as near immortal,[12] it is arguable that they will outlive the producers and consumers for the foreseeable future. Yet it is this durability that places plastic as one of the most useful materials with wide-ranging use.

3. Fifty years and counting to infinity and beyond

Plastic has taken centre stage as one of the most expedient materials in industry and daily life, since the 1950s.[13] To date, an estimated 8.3 billion tonnes of plastic has been produced, generating approximately 6.3 billion tonnes of plastic waste.[14] By 2015, production of plastics increased nearly 200-fold to 381 million tonnes that year, and in 2017, taking the example of plastic packaging alone, 95% valued at USD 80 – 120 billion is lost every year, and only 9% of plastic waste has been recycled.[15]

Around the world there have been over the years various campaigns spurring citizen participation with initiatives to reduce, reuse and recycle. Yet, as is illustrated from the relatively low volume of plastic that is recycled, the

[12] Manya Russo, 'Opinion Piece: How Plastic Never Dies, An Immortal Tale That Will Make You Rethink Plastic' (*World Wide Fund for Nature (WWF)*, 12 October 2017) <https://wwf.panda.org/?313732/Opinion-Piece-How-Plastic-Never-Dies-An-Immortal-Tale-That-Will-Make-You-Rethink-Plastic> accessed 12 February 2020; GrrlScientist, 'Five Ways That Plastics Harm the Environment (And One Way They May Help)' (*Forbes*) <https://www.forbes.com/sites/grrlscientist/2018/04/23/five-ways-that-plastics-harm-the-environment-and-one-way-they-may-help/> accessed 12 February 2020.

[13] United Nations Environment Programme, *Single-Use Plastics: A Roadmap for Sustainability.* (United Nations Environment Programme 2018) vi <https://www.unenvironment.org/resources/report/single-use-plastics-roadmap-sustainability> accessed 29 January 2020.

[14] United Nations Environment Programme, 'Clean Seas: Plastic Management' (n 3).

[15] ibid.

remainder ends up either in land-fills where in many countries it is burnt contributing to air pollution, or on land and water, where it will persist in the environment for hundreds of years. For example, the Great Pacific Garbage Patch, a collection of marine debris where approximately 54% originates from North America and Asia, and approximately 20% from sea-based vehicles majority of which is fishing nets,[16] demonstrates the flow of waste (one globally uniting factor between the continents being oceans), and the potentially debilitating effect continued business-as-usual has on oceans, from both sea and land-based sources. It also shows that while some consider that the plastic problem is solved by placing it properly in a recycling bin, plastics may be here to stay "to infinity and beyond." Further to this, plastic is in fact being "down-cycled," because recycling processes lead to products of lower quality and economic value, and can only be recycled once or twice before being finally disposed of.[17] So even if human behaviour changed and all plastics were actually sent to a recycling facility, studies have suggested that "recycling delays, rather than avoids, final disposal,"[18] and the majority of plastic still ends up in landfill or being incinerated anyway.

4. Addressing plastic pollution as a sustainable development issue

There is an increasing recognition of the massive impact of single-use plastic, accounting for almost 50% of global waste annually.[19] With this in consideration, as of 2018 more than 60 countries had included restrictive measures such as complete bans or taxes and levies, in relation to the manufacture and use of single-use plastic. [20] In 2019, it was reported that almost 50 countries had in place complete bans while almost 50 countries had imposed either national or sub-national charges for plastic bags.[21]

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[16] National Geographic Society, 'Great Pacific Garbage Patch' (*National Geographic Society*, 5 July 2019) <http://www.nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/> accessed 19 February 2020.
[17] Roland Geyer and others, 'Common Misconceptions about Recycling' (2016) 20 Journal of Industrial Ecology 1010.
[18] Roland Geyer, Jenna Jambeck and Kara Law (n 11).
[19] United Nations Environment Programme, *Single-Use Plastics: A Roadmap for Sustainability.* (n 13).
[20] ibid viii.
[21] United Nations Department of Economic and Social Affairs, *Report of the Inter-Agency Task Force on Financing for Development 2019* (United Nations 2019) 41

Efforts to address plastic pollution have gained a more concerted approach with the overarching Sustainable Development Goals (SDGs), specifically with respect to sustainable consumption and production. This from a perspective that generally the global economy is singular, where there is a one-way movement of resources, from extraction to production, use and disposal. Most of the products once used a single time cannot be reused, and end up in disposal in the environment. In the case of single-use plastics, petroleum extraction and production of virgin plastic, manufacture of a plastic product, use by a consumer, and disposal only contributes to exacerbating the waste problem. A wholesome approach to this reveals that our societies do not have a 'waste problem'. Rather, it is a consumption and production problem that is the root of what we dispose. Therefore, approaches to address consumption and production under the SDGs has been recognised as beneficial. This calls for action to deal with the root problem, rather than implementing piecemeal efforts at the disposal level when already the product, as in the case of single-use plastic, cannot be returned to the production cycle and as a result its use not maximised.

Combating the global plastic pollution problem is one potential avenue to contributing towards achieving sustainable development. Sustainable consumption and production, particularly addressing plastic pollution, has an implication on various SDGs, including SDGs 2, 3, 6, 8, 12, 13, 14, and 15.[22]

<https://developmentfinance.un.org/sites/developmentfinance.un.org/files/FSDR2019.pdf>.

[22] United Nations Department of Economic and Social Affairs, 'Sustainable Consumption and Production: An Expert Group Meeting in Preparation for HLPF 2018: Transformation towards Sustainable and Resilient Societies' <https://sustainabledevelopment.un.org/content/documents/17953SCP_EGM_concept_note.pdf> accessed 13 February 2020. SDG 2 on "zero hunger", is to end hunger, achieve food security and improved nutrition and promote sustainable agriculture. SDG 3 on "Good health and well-being", is to ensure healthy lives and promote well-being for all at all ages. SDG6 on "clean water and sanitation", is to ensure availability and sustainable management of water and sanitation for all. SDG8 on "Decent work and economic growth" is to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. SDG12 on "Responsible consumption and production" is to ensure sustainable consumption and production patterns. SDG13 on "Climate action" is to take urgent action to combat climate change and its impacts. SDG14 on "life below water" is to conserve and

Also important in the discussion on plastic pollution are SDG 16 and SDG 17.[23] Efforts therefore conducted in an inclusive manner involving governments, businesses, communities, and other stakeholders can drive commitments aimed at reducing hunger, promoting good health and well-being, ensuring clean water and sanitation, and promoting decent work and economic growth. Innovative initiatives and responsible consumption and production patterns can be achieved without - or with reduced - plastic use. Further, in seeking alternatives to fossil fuel products such as plastics, addressing plastic pollution goes hand in hand with climate action, and seeks to protect life below water as well as life on land. Through strengthened partnerships with all stakeholders, goals such as securing peace, justice and strong institutions can be achieved, overall for the greater good of humankind.

5. Regulatory and policy measures: a global problem with local impacts

Addressing the plastic pollution problem is arguably mainly a regulation and policy issue, and governments around the world have engaged varying degrees of stringency towards effective reduction, collection, recycling and disposal of plastic waste.[24] While Africa does not feature on the global map of notable sources of plastic waste comparably, the impacts of plastic pollution are acutely felt on the continent. According to the World Bank, in 2016, East Asia and the Pacific accounted for 57 million tonnes, Europe and Central Asia contributed 45 million tonnes, and North America produced 35 million tonnes of plastic waste - a combined 137 million tonnes out of the global plastic waste

sustainably use the oceans, seas and marine resources for sustainable development. SDG15 on "life on land" is to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

[23] SDG16 on "peace, justice, and strong institutions" is to promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. SDG17 on "partnerships for the goals" is to strengthen the means of implementation and revitalize the global partnership for sustainable development.

[24] Olha Krushelnytska, 'Solving Marine Pollution: Successful Models to Reduce Wastewater, Agricultural Run-off and Marine Litter' (The World Bank 2018) 16–18 <http://documents.worldbank.org/curated/en/651521537901259717/pdf/130154-WP-PUBLIC-SolvingMarinePollution.pdf> accessed 19 February 2020.

generation volume of 242 million tonnes, or 56.6% of global plastic waste.[25] Yet the impacts of plastic waste in Africa are as visible as across the world, illustrating the common impacts of unsustainable consumption and production.

Various countries in Africa have taken measures to address plastic pollution. Rwanda is a pioneer in implementing a plastic bag ban, and other countries such as South Africa, Kenya, Senegal, and Tanzania, all totalling 34 countries, have adopted regulatory or policy measures of varying levels and implications.[26] These initiatives have taken different shapes depending on the country, some driven from a top-down approach and others from a bottom-up fashion. In some countries including Kenya, citizen and civil society campaigns have contributed to the creation of awareness leading up to the plastic bag ban, illustrating the power of social media campaigns and residents raising environmental governance issues at their community and local government levels to highlight living conditions and contribute to social change.[27]

The plastic bag ban conflict in the Kenyan courts

The issue of the plastic ban is not new to the courts in Kenya, and has been analysed in previous instances where there have been attempts by the Kenyan Government to either restrict or otherwise ban the use of plastic bags. The case of *Kenya Association of Manufacturers & 3 others v Cabinet secretary, Ministry of Environment and Natural Resources & 3 others*[28] represents what

[25] The World Bank, 'Tackling Increasing Plastic Waste' (*World Bank*, 2020) <http://datatopics.worldbank.org/what-a-waste/tackling_increasing_plastic_waste.html> accessed 3 February 2020.

[26] Chancia Plaine, 'Plastic Waste: An Overview of Repressive Legislation in African Countries' (*Afrik 21*, 30 July 2019) <https://www.afrik21.africa/en/plastic-waste-an-overview-of-repressive-legislation-in-african-countries-1-2/> accessed 13 February 2020.

[27] United Nations Environment Programme, 'Meet James Wakibia, the Campaigner behind Kenya's Plastic Bag Ban' (*UN Environment*, 4 May 2018) <http://www.unenvironment.org/news-and-stories/story/meet-james-wakibia-campaigner-behind-kenyas-plastic-bag-ban> accessed 12 February 2020.

[28] *Kenya Association of Manufacturers & 3 others v Cabinet secretary, Ministry of Environment and Natural Resources & 3 others* [2018] Environment and Land Court

the Environment and Land Court at Nairobi termed as "a protracted dispute the facts of which look straight forward on the surface but contain complicated legal issues underneath". The case originated from a February 2017 decision of the Cabinet Secretary of the Ministry of Environment and Natural Resources, and the National Environment Management Authority (NEMA) to ban the use, manufacture and importation of certain types of plastic bags used for commercial and household packaging. Two constitutional petitions – one decrying a lack of public participation brought by the manufacturing industry, and another brought by a human rights defender citing lack of consultation of consumers and workers in the plastics industry – and one application for judicial review with similar intent to quash the decision of the then Cabinet Secretary, were consolidated and argued as one case before the court. The manufacturing industry made reference to a regulatory and policy vacuum, with weak enforcement mechanisms of the government being at the heart of the plastic waste problem, and a lack of institutional progress – again from the government's side – in implementing a joint implementation plan for sustainable management of plastic waste signed in June 2007.

It is not peculiar to Kenya that the manufacturing industry would raise arguments to oppose what has been termed as a draconian action by the Government,[29] a description attributed to a decision in support of public interest yet attracting mixed sentiment. The plastics industry around the world has been accused of being on the offensive in various instances to maintain the status quo, financing a powerful lobby in some cases to circumvent existing regulations, and in others to downright undermine governance measures.[30] It may be perceived that the arguments raised by the manufacturing industry in

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at Nairobi Petition 32 & 35 of 2017 & Judicial Review Application 30 of 2017 (Consolidated), eKLR.

[29] Jonathan Watts, 'Eight Months on, Is the World's Most Drastic Plastic Bag Ban Working?' *The Guardian* (Nairobi, Kenya, 25 April 2018) <https://www.theguardian.com/world/2018/apr/25/nairobi-clean-up-highs-lows-kenyas-plastic-bag-ban> accessed 23 September 2019.

[30] Center for International Environmental Law, 'Impact Report' (Center for International Environmental Law (CIEL) 2018); Sharon Lerner, 'Waste Only: How the Plastics Industry Is Fighting to Keep Polluting the World' (*The Intercept*, 20 July 2019) <https://theintercept.com/2019/07/20/plastics-industry-plastic-recycling/> accessed 17 February 2020.

Kenya in opposition of the plastic bag ban, while highlighting important challenges with the environmental governance framework including in relation to lack of enforcement, give credence to the opposition of a paradigm shift towards a circular economy.

In the case, the first argument put forward by the manufacturing industry was that the ban would cause economic and job losses. Secondly, that the ban would compromise the existing collaborative initiatives towards plastic waste management. Thirdly, that the sudden unexpected and drastic policy change in addressing plastic waste would cause disarray in the manufacturing sector and was likely to affect investor confidence. Fourthly, that the wording of the legal notice was ambiguous and amounted to a total ban of all plastic carrier bags and flat bags. And fifthly that the ban ignored the existing collaborative initiatives in plastic waste management. Similar arguments have been raised in conflicts surrounding regulation of plastic bags in other countries. For example in South Africa, the 2003 attempts to ban plastic bags led to outcry from the Congress of South African Trade Unions (COSATU) which opposed the move raising that this would lead to closure of factories and approximately 3,800 job losses.[31]

The court found that the ban on the plastic bags was in conformity with the powers of the Cabinet Secretary, was carried out with respect for the principles of public participation, and also was in compliance with Article 69 of the Constitution guaranteeing the right to a clean and healthy environment – from which derives the State's duty to take action to eliminate activities or actions that may have a negative impact on the environment. The court also made reference to the successful ban of plastic bags imposed in Rwanda in 2008, which served as a good example, albeit countries such as South Africa and Uganda unsuccessfully implemented such bans. While so, the High Court of Uganda at Kampala in *GreenWatch v Attorney General* agreed with the parties who settled by admission that "the use, manufacture and distribution of polythene bags of more than 30 microns constitute a danger to the environment

[31] BBC, 'South Africa Bans Plastic Bags' *BBC* (9 May 2003) <http://news.bbc.co.uk/2/hi/africa/3013419.stm> accessed 17 February 2020.

and in turn violate the rights of citizens of Uganda to a clean and health environment."[32]

Challenges persist in countries that have implemented measures to address plastic pollution, in some instances leading to reduced impact. In South Africa, while the ban was put in place, enforcement was lacking, leading to a slight drop in production at the initial stages of implementation and later reverting to a spike in consumption.[33] Similarly in Uganda, the manufacturing lobby ensured enforcement failed and while the ban entered into force in 2009 on lightweight plastic bags,[34] these bags are still found in the country.[35] Renewed efforts to implement a ban include a 2019 review of Uganda's National Environment Act No. 5 of 2019 banning plastic bags of less than 30 microns in thickness.[36]

While challenges exist in adapting to the law on the part of consumers, traders, workers, businesses, and even the Government, it is a welcome step, and one that according to international environmental law experts can be used to encourage other countries to adopt similar measures to address plastic bags and other single-use plastics.[37] Taking measures to address the proliferation of plastic bags can provide an avenue for the gradual change of consumer behaviour and set a framework for addressing plastic pollution from other single-use plastic products.[38] For businesses also, a shift in business models has been considered a necessary step throughout the lifecycle of plastics. For

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[32] *GreenWatch v Attorney General & National Environment Management Authority (NEMA)(5 October 2012); | Uganda Legal Information Institute* [2012] High Court of Uganda at Kampala Miscellaneous Cause No. 140 of 2002, 205 UGHC.

[33] United Nations Environment Programme, *Single-Use Plastics: A Roadmap for Sustainability.* (n 13) 30.

[34] Government of Uganda, 'Statement on the Management of Plastic Pollution' <https://papersmart.unon.org/resolution/uploads/uganda_statement.pdf> accessed 17 February 2020.

[35] United Nations Environment Programme, *Single-Use Plastics: A Roadmap for Sustainability.* (n 13) 30.

[36] Government of Uganda (n 34).

[37] Jonathan Watts (n 29).

[38] Joseph Curtin, 'Let's Bag Plastic Bags' *The New York Times* (3 March 2018) <https://www.nytimes.com/2018/03/03/opinion/sunday/plastic-bags-pollution-oceans.html> accessed 19 February 2020.

example, various local individuals and community members in Kenya have developed innovative uses for plastic waste, including two environmental scientists-turned entrepreneurs making roofing tiles from plastic and glass waste.[39]

Implementing legal, regulatory and policy measures is the first stage, yet for effective environmental governance, strong enforcement of the measures in place is essential. In Kenya, there have been solid waste management policies in place for many years. However, ineffective local government laws facing limited enforcement, the absence of a strong waste management system, and the absence of appropriate consumer behaviour regarding proper waste disposal,[40] all contribute to the situation calling for urgent stringent action.

While it is indeed important to focus on efforts towards recycling plastic waste where it is possible, Governments and businesses should also place an emphasis on pursuing alternatives, especially given that recycling has proven to be an ineffective and deceptive solution for the plastic problem. Furthermore, efforts to reduce, re-use, and recycle, have positive effects, but placing the burden inadvertently on consumers coupled by failures to promote consumer awareness of alternatives present a flawed perception of global realities. For example, this approach is modelled around a society where there are existing systems and infrastructure designed to handle recycling. In many countries, for example in Kenya, the waste management system simply is not supportive of any consumer action in this regard. There are no separate bins for different types of waste. Even if this were so, there are no separate waste collection, sorting, or processing avenues.

Consumers are increasingly coming to the realisation that 'plastic recycling is a myth', where out of the 8.3 billion tonnes of virgin plastic produced across the world, approximately only 9% of it is recycled, 12% is incinerated, and

[39] 'Kenyan Scientist Uses Throw-Away Plastics to Build Homes' *Al Jazeera* (13 December 2019) <https://www.aljazeera.com/ajimpact/kenyan-scientist-throw-plastics-build-homes-191213191145227.html> accessed 12 February 2020.

[40] Catherine M Aurah, 'Assessment of Extent to Which Plastic Bag Waste Management Methods Used in Nairobi City Promote Sustainability' (2013) 1 American Journal of Environmental Protection 96.

79% (the lion's share) ends up in landfills or the natural environment.[41] Taking into account that a household may be willing to separate their waste, such would be piled up together in one central waste collection – again only where available – and sent to a large garbage dump. This again only takes into consideration efficient urban waste management, where to contrast with rural waste management, no alternative systems to waste collection and processing exist. Open waste burning, whether for the urban waste which ends up in large open pit burning sites, or rural waste which each household may take responsibility for ensuring its processing, is in most cases the only available recourse.

In addition to the lack of infrastructure of many rural locations and developing countries to deal with their own plastic waste, this issue is further exacerbated by plastic waste imports exportation from rich to poor countries. Between 1988 and 2016, the top ten plastic waste exporters (high-income countries including Hong Kong, the US, Japan, Germany, Mexico, the UK, the Netherlands, France and Belgium), had exported 168 million tonnes over this period, with an economic value of USD 65 billion.[42] Previously, this waste was predominantly sent to China until 2017 when China announced a ban on plastic waste imports. Since 2018, much of this plastic has been sent to Southeast Asia, particularly Malaysia, Thailand and Vietnam, causing serious environmental and human health issues, as these poorer countries do not have the capacity to deal with the plastic waste and instead often end up illegally burning it or dumping it in unauthorized landfills.[43] Data on plastic imports in Africa are scarce, however of the 33 African countries with at least 10 years of data, it has been estimated that 230 Mt of plastics were imported in Africa

[41] Roland Geyer, Jenna Jambeck and Kara Law (n 11); Oliver Franklin-Wallis, '"Plastic Recycling Is a Myth": What Really Happens to Your Rubbish?' *The Guardian* (17 August 2019) <https://www.theguardian.com/environment/2019/aug/17/plastic-recycling-myth-what-really-happens-your-rubbish> accessed 17 February 2020.

[42] Amy L. Brooks, Shunli Wang and Jenna R. Jambeck, 'The Chinese Import Ban and Its Impact on Global Plastic Waste Trade' (2018) 4 Science Advances eaat0131.

[43] Greenpeace Southeast Asia, 'The Recycling Myth' (*Greenpeace Southeast Asia*, 27 November 2018) <https://www.greenpeace.org/southeastasia/publication/549/the-recycling-myth> accessed 13 May 2020.

between 1990 and 2017, primarily being sent to Egypt, Nigeria, South Africa, Algeria, Morocco, and Tunisia.[44] As awareness is growing around the methods and consequences and of plastic pollution, some governments are making efforts to block imports and crack down on the illegal plastic waste trade; however, it is clear that stricter policies and regulatory enforcement is needed.

6. Conclusion and Way Forward

Plastics are embedded in everyday life. There in an inextricable link between addressing the global plastic pollution problem and contributing towards achieving the Sustainable Development Goals. Governments can impose policy measures to embed sustainability especially in areas where there are sustainability externalities that do not have a significant impact on corporate profitability, but where the corresponding public benefit is determined to be in the public good.[45] For example, in various efforts around the world, including in Kenya, where government action, although opposed by industry based on profitability, can be illustrated to provide an overall beneficial outcome taking into account the impacts on economic development and mitigating the negative impacts with alternative ways of achieving profit with simultaneous benefit to the public.

An all-around approach is needed to support individual policy measures such as legislative actions banning single-use plastics, for example, in order to support implementation of specific measures. A strong basic waste management system should also be in focus, coupled with a robust involvement of society to address individual and household needs. [46] Partnership with industry whose immense contribution to the plastic economy can be leveraged, for example through altering production cycles to reduce volume of materials required and to re-introduce resources once initially used, would be important.[47] Further, innovative methods to allow for reuse of packaging material and less consumption, which has become excessive in the

[44] Joshua O. Babayemi and others, 'Ensuring Sustainability in Plastics Use in Africa: Consumption, Waste Generation, and Projections' (2019) 31 Environmental Sciences Europe 60.
[45] United Nations Department of Economic and Social Affairs (n 21) 58.
[46] The World Bank (n 25).
[47] The World Bank (n 25).

throwaway culture that has emerged in recent decades, should be closely considered.

Efforts have been made in countries around the world to pursue alternatives to single-use plastics. With the consideration that the benefits of plastic for various uses including its versatility and durability and as argued by some that plastics are here to stay, discussions about various approaches to explore alternatives and less harmful forms of plastic, at the same time as limiting single-use plastics, remains another avenue. For example, regulatory measures that States can adopt to support efforts to promote innovation and improve quality of products, for reduced negative environmental impact include: (1) harmonising chemicals and food regulation to address the harmful impacts of certain chemicals in plastics on health, (2) alignment of waste classification among countries to address the current inconsistencies that contribute to plastic substances classified as waste in one country being shipped to other countries to the recipient countries' detriment, (3) introducing and promoting eco-design measures and standardisation to address the design stage of products where 80% of their environmental impact is determined, and (4) supporting recycling opposed to uptake of virgin plastic.[48]

Multi-pronged approaches involving the various stakeholders in plastic pollution can be implemented, with efforts including holding businesses accountable for their contributions and therefore leveraging the industry as a potential key ally for solutions, promoting strengthened legal frameworks including their enforcement, and empowering communities to drive behavioural change and spur action from their governments and businesses.[49] Governments should put in place appropriate legal mechanisms and strengthen enforcement measures to address plastic pollution. For example, as actions on pursuing extended producer responsibility to promote recycling are being explored in Kenya, concern should be addressed towards the sustainability of implementing such measures. Environmental governance frameworks are

[48] Emma Watkins and others, 'Policy Approaches to Incentivise Sustainable Plastic Design' (Organisation for Economic Co-operation and Development (OECD) 2019) Working Paper ENV/WKP(2019)8 26.
[49] Center for International Environmental Law (n 30).

reliant on various aspects including promoting access to information and participation. There is equally a need for robust evaluations of the impacts that these measures have on businesses, governments, and communities, in Kenya and in other parts of the world, identifying measurable results. Data generation, maintenance and dissemination would be beneficial towards these aims of quantifying the relative impacts of the bans and other related actions once implemented are put in place – to drive forward further efforts to address the situation.

To these ends, governments should involve relevant stakeholders, including businesses and consumers in discussions aimed towards implementing measures. It is the State that has the overarching obligation to protect, respect, and fulfil human rights, including the right to environment and especially safeguarding environmental health. A human-rights based approach to addressing plastic pollution would therefore be imperative towards ensuring measures implemented promote equality.

Businesses should promote investment in innovation and development of technology to pursue alternatives to single-use plastic. Investors should embrace the life-cycle approach to chemicals and wastes, and contribute towards the goal of achieving a circular economy. This may take the form of public-private partnerships geared towards developing sustainable alternatives, while at the same time engaging constructively in regulatory initiatives addressed towards recycling and waste management. In Kenya specifically, there is an ever-increasing need to focus on home-grown solutions developed in partnership with businesses, including through eco-design of products and reduction of use of virgin plastic, among other potential areas of action.

Consumers should speak up more loudly about the environmental issues plaguing their local community, and present these issues at discussion forums, online platforms, and local governments, to promote a community of environmentally conscious citizens. Around the world there are various examples of movements of consumers spurring behavioural change through community engagement. While this can be a gradual shift, changes including

at the household level such as shopping habits like carrying one's own shopping bag, or taking action through clean-ups can foster a mentality of reduction of single-use plastic and an awareness of the damage it is causing, which is vital to bringing about a systemic shift towards more sustainable practices. Brought together with the initiatives at the regulatory and industry level, the collated response can drive countries, including Kenya, closer to achieving a sustainable future for generations to come.

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