

Plastics Pollution and
Environmental Garbage
Law Governance in Uganda:
A Case for Sustainable
Progress



ISAAC CHRISTOPHER LUBOGO

Plastics Pollution and Environmental Garbage Law Governance in Uganda A Case for Sustainable Progress. By Isaac Christopher Lubogo

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Contents

Plastics Pollution and Environmental Garbage Law Governance in Uganda A Case for Sustainable Progress. By Isaac Christopher Lubogo.....	8
About the Book	8
Abstract:	10
Review	12
What is plastic pollution?.....	14
History of plastic pollution in Uganda	14
What does the National Environmental Act 2019 say about plastic pollution?	15
Setting the stage: The global plastic pollution crisis in Uganda	15
Uganda's context: A microcosm of challenges and opportunities.	16
Importance of environmental garbage law governance for sustainable progress in Uganda	17
Plastics Pollution: Ecological and Health Implications in Uganda	19
Understanding the environmental impact of plastics pollution on ecosystems in Uganda	19
Unveiling the health hazards posed by plastic waste in Uganda.....	20
Case studies highlighting the far-reaching consequences of plastic pollution in Uganda	21
Environmental Legislation and Policy Frameworks in Uganda	23
Overview of existing environmental laws and regulations in Uganda	23
Comparative analysis of plastic-related policies in other regions other than Uganda.....	24
Identifying gaps and opportunities for strengthening environmental legislation in Uganda	24
The Role of Garbage Law Governance in Plastic Waste Management in Uganda.....	26
Examining the role of governance in shaping waste management practices in Uganda	26
Case studies showcasing successful garbage law implementations in Uganda	27
Challenges and lessons learned from previous initiatives on plastic pollution in Uganda	28
Collaborative Approaches: Government, Civil Society, and Community Engagement in plastic pollution in Uganda	29

Exploring government-led efforts in tackling plastic pollution in Uganda.....	29
The influence of civil society organizations and grassroots movements in plastic pollution in Uganda	30
Showcasing the power of community-driven initiatives in waste reduction in Uganda	31
Case Studies: Transformative Interventions in plastic pollution in Uganda	32
In-depth analysis of specific interventions targeting plastic pollution in Uganda	33
Success stories that highlight the tangible impact of sustainable practices in plastic pollution in Uganda	33
Lessons that can be extrapolated for broader implementation on plastic pollution in Uganda	34
The Economic and Social Landscape of Sustainable Progress of plastic pollution in Uganda	35
Evaluating the economic implications of plastic waste management strategies in Uganda	36
Assessing the socio-economic benefits of a cleaner environment in Uganda	37
Balancing short-term challenges with long-term gains for sustainable progress of plastic pollution in Uganda.....	38
Overcoming Challenges and Building Resilience in plastic pollution in Uganda	38
Addressing hurdles in implementing effective garbage law governance in plastic pollution in Uganda	39
Strategies for overcoming resistance and fostering behavior change in plastic pollution in Uganda	40
Building a resilient framework to adapt to changing circumstances of plastic pollution in Uganda	41
A Blueprint for Sustainable Progress in plastic pollution Uganda	41
Synthesizing key findings and insights from the book in plastic pollution in Uganda.....	42
Outlining a comprehensive roadmap for plastic pollution mitigation and sustainable progress in Uganda.....	42
Calling for global collaboration and replicable models of governance in plastic pollution in Uganda	43
Reflecting on Uganda's journey and achievements in tackling plastic pollution	44

Emphasizing the ongoing importance of vigilance and action of plastic pollution in Uganda.....	45
Inspiring readers to envision a future where sustainable progress is within reach in plastic pollution in Uganda.....	46
The Impact of plastic pollution and garbage collection on natural resources in Uganda	46
Plastic Pollution	47
The Prevalence of Plastic Pollution.	48
The Consequences for Marine Life.	48
Mitigating Plastic Pollution.....	49
Regulatory Framework on Pollution	53
The Polluter Pays Principle Implementation Tools	54
Waste Collection (Management).....	55
Recycling	56
Up cycling.....	57
Types of Wastes.....	62
Drivers of waste recycling in Uganda	63
Environmental crime	65
The legal framework on environmental crimes in Uganda.	80
Institutional frame work in Uganda.....	83
The Regulatory Framework of Environmental Crimes in Uganda.....	84
Ocean Crimes	87
Blue Economy.....	87
Significant contributions of marine and freshwater ecosystems:	89
Challenges under mining Blue Economy.....	90
Most significant human impacts.....	91
Forestry Crimes	94
Hazardous Wastes	95

Ozone-depleting Substances	96
Impact of the environmental crimes in Uganda.....	96
The Solution: Aquaponics	99
Challenges in Monitoring and Enforcement of Environmental Laws.	101
Comparative analysis.....	104
Recommendations on how to curb the environmental crimes in Uganda	115
References.....	126

Plastics Pollution and Environmental Garbage Law Governance in Uganda A Case for Sustainable Progress. By Isaac Christopher Lubogo

About the Book

"Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress"

In a world increasingly grappling with the detrimental effects of plastic pollution, Uganda stands as a microcosm of both challenges and opportunities. This thought-provoking book delves deep into the heart of Uganda's battle against plastics pollution, examining how robust environmental garbage law governance can pave the way for sustainable progress in the face of a pressing global issue.

Drawing on meticulous research and on-the-ground insights, this book presents a comprehensive analysis of Uganda's efforts to tackle plastics pollution and enhance its environmental legislation. It offers a nuanced understanding of the multifaceted aspects surrounding plastics pollution, from its adverse impact on ecosystems to its repercussions on public health. Through an engaging narrative, readers will discover the intricate interplay between policy frameworks, legal structures, and societal behaviors, all of which contribute to shaping Uganda's environmental landscape.

The authors bring to light the remarkable strides made by Uganda in enacting and enforcing garbage laws that address plastics pollution head-on. By examining key case studies, regulatory frameworks, and successful interventions, the book showcases how Uganda's journey towards sustainable progress is driven by the synergistic collaboration between government initiatives, civil society activism, and grassroots involvement.

"Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress" not only provides a comprehensive overview of the challenges but also offers an inspiring narrative

of hope and change. It serves as a clarion call to policymakers, environmentalists, researchers, and concerned citizens worldwide, urging them to understand the power of effective environmental garbage law governance as a catalyst for sustainable progress.

Through its insightful exploration of Uganda's experiences, this book illuminates the path towards a cleaner, healthier, and more resilient future. It serves as a vital resource for anyone seeking to understand the intricate dynamics of plastics pollution, environmental law, and the indispensable role of governance in shaping the destiny of a nation and the planet as a whole.

Abstract:

"Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress"

The relentless surge of plastic pollution has become a global crisis, threatening the very fabric of our ecosystems and human health. In the heart of East Africa, Uganda serves as both a microcosm of the challenges posed by plastic waste and a beacon of hope for crafting effective solutions. This book is a journey through Uganda's compelling narrative of grappling with plastics pollution while striving for sustainable progress.

This work delves into the profound ecological and health implications of plastic waste, underscoring the pressing need for environmental garbage law governance. By navigating the intricate landscape of Uganda's existing policies and legislation, we illuminate the pivotal role of regulatory frameworks in guiding waste management practices.

From the vantage point of governance, we explore the collaborative dance between government agencies, civil society organizations, and local communities. We spotlight transformative interventions that are orchestrating a shift towards sustainable practices, presenting case studies that elucidate the tangible impact of these initiatives.

The economic and social facets of sustainable progress are dissected, revealing the intricate interplay between environmental stewardship and socio-economic resilience. This book examines the challenges that beset the path to sustainable progress and charts a course toward overcoming them.

Guided by the insights of key stakeholders, this work culminates in a comprehensive blueprint for tackling plastic pollution and propelling Uganda's journey toward sustainable progress. It is a testament to the power

of interdisciplinary collaboration, underscoring the global relevance of Uganda's experience in shaping environmental destiny.

As a clarion call to policymakers, activists, scholars, and citizens, "Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress" imparts a vital message: that the trajectory towards a cleaner, healthier future hinges on the synergy between effective governance, community action, and visionary leadership. In the crucible of Uganda's story, we find a source of inspiration and guidance for addressing one of the defining challenges of our time.

Review

Book Review: "Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress"

"Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress" is a compelling exploration that delves deep into the challenges posed by plastic pollution while offering a roadmap for achieving sustainable progress. Seamlessly blending environmental science, legal analysis, and real-world case studies, this book provides an insightful and comprehensive examination of Uganda's journey toward mitigating plastic pollution and reshaping its environmental landscape.

From the very outset, the authors engage readers with a clear and urgent narrative. The global plastic pollution crisis is laid bare, with Uganda emerging as a microcosm of both the devastation and the potential for positive change. This framing sets the stage for the ensuing exploration of how effective environmental garbage law governance can drive sustainable progress in the face of a pressing environmental crisis.

The book's strength lies in its balanced approach to tackling multifaceted issues. It dedicates early chapters to meticulously detailing the ecological and health implications of plastic waste, effectively contextualizing the gravity of the problem. The examination of Uganda's existing environmental legislation and policy frameworks further cements the importance of regulatory measures in mitigating plastic pollution.

One of the book's standout features is its thorough analysis of the role of garbage law governance. It dissects the intricate dance between government agencies, civil society organizations, and local communities, showcasing how collaborative efforts can lead to transformative change. The book does not shy away from addressing challenges, offering readers a candid look at the hurdles in implementing effective garbage law governance.

Case studies serve as the book's heart, offering real-world examples of initiatives that have successfully tackled plastic pollution. By showcasing tangible outcomes and lessons learned, these case studies provide valuable insights for policymakers, activists, and scholars seeking practical solutions. The economic and social dimensions of sustainable progress are also thoughtfully explored, revealing the intertwined nature of environmental stewardship and socio-economic well-being.

As the book progresses, it culminates in a well-structured blueprint for achieving sustainable progress. This roadmap synthesizes key findings, offering actionable steps for stakeholders to navigate the complex landscape of plastic pollution mitigation. The authors make a convincing case for the global relevance of Uganda's experience, positioning the nation's journey as an inspiring model for other regions to follow.

In conclusion, "Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress" is a must-read for anyone concerned about the global plastic pollution crisis and its solutions. The book's interdisciplinary approach, engaging narrative, and practical insights make it a valuable resource for policymakers, environmentalists, researchers, and concerned citizens alike. By championing the power of effective governance, community engagement, and sustainable practices, the book provides a compelling vision for a cleaner, healthier future.

What is plastic pollution?

Plastic pollution refers to the harmful accumulation of synthetic plastic products in the environment¹. Plastics are persistent large-scale pollutants, and plastic debris such as bottles, straws, containers, and plastic wrap have been found in many environmental niches, from Mount Everest to the bottom of the sea². The accumulation of plastic objects and particles adversely affects humans, wildlife, and their habitat³. Plastics that act as pollutants are categorized by size into micro-, meso-, or macro debris⁴.

History of plastic pollution in Uganda

Plastic pollution is a growing concern in Uganda. The country has joined the **Clean Seas Campaign** to combat plastic waste and marine litter in its lakes, rivers, and the ocean⁵. Uganda's largest freshwater ecosystem, **Lake Victoria**, is under threat from decades of unsustainable production, irresponsible consumption, and insufficient waste disposal⁶. A recent study found that approximately 1 in 5 fish in Lake Victoria had ingested plastic⁷. The Greater Kampala Metropolitan Area (GKMA), Uganda's most populated area, has experienced a rise in **polyethylene terephthalate (PET) plastic pollution** due to rapid urbanization and population growth⁸. Unfortunately, less than 5% of plastic is recycled in Uganda, and the existing environmental laws on burning plastics are rarely enforced⁹.

It is estimated that at least **600 tonnes of plastics** are consumed every day in Uganda, with most of them being disposed of irresponsibly¹⁰. Plastic pollution poses a serious threat to the environment and human health. Efforts are being made to tackle this issue, but more needs to be done to raise awareness and implement effective waste management strategies.

¹ <http://www.britannica.com/science/plastic.pollution>.

² <http://www.britannica.com/science/plastic.pollution>

³ https://www.en.wikipedia.org/wiki/plastic_pollution.

⁴ https://www.en.wikipedia.org/wiki/plastic_pollution

⁵ <https://www.unep.org/news-and-stories/press-release/uganda-joins-clean-seas-campaign-keep-plastic-pollution-out-its>

⁶ <https://www.unep.org/news-and-stories/press-release/uganda-joins-clean-seas-campaign-keep-plastic-pollution-out-its>

⁷ <https://www.unep.org/news-and-stories/press-release/uganda-joins-clean-seas-campaign-keep-plastic-pollution-out-its>

⁸ <https://www.nature.stewardship.org/countries/uganda/pet-plastic-waste-flows-in-greater-kampala>.

⁹ <https://www.independent.co.ug/plastic-pollution-worries-nema>

¹⁰ <https://www.newvision.co.ug/news/1494512/plastic.degrades-life>

For more information on this topic, you can refer to the following sources:

- Uganda joins Clean Seas Campaign to keep plastic pollution out of its lakes and rivers
- Exploring PET plastic waste flows in Greater Kampala
- Plastic pollution worries NEMA
- Plastics degrade our life
- Plastic trash is a serious problem in Uganda

What does the National Environmental Act 2019 say about plastic pollution?

The **National Environment Act, No. 5 of 2019** is a law that governs environmental management in Uganda¹¹. It provides for the management of the environment for sustainable development, including emerging environmental issues such as climate change, hazardous chemicals, and biodiversity offsets¹².

The act also addresses environmental concerns arising from petroleum activities and midstream operations, and provides for the management of plastics and plastic products¹³. The **National Environment Act, No. 5 of 2019** prohibits the importation, sale, and use of plastic bags and other plastics used for packaging¹⁴. It also imposes a duty to minimize plastic waste and provides criteria for documentation, handling, storage, recycling, and reuse of plastics and plastic products¹⁵.

Setting the stage: The global plastic pollution crisis in Uganda

Plastic pollution has become a major environmental issue worldwide, with rapidly increasing production of disposable plastic products overwhelming the world's ability to deal with them. Uganda is no exception, generating **600 tonnes of plastic waste daily**¹⁶. According to the Ministry of Water and Environment, plastic

¹¹ [https://nema.go.ug/sites/all/themes/nema/docs/national/environment act,no 5 of 2019.pdf](https://nema.go.ug/sites/all/themes/nema/docs/national/environment%20act,no%205%20of%202019.pdf)

¹² <https://leap.unep.org/countries/ug/national-legislation/national-environment-act-2019>

¹³ <https://leap.unep.org/countries/ug/national-legislation/national-environment-act-2019>

¹⁴ [https://www.nema.go.ug/sites/all/themes/nema/docs/national environmenta\(waste management\)regulations.i.no.49 of 2020.pdf](https://www.nema.go.ug/sites/all/themes/nema/docs/national%20environmenta(waste%20management)regulations.i.no.49%20of%202020.pdf).

¹⁵ [https://www.nema.go.ug/sites/all/themes/nema/docs/national environmenta\(waste management\)regulations.i.no.49 of 2020.pdf](https://www.nema.go.ug/sites/all/themes/nema/docs/national%20environmenta(waste%20management)regulations.i.no.49%20of%202020.pdf).

¹⁶ <https://www.monitor.co.ug/uganda/news/national/uganda-generates-600-tonnes-of-plastic-waste-daily-nema-3706372>.

waste is becoming disastrous to urban and rural areas due to poor disposal practices¹⁷. Uganda has tried to ban plastic bags (popularly known as kaveera), but implementation has been spotty because of lobbying by manufacturers, disagreement among politicians and a lack of public awareness about the need for the ban¹⁸.

The problem of plastic pollution is not limited to Uganda. It is a global crisis that requires immediate attention. The National Geographic Society has published an article that explains the world's plastic pollution crisis in detail ¹⁹. It highlights that while plastic pollution is a worldwide problem, it is most obvious in less-wealthy African and Asian nations, where garbage collection systems are often inefficient or nonexistent. Wealthy nations, especially those with low recycling rates, also have trouble properly collecting discarded plastics. The article provides some key facts about plastics, such as half of all plastics ever manufactured have been made in the last 15 years. Production increased exponentially, from 2.3 million tons in 1950 to 448 million tons by 2015. Production is expected to double by 2050. Every year, about 8 million tons of plastic waste escapes into the oceans from coastal nations ²⁰.

It's important to note that plastic pollution is a serious issue that affects not only the environment but also human health. Plastic waste can harm animals and possibly humans ²¹. Efforts are being made globally to address this issue, including writing a global treaty negotiated by the United Nations ²².

Uganda's context: A microcosm of challenges and opportunities.

Uganda is a country in East Africa that faces a unique set of challenges and opportunities. The country's economy is expected to grow above 6% as inflationary pressures ease, the central bank eases monetary policy, and the government focuses on revenue collection and spending efficiencies to reduce the deficit²³. Uganda's economy has weathered successive shocks, with GDP growth expected to recover to 5.7% during FY23. The post-COVID-19 recovery in services and industrial sectors has offset the weather-induced decline

¹⁷ <https://www.aa.com.tr/eb/africa/plastic-trash-causes-environmental.health-hazardz-in-uganda/2507066>

¹⁸ <https://globalvoices.org/2018/06/13/plastic-trash-is-a-serious-problem-in-uganda>

¹⁹ <https://www.nationalgeographic.org/article/worlds-plastic-pollution-crisis-explained>.

²⁰ <https://www.nationalgeographic.org/article/worlds-plastic-pollution-crisis-explained>.

²¹ <https://www.nationalgeographic.org/article/worlds-plastic-pollution-crisis-explained>.

²² <https://www.nationalgeographic.org/article/worlds-plastic-pollution-crisis-explained>.

²³ <https://www.worldbank.org/en/country/uganda/overview>.

in agriculture²⁴. However, increased shocks and less momentum behind policy reform create challenges for sustaining economic growth and reducing poverty in Uganda²⁵.

Uganda's economy is primarily driven by agriculture, which accounts for 71.9% of GDP. The industry sector contributes 4.4%, while services contribute 23.7%²⁶. Poverty reduction has been a priority for Uganda, with extreme poverty falling from 53.2% in 2006 to 34.6% in 2013²⁷. However, the pace of poverty reduction has decelerated due to rapid population growth, droughts, external shocks, and weakening policy and institutional frameworks²⁸. Uganda aims to reduce poverty further by transforming livelihoods from low- to high-productivity activities and sectors while minimizing vulnerabilities²⁹.

Uganda's oil reserves present an opportunity for economic development. The country plans to start oil production in 2025, which could contribute to economic growth and poverty reduction³⁰. However, there have been challenges in developing the necessary infrastructure due to environmental concerns and changes in financing³¹.

Importance of environmental garbage law governance for sustainable progress in Uganda

Environmental garbage law governance plays a crucial role in ensuring sustainable progress in Uganda. It is an essential component of environmental governance, which is a key driver for achieving sustainable development³². Environmental governance involves making informed decisions, implementing effective policies, and establishing robust institutions to protect the environment and its resources³³.

²⁴ <https://www.worldbank.org/en/country/uganda/overview>

²⁵ <https://www.worldbank.org/en/country/uganda/overview>

²⁶ <https://en.wikipedia.org/wiki/economy-of-uganda>.

²⁷ <https://www.worldbank.org/en/country/uganda/publication/uganda-poverty-assessment-agriculture-driver-of-growth-and-poverty-reduction>.

²⁸ Ibid

²⁹ <https://www.undp.org/uganda/publications/poverty-status-report-2021>.

³⁰ <https://www.aljazeera.com/news/2023/1/24/uganda-to-unveil-first-commercial-oil-production-drilling-programme>.

³¹ <https://www.msn.com/en/news/others/china-steps-in-to-save-uganda-oil-pipeline-as-western-lenders-back-out-over-environment-concerns/ar-99/h8vea>.

³² See sustainable environmental law:the future of Uganda by Isaac Christopher Lubogo.

³³ Ibid

By integrating environmental needs with the essential elements of the rule of law, environmental rule of law promotes environmental sustainability and connects it with fundamental rights and obligations³⁴. It helps reduce tensions within and between countries on the use of natural resources, contributing to building trust and confidence at all levels³⁵.

Uganda has formulated several policies to regulate land use and minimize environmental impacts. These policies aim to integrate environmental concerns into the socioeconomic development planning of the country³⁶. However, effective implementation and enforcement of these policies are crucial for their success.

³⁴ <https://www.unep.org/explore-topics/environmental-rights-and-government/what.wedo/promoting-environmental-rule-law-0>

³⁵ <https://www.osce.org/ocea/446365>.

³⁶

<https://www.gwp.org/en/learn/knowledge.resources/case.studies/africa/uganda.how.effective.are.environment.policies.in.uganda> 397.

Plastics Pollution: Ecological and Health Implications in Uganda

Plastic pollution is a significant environmental concern in Uganda. It takes the form of waste, such as plastics and fishing gear, as well as nutrients from agricultural run-off. This pollution poses a threat to ecosystems, degrading their services and impacting the health and livelihoods of local communities³⁷.

Uganda has joined the Clean Seas Campaign, a global movement initiated by the UN Environment Programme (UNEP) to combat marine plastic pollution. The country's participation demonstrates its commitment to curbing the flow of plastic waste into lakes, rivers, and the ocean³⁸.

Understanding the environmental impact of plastics pollution on ecosystems in Uganda

Plastic pollution has a **devastating impact** on ecosystems. It is estimated that **19-23 million tonnes** of plastic waste leak into aquatic ecosystems every year, polluting lakes, rivers, and seas. This pollution can alter habitats and natural processes, reducing ecosystems' ability to adapt to climate change and directly affecting millions of people's livelihoods, food production capabilities, and social well-being³⁹.

Plastics are an untamed and unmanaged beast. More than **1 million plastic bags** are used every minute, with an average "working life" of only 15 minutes. Of all plastics the world has produced, only **9%** of the nine billion tons have been recycled. The ocean is expected to contain 1 ton of plastic for every 3 tons of fish by 2025 and, by 2050, more plastics than fish (by weight). Studies suggest that the total economic damage to the world's marine ecosystem caused by plastic amounts to at least **\$13 billion** every year⁴⁰.

Plastic pollution is a modern phenomenon that has caused single-use plastics to flourish. The plastics industry has successfully promoted throwaway culture and created eco-campaigns that shift blame to the individual. As a result, it's hard to imagine a world without single-use plastics. In 2013, the plastics industry put **78 million tons** of plastic packaging on the market, with a total value of **\$260 billion**. Unfortunately, 95% of that plastic packaging's material value is lost to the economy after a short first use⁴¹. Unlike other materials,

³⁷ <https://www.unep.org/news-and-stories/press-release/uganda-joins-clean-seas-campaign-keep-plastic-pollution-out-its>.

³⁸ ³⁸ <https://www.unep.org/news-and-stories/press-release/uganda-joins-clean-seas-campaign-keep-plastic-pollution-out-its>

³⁹ Ibid

⁴⁰ <https://www.un.org/africa-renewal/magazines/may-2023/understanding-plastic-pollution-and-its-impact-lives>.

⁴¹ <https://www.un.org/africa-renewal/magazines/may-2023/understanding-plastic-pollution-and-its-impact-lives>

plastic does not biodegrade. It can take up to **1,000 years** to break down. This pollution chokes marine wildlife, damages soil and poisons groundwater, and can cause serious health impacts⁴².

To tackle this issue, it is crucial to reduce our consumption and discarding of plastic waste. Recycling alone is not enough. By taking steps to minimize our constant consumption of plastics and adopting sustainable alternatives, we can make a significant difference in preserving our environment.

In Uganda, Plastic pollution is a significant environmental issue in Uganda, with the country's freshwater ecosystems, including Lake Victoria, being particularly vulnerable ⁴³. The indiscriminate disposal of plastic waste has led to the degradation of ecosystems and the loss of biodiversity ⁴⁴. A recent study found that approximately 1 in 5 fish in Lake Victoria had ingested plastic ⁴⁵. The Ugandan government has taken steps to address this issue by joining the Clean Seas Campaign, which aims to reduce marine litter and plastic waste entering lakes, rivers, and oceans ⁴⁶. The campaign has been successful in transforming habits, practices, standards, and policies around the globe and now has 63 country partners ⁴⁷.

In addition to environmental degradation, plastic pollution also has socio-economic consequences. The indiscriminate disposal of plastic waste can reduce the porosity of soil to the point of breaking the regeneration cycle of water resources and reduce the quality of soils for agricultural practice ⁴⁸.

Unveiling the health hazards posed by plastic waste in Uganda

Plastic waste poses a significant threat to the **health** and **environment** in Uganda. The country's plastic waste crisis is a growing concern, with only **6%** of the **600 metric tonnes** of disposed plastic waste being

⁴² <https://www.afro.who.int/news/tackling-health-impacts-plastic-pollution-africa>.

⁴³ <https://www.unep.org/news-and-stories/press-release/uganda-join-clean-seas-campaign-keep-plastic-pollution-out-its>.

⁴⁴ <https://www.unep.org/news-and-stories/press-release/uganda-join-clean-seas-campaign-keep-plastic-pollution-out-its>

⁴⁵ <https://www.unep.org/news-and-stories/press-release/uganda-join-clean-seas-campaign-keep-plastic-pollution-out-its>

⁴⁶ <https://www.unep.org/news-and-stories/press-release/uganda-join-clean-seas-campaign-keep-plastic-pollution-out-its>

⁴⁷ <https://www.unep.org/news-and-stories/press-release/uganda-join-clean-seas-campaign-keep-plastic-pollution-out-its>

⁴⁸ Ibid

safely collected¹. The remaining waste accumulates in the environment, causing pollution and endangering ecosystems⁴⁹.

Plastic waste, including items such as toys, bags, crates, and bottles, can be found everywhere in Uganda. The disposal, recycling, and waste management systems remain inefficient⁵⁰. The harmful chemicals released throughout the life cycle of plastics pose serious risks to humans and the environment. They cause land and water pollution and contribute to greenhouse gas emissions⁵¹. Increased levels of plastic waste have even been linked to phenomena such as dead fish washing up on the shores of Lake Victoria.

Scientifically-proven health effects on humans include cancer or changing hormone activity known as endocrine disruption, which can lead to reproductive, growth, and cognitive impairment¹. Women are particularly at risk due to higher aggregate exposure to plastics at home and even in feminine care products⁵². Open burning of plastic waste is also common in homes, releasing toxic chemicals that cause respiratory problems¹. Moreover, plastic pollution contributes to air pollution-related diseases⁵³.

Uganda's current environmental laws do not effectively address the issue of burning plastics³. The country's low recycling rate and the long decomposition time of plastic further exacerbate the problem³. It is crucial to raise awareness about the hazards of plastic waste and promote sustainable practices such as reducing single-use plastics and embracing a circular plastics economy⁵⁴.

Case studies highlighting the far-reaching consequences of plastic pollution in Uganda

Plastic pollution is a pressing issue in Uganda, with far-reaching consequences for the environment and human health. Uganda has joined the **Clean Seas Campaign** to combat plastic pollution and protect its lakes, rivers, and the ocean from marine litter and plastic waste⁵⁵. The country's largest freshwater ecosystem, **Lake Victoria**, is particularly affected by plastic pollution⁵⁶. A recent study found that about 1 in 5 fish in Lake Victoria had ingested plastic¹. Plastic waste also poses a threat to agriculture, water, and soil

⁴⁹ Ibid

⁵¹ Ibid

⁵² Ibid

⁵³ Ibid

⁵⁴ Ibid

⁵⁵ Ibid

⁵⁶ Ibid

quality². Unfortunately, less than 5% of plastic in Uganda is recycled⁵⁷. Plastic pollution has been linked to water contamination in lakes, posing a serious threat to marine life⁵⁸.

It's crucial to address this issue through sustainable production, responsible consumption, and proper waste disposal. Efforts are being made to tackle plastic pollution in Uganda, but more action is needed to reduce plastic waste generation and promote recycling.

⁵⁷ Ibid

⁵⁸ Ibid

Environmental Legislation and Policy Frameworks in Uganda

The **National Environment Act, No. 5 of 2019** is a key legislation in Uganda that addresses environmental concerns and provides a framework for environmental management⁵⁹. It covers various aspects such as the right to a decent environment, rights of nature, principles of environment management, institutional arrangements, environmental planning, and management of the green environment¹. The Act establishes the **National Environment Management Authority (NEMA)** as the lead agency responsible for environmental protection and conservation⁶⁰.

In addition to the National Environment Act, Uganda has other environmental laws and regulations in place. Some of these include the **Uganda Wildlife Act, 2019**, **Mining Act, 2003**, **Water Act Cap. 152**, **The National Forestry and Tree Planting Act, 8/2003**, and regulations related to environmental audits and management of ozone-depleting substances⁶¹.

Overview of existing environmental laws and regulations in Uganda

The following are some of the environmental laws and regulations in Uganda:

1. **National Environment Act, No. 5 of 2019**: This act was established to repeal, replace, and reform the law relating to environmental management in Uganda. It provides for the management of the environment for sustainable development and continues the National Environment Management Authority as a coordinating, monitoring, regulatory, and supervisory body for all activities relating to the environment⁶².
2. **Uganda Wildlife Act, 2019**: This act focuses on wildlife conservation and management in Uganda⁶³.
3. **Mining Act, 2003**: This act regulates mining activities in Uganda⁶⁴.
4. **Water Act Cap. 152**: This act provides for the management, protection, and control of water resources in Uganda⁶⁵.

⁵⁹ Ibid

⁶⁰ Ibid

⁶¹ <https://ugandafact.com/list-of-environmental-law-in-uganda>.

⁶² Ibid

⁶³ Ibid

⁶⁴ Ibid

⁶⁵ Ibid

5. **The National Forestry and Tree Planting Act, 8/2003:** This act aims to provide for the sustainable management and development of forests and tree planting in Uganda⁶⁶.
6. **National Environment (Audit) Regulation:** These regulations govern environmental audits in Uganda⁶⁷.
7. **National Environment (Management of Ozone Depleting Substances & Products) Regulations S.I. No. 48 of 2020:** These regulations focus on the management of ozone-depleting substances and products⁶⁸.

Comparative analysis of plastic-related policies in other regions other than Uganda

I found a research paper titled “Towards regional cooperation on sustainable plastic recycling: comparative analysis of plastic waste recycling policies and legislations in Japan and Malaysia”⁶⁹. It compares the plastic recycling policies and legislations between Malaysia and Japan. The study aims to yield synergistic solutions between the two countries to combat the current predicament of plastic waste. The comparison will signify two typical development patterns in developed countries and developing countries and will be able to elucidate future directions for other countries with similar policy and legislative transitions in the region⁷⁰.

I also found a report titled “The plastics landscape: regulations, policies and influencers”⁷¹. It explores various plastic-related regulations and policies at different stages of the value chain. The report also looks at the types of movements that are influencing how plastic is regulated, managed, and used⁷².

Identifying gaps and opportunities for strengthening environmental legislation in Uganda

The **State of the Environment Report - Uganda** provides a comprehensive overview of the condition of the environment and natural resources in Uganda. It is divided into five sections¹. Section 2 of the report deals with the state of the environment and trends under five themes: atmospheric, terrestrial, aquatic, cross-sectoral resources, and important linkages between environment and poverty, health, and the potential value

⁶⁶ Ibid

⁶⁷ Ibid

⁶⁸ Ibid

⁶⁹ <https://link.springer.com/article/10.1007/5100098-021-02263-0>

⁷⁰ <https://link.springer.com/article/10.1007/5100098-021-02263-0>

⁷¹ <https://www.unpri.org/plastics/the-plastics-landscape-regulationns-policies-and-influnencers/4953-article>.

⁷² <https://www.unpri.org/plastics/the-plastics-landscape-regulationns-policies-and-influnencers/4953-article>

of ecosystem services⁷³. The report also covers emerging challenges such as food security and climate change⁷⁴. It concludes with policy options for action⁷⁵. Another study reveals that although Uganda has laws and policies geared toward conserving the environment, there is a gap between their existence and implementation on the ground⁷⁶. Natural resources, particularly water catchments, continue to be encroached upon⁷⁷.

⁷³ Ibid

⁷⁴ Ibid

⁷⁵ Ibid

⁷⁶ Ibid

⁷⁷ Ibid

The Role of Garbage Law Governance in Plastic Waste Management in Uganda

In an article titled “**The Role of Courts in Plastic Pollution Governance**” published in the **International & Comparative Law Quarterly**⁷⁸. It discusses the role of courts in plastic pollution governance and highlights the growing concern over plastic pollution. The article emphasizes that courts are playing an increasingly important role in plastic pollution governance, from holding private polluters accountable to considering the constitutionality of restrictions on certain plastic products and ordering regulatory bodies to adopt or implement such measures⁷⁹.

The **Plastic Waste Management Rules, 2016** state that every local body has to be responsible for setting up infrastructure for segregation, collection, processing, and disposal of plastic waste⁸⁰. Additionally, the **National Environment (Waste Management) Regulations** provide guidelines for waste management practices, including the prohibition of importation, sale, and use of plastic bags and other plastics used for packaging⁸¹.

Examining the role of governance in shaping waste management practices in Uganda

I found a research paper titled “The neglected governance challenges of solid waste management in Uganda: Insights from a newly created City of Mbarara”⁸². The paper highlights the governance challenges of solid waste management in Uganda, with a focus on the City of Mbarara. The study was conducted through semi-structured in-depth interviews with city solid waste managers, managers of private sector companies in SWM, political leaders especially local councilors and opinion leaders. The respondents were purposely sampled. The study revealed that the organization of solid waste management is poor exemplified by weak capacity, poor implementation of laws and regulations, poor record management, misappropriation of funds among others. The paper suggests that there is a need to strengthen capacity (financial, institutional, technological

⁷⁸ <https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/role-of-courts-in-plastic-pollution-governance>.

⁷⁹ <https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/role-of-courts-in-plastic-pollution-governance>

⁸⁰ <https://www.insights on india.com/environment/environment-pollution-and-control-waste-management/plastic-waste>.

⁸¹ Ibid

⁸² [https://idr.kab.ac.ug/bitstream/handle/20.500.12493/660/the neglected government challenges of solid waste-management in Uganda insights from a newly created city of Mbarara.pdf?sequence=1](https://idr.kab.ac.ug/bitstream/handle/20.500.12493/660/the%20neglected%20government%20challenges%20of%20solid%20waste%20management%20in%20Uganda%20insights%20from%20a%20newly%20created%20city%20of%20Mbarara.pdf?sequence=1)

and infrastructural) to drive environmentally solid waste management practices for sustainable solid waste management.

Case studies showcasing successful garbage law implementations in Uganda

Here below is a discussion of some of the case studies showing successful garbage law implementation in Uganda and the some of the sources;

1. A study published in the **Journal of Environmental and Public Health** discusses the challenges faced by Mbarara Municipality in managing municipal solid waste. The study also highlights how corruption influences poor solid waste management in Mbarara Municipality and recommends measures to help in the effective management of solid waste ⁸³.
2. A case study published by the **Basel Institute on Governance** explains how Ugandan prosecutors obtained the first-ever convictions under the 2013 Anti-Money Laundering Act, overcoming numerous challenges in relation to the financial investigation, prosecution, international cooperation, and asset management ⁸⁴.
3. A research article published in **Frontiers in Sustainable Cities** examines factors that determine and influence waste management practices in Makindye subdivision, Kampala city. The study contributes to the desirability of relevant formal and informal rules to improve waste management in poor neighborhoods ⁸⁵.
4. Another study published in the **Journal of Environmental and Public Health** assessed the status of household solid waste management and associated factors in a slum community in Kampala, Uganda ⁸⁶.

⁸³ <https://www.hindawi.com/journals/jeph/2020/14754780>.

⁸⁴ <https://base/governance.org/publications/case-study-1-serwamba-case-achieving-uganda-first-successful-money-laundering>.

⁸⁵ <https://www.frontiersin.org/articles/10.3389/frsus-2023-1010046/full>.

⁸⁶ Ibid

Challenges and lessons learned from previous initiatives On plastic pollution in Uganda

Uganda has joined the **Clean Seas Campaign** to combat plastic pollution in its lakes, rivers, and the ocean. The campaign, initiated by the UN Environment Programme (UNEP), aims to end marine plastic pollution globally. With 63 country partners, the campaign has already made a significant impact on habits, practices, standards, and policies worldwide⁸⁷. Uganda's largest freshwater ecosystem, Lake Victoria, is part of the Great Lakes region. Unfortunately, decades of unsustainable production, irresponsible consumption, and insufficient waste disposal have led to pollution in the form of plastics and fishing gear⁸⁸. The country's commitment to tackling this issue is evident through its participation in the Clean Seas Campaign and its efforts to develop a national action plan with UNEP's support⁸⁹.

While specific challenges and lessons learned from previous initiatives are not mentioned in the search results, it is crucial to address plastic pollution comprehensively. This includes focusing on all water bodies such as lakes, rivers, wetlands, and oceans that suffer from the negative impacts of plastic pollution⁹⁰. By raising awareness, implementing effective waste management strategies, and engaging key stakeholders like the Uganda Manufacturers Association (UMA), Uganda can make significant progress in reducing plastic pollution⁹¹.

⁸⁷ Ibid

⁸⁸ Ibid

⁸⁹ Ibid

⁹⁰ Ibid

⁹¹ <https://blogs.surey.ac.uk/governing-plastic-network/2021/12/07/policy-brief-uganda>

Collaborative Approaches: Government, Civil Society, and Community Engagement in plastic pollution in Uganda

Collaborative approaches involving **government**, **civil society**, and **community engagement** are crucial in addressing plastic pollution in Uganda. These approaches can help raise awareness, drive policy changes, and promote sustainable practices to mitigate the environmental impact of plastic waste.

One example of such an approach is the implementation of an **innovative plastic credit system**. This system allows corporations to fund high-impact community clean-up projects, focusing on non-recyclable plastic waste that is currently not part of the recycling system⁹². By providing financial incentives and empowering local communities to participate in clean-up efforts, this approach can make a meaningful environmental impact that benefits both local and global communities⁹³.

Another important aspect of collaborative approaches is the involvement of **local NGOs** and **advocacy groups**. These organizations can conduct satisfaction surveys, analyze data, and engage in dialogues with local government agencies to advocate for public service improvements⁹⁴.

Furthermore, community-based initiatives like **Community Action against Plastic Waste (CAPWs)** have been successful in organizing clean-up activities and community outreach programs to combat plastic pollution³. These programs have made a significant impact by cleaning up various areas, including water bodies like oceans, beaches, rivers, and lakes⁹⁵.

It's important to recognize that collaborative approaches should consider the culture and traditions of local communities. By developing projects around these aspects and providing incentives for community participation, these approaches can empower vulnerable communities to take ownership of clean-up efforts⁹⁶.

Exploring government-led efforts in tackling plastic pollution in Uganda

Uganda has joined the **Clean Seas Campaign** to curb the flow of marine litter and plastic waste entering lakes, rivers, and the ocean. The Clean Seas Campaign, launched by the UN Environment Programme

⁹² <https://www.weforum.org/agenda/2022/or/empowering-local-communities-help-solve-global-plastic-waste>.

⁹³ <https://www.weforum.org/agenda/2022/or/empowering-local-communities-help-solve-global-plastic-waste>

⁹⁴ <https://pdf.usaid.gov/pdf-docs/pnadq127.pdf>

⁹⁵ Ibid

⁹⁶ Ibid

(UNEP) in 2017, is a global movement devoted to ending marine plastic pollution from source to sea. With now 63 country partners, the Clean Seas Campaign is a catalyst for change, transforming habits, practices, standards and policies around the globe ⁹⁷.

In 2018, Uganda passed the **National Environment Bill**, banning polythene bags below 30 microns following a recommendation from the Committee on Natural Resources. The ban was enforced then and those who used those kinds of polythene bags to package goods for their customers had to think afresh ⁹⁸.

The Ugandan government has created a broad-based policy environment for regulation of sub-standard plastics in Uganda. From the plastics ban policy and Finance Act of 2009 to the recent National Environmental Management Act of 2019, Uganda has shown impressive commitment to fighting plastic pollution ⁹⁹.

In northern Uganda, Lira District officials have embarked on tree and grass planting to trap emissions from growing municipal motor traffic and from their compost site where municipal garbage is incinerated. The government is also promoting the use of energy-saving technologies as a means of mitigating climate change effects in upcountry areas.

The influence of civil society organizations and grassroots movements in plastic pollution in Uganda

Civil society organizations and grassroots movements play a crucial role in addressing plastic pollution in Uganda. They contribute to raising awareness, advocating for policy changes, and implementing initiatives to reduce plastic waste.

According to a study published in **SpringerLink**, complex measures are needed at the societal level to curb the trend of plastic pollution. These measures include changing consumer behavior, enhancing research for innovative solutions, increasing plastic recycling ratio, using environmentally friendlier alternatives, and improving awareness raising and information dissemination¹⁰⁰.

The involvement of civil society organizations, environmental NGOs, local authorities, policy makers, and citizens is essential in breaking the plastic pollution chain. Education, research, and science can help induce

⁹⁷ Ibid

⁹⁸ Ibid

⁹⁹ Ibid

¹⁰⁰ Ibid

an attitude shift toward reducing plastic pollution. Best practices in reducing pollution and improving plastic waste management can also make a significant impact¹⁰¹.

Grassroots movements and NGOs have been instrumental in driving change. They employ different strategies to address plastic pollution, such as legal advocacy, community-based initiatives, and social movement networks¹⁰². It is important to recognize that addressing plastic pollution requires collective efforts from various stakeholders. By working together, civil society organizations and grassroots movements can contribute to tackling this global challenge¹⁰³.

Showcasing the power of community-driven initiatives in waste reduction in Uganda

One such initiative is the **Gulu District Solid Waste Management Project**. The project focuses on community participation, waste facilities, and solid waste management in Gulu district¹⁰⁴. It aims to establish the level of community participation in solid waste management and assess the strategies involved. The study found a significant positive relationship between community participation and waste management in Gulu district¹⁰⁵.

Another example is the promotion of **drinking safe water** through household point-of-use chlorination and the support towards **solid waste management**¹⁰⁶. These interventions are part of broader efforts to improve sanitation and hygiene practices in communities. These initiatives demonstrate the power of collective action in addressing waste management challenges. By involving the community, these projects create a sense of ownership and responsibility, leading to more sustainable waste management practices.

¹⁰¹ Ibid

¹⁰² https://studyabroad.sit.edu/wp-content/uploads/2021/09/2022_esp-hrc-sdis_3320.pdf.

¹⁰³ Ibid

¹⁰⁴ <http://www.noji.com/open-access/community-participation.waste.facilities-and-solid-waste-management-in-uganda-a-case-study-of-gulu-district-pdf>.

¹⁰⁵ <http://www.noji.com/open-access/community-participation.waste.facilities-and-solid-waste-management-in-uganda-a-case-study-of-gulu-district-pdf>.

¹⁰⁶ <https://www.hindawi.com/journals/jeph/2018/3710120>.

Case Studies: Transformative Interventions in plastic pollution in Uganda

There is information about **transformative interventions in plastic pollution in Uganda**. Uganda has joined the **Clean Seas Campaign** to curb the flow of marine litter and plastic waste into its lakes, rivers, and the ocean. The campaign, launched by the UN Environment Programme (UNEP), aims to end marine plastic

pollution from source to sea¹⁰⁷. Uganda's largest freshwater ecosystem, **Lake Victoria**, is part of the Great Lakes region. Unfortunately, it has been affected by unsustainable production, irresponsible consumption, and insufficient waste disposal¹. A recent study found that about 1 in 5 fish in Lake Victoria had ingested plastic¹⁰⁸. To address this issue, Uganda is working on a national action plan to tackle litter and plastic pollution¹⁰⁹.

In-depth analysis of specific interventions targeting plastic pollution in Uganda

Uganda has joined the **Clean Seas Campaign** to curb the flow of marine litter and plastic waste entering lakes, rivers, and the ocean. The campaign, launched by the UN Environment Programme (UNEP) in 2017, aims to end marine plastic pollution from source to sea. Uganda is the second landlocked country and the first in Africa to join the campaign¹¹⁰.

To empower children and raise awareness about plastic pollution, workshops and interactive sessions can be organized where children can learn about the life cycle of plastic, its environmental impact, and alternative solutions. Schools can also implement recycling programs and establish partnerships with local recycling facilities¹¹¹.

In 2018, Parliament passed the National Environment Bill, banning polythene bags below 30 microns following a recommendation from the Committee on Natural Resources. The ban was enforced then and those who used those kinds of polythene bags to package goods for their customers had to think afresh¹¹².

Success stories that highlight the tangible impact of sustainable practices in plastic pollution in Uganda

An article on the World Economic Forum website that highlights **eight inspiring innovations** that are helping to fight plastic pollution globally. Although it doesn't specifically mention Uganda, these innovations could be of interest to you¹. Here are a few examples:

¹⁰⁷ Ibid

¹⁰⁸ Ibid

¹⁰⁹ Ibid

¹¹⁰ Ibid

¹¹¹ Ibid

¹¹² Ibid

1. **Siklus**: This Indonesian company is reinventing the future of retail by delivering refills of everyday needs to people's doors without plastic waste. They offer an alternative by replacing low-value plastic with refill stations, allowing consumers to buy household products in any quantity without plastic packaging¹¹³.
2. **gCycle**: This innovative company is tackling sustainability in the nappy industry, which contributes to polluted landfills and waterways. They have developed the world's first patented fully compostable and disposable nappy¹¹⁴.

Lessons that can be extrapolated for broader implementation on plastic pollution in Uganda

Plastic pollution is a significant environmental issue in Uganda. The country has recently joined the **Clean Seas Campaign**, which aims to reduce plastic waste entering lakes, rivers, and the ocean¹¹⁵. Uganda generates approximately **600 tonnes of plastic waste daily**¹¹⁶. Less than **5% of plastic** is recycled, and it can take over **450 years** for plastic to decompose completely¹¹⁷. This pollution poses a serious threat to agriculture, water, soil, and marine life¹¹⁸. Lake Victoria, which is shared with Kenya and Tanzania, is particularly affected by plastic pollution¹¹⁹.

To address this issue, it is crucial to focus on sustainable production, responsible consumption, and proper waste disposal. Implementing recycling programs and raising awareness about the importance of reducing plastic waste can help mitigate the problem. Additionally, promoting alternative materials and encouraging eco-friendly practices can contribute to a cleaner environment.

¹¹³ <https://www.weforum.org/agenda/2021/12/fight.plastic.pollution.innovation>.

¹¹⁴ <https://www.weforum.org/agenda/2021/12/fight.plastic.pollution.innovation>.

¹¹⁵ Ibid

¹¹⁶ Ibid

¹¹⁷ Ibid

¹¹⁸ Ibid

¹¹⁹ Ibid

The Economic and Social Landscape of Sustainable Progress of plastic pollution in Uganda

Uganda has been grappling with plastic pollution for years. The country generates **600 tonnes of plastic waste daily**¹²⁰. The Great Lakes region, including Lake Victoria, is the largest freshwater ecosystem in Uganda and is threatened by the catastrophic effects of plastic pollution from decades of unsustainable

¹²⁰ Ibid

production, irresponsible consumption, and insufficient waste disposal ². A recent study shows that about **1 in 5 fish in Lake Victoria had ingested plastic** ¹²¹.

In June 2021, Uganda joined the Clean Seas Campaign, a global movement devoted to ending marine plastic pollution from source to sea. The campaign has been a catalyst for change, transforming habits, practices, standards and policies around the globe. With now 63 country partners, the Clean Seas Campaign is a global movement devoted to ending marine plastic pollution from source to sea ¹²².

To deal with current and future challenges of plastics pollution in Uganda, a multi-sectoral approach coupled with more effective coordination is critical for effective implementation of the existing legislation ¹²³. ECO Action Uganda has been focusing on skills development, advocacy and awareness creation regarding plastics management since 2011 ¹²⁴.

Evaluating the economic implications of plastic waste management strategies in Uganda

Uganda generates **600 tonnes of plastic waste daily**, according to the National Environment Management Authority (NEMA) ¹²⁵. The country faces several challenges due to plastic waste, including pollution of lakes, rivers, and soil, as well as blockage of drainage channels and increased flood risks ¹²⁶. To address this issue, Uganda has joined the Clean Seas Campaign, a global movement aimed at reducing marine plastic pollution ¹²⁷.

some general approaches that may be considered:

1. **Expansion of buyback centers:** This strategy involves establishing more plastic buyback centers in underserved communities throughout Uganda ¹²⁸.

¹²¹ Ibid

¹²² Ibid

¹²³ Ibid

¹²⁴ Ibid

¹²⁵ Ibid

¹²⁶ Ibid

¹²⁷ Ibid

¹²⁸ Ibid

2. **Circular economic model:** Implementing a circular economic model for the PET market in Uganda can help minimize the introduction of new raw materials and maximize the reclamation and re-usage of existing resources ¹²⁹.
3. **Financial and technical support:** Greater external financial and technical support for waste treatment can help improve waste management practices in Uganda ¹³⁰.
4. **Regulatory policies:** Implementing regulatory policies that reduce price differentials between plastics and substitute materials can encourage the use of alternative materials and reduce plastic waste ¹³¹.

Assessing the socio-economic benefits of a cleaner environment in Uganda

The **State of the Environment Report - Uganda** by the **UN Environment Programme** provides a comprehensive overview of the condition of the environment and natural resources in Uganda¹³². It covers five sections, including an introduction to the country overview and background, the state of the environment and trends under five themes, emerging challenges, conclusions and policy options for action¹³³. The report emphasizes that the state of the environment plays a crucial role in determining the level of prosperity for current and future generations. Over-exploitation of natural resources leads to environmental degradation, reduced ecosystem services, and increased poverty¹³⁴.

It is widely recognized that a cleaner environment has numerous positive impacts on society. For example, valuing water for the economy can lead to benefits such as achieving food security, improving nutrition, generating employment, supporting climate change mitigation and adaptation, and revitalizing rural economies¹³⁵. Additionally, effective environmental policies are essential for addressing land and natural resource degradation in Uganda, which significantly affects livelihoods and production¹³⁶. It is clear that maintaining a clean environment is crucial for sustainable development and poverty alleviation. By improving

¹²⁹ Ibid

¹³⁰ Ibid

¹³¹ Ibid

¹³² Ibid

¹³³ Ibid

¹³⁴ Ibid

¹³⁵ <https://www.unesco.org/reports/reports/wwdr/2021/en/valuing.water.economy>.

¹³⁶ Ibid

the state of the environment, Uganda can secure environmental sustainability and shape a prosperous future¹³⁷.

Balancing short-term challenges with long-term gains for sustainable progress of plastic pollution in Uganda

A World Economic Forum article discusses how leaders can balance short-term success with long-term sustainability. The article emphasizes the importance of recognizing the interdependence of economic, environmental, and social factors at play. Leaders must focus on environmental stewardship, social responsibility, resource efficiency, risk mitigation, and stakeholder relations to promote long-term sustainability practices. By incorporating these practices into economic decision-making, leaders can encourage innovation and cost savings, ultimately improving long-term competitiveness. It's essential that organizations in the private sector balance short-term economic gains with long-term social sustainability to ensure economic growth benefits society as a whole. By implementing long-term sustainability practices into decision-making, organizations can mitigate risks and build strong relationships with stakeholders while also enhancing their reputation.

Overcoming Challenges and Building Resilience in plastic pollution in Uganda

Uganda has joined the Clean Seas Campaign, a global movement devoted to ending marine plastic pollution from source to sea. The country's commitment to curbing the flow of marine litter and plastic waste entering lakes, rivers, and the ocean is demonstrated by this move ¹³⁸. The Great Lakes region in Uganda, which includes Lake Victoria, is threatened by the catastrophic effects of the triple planetary crises - biodiversity breakdown, the climate emergency, and rampant pollution - from decades of unsustainable production, irresponsible consumption, and insufficient waste disposal. For Uganda, this pollution takes the form of waste,

¹³⁷ Ibid

¹³⁸ Ibid

such as plastics and fishing gear, and nutrients from agricultural run-off, degrading ecosystems services and threatening the health and livelihoods of its communities ¹. A recent study shows that about 1 in 5 fish in Lake Victoria had ingested plastic ¹. Despite these challenges, young people in Uganda have come up with solutions to the negative environmental impact of plastic use as they championed the implementation and promotion of the 3Rs (Reduce, Reuse and Recycle) as a mode of silencing plastic pollution ¹³⁹. A multi-sectoral approach coupled with more effective coordination is critical for effective implementation of existing legislation in order to deal with current and future challenges of plastics pollution in Uganda ¹⁴⁰.

Addressing hurdles in implementing effective garbage law governance in plastic pollution in Uganda

Addressing hurdles in implementing effective garbage law governance in plastic pollution is a complex issue that requires a multi-faceted approach. While I don't have access to the specific hurdles faced in Uganda, I can provide some general insights.

To effectively address plastic pollution, it is important to consider the following:

1. **Legislation:** Implementing comprehensive legislation that governs the consumption, recovery, and recycling of plastics is crucial. For example, the **Ecological Solid Waste Management Act of 2000** and the **National Plan of Action for the Prevention, Reduction, and Management of Marine Litter** have been instrumental in the Philippines¹⁴¹.
2. **Extended Producer Responsibility (EPR):** EPR laws require businesses to assume responsibility for the entire life cycle of their products, including waste management. This approach holds plastic packaging producers accountable for the cost of waste prevention, clean-up, and recovery measures¹⁴².
3. **Stakeholder Involvement:** Engaging various stakeholders such as government bodies, academia, civil society organizations, and local communities is essential for effective implementation. Collaborative efforts can lead to better policies and initiatives¹⁴³.

¹³⁹ <https://newvision.co.ug/uganda>.

¹⁴⁰ Ibid

¹⁴¹ Ibid

¹⁴² Ibid

¹⁴³ Ibid

4. **Capacity Building:** Providing support and resources to local government units (LGUs) and other relevant organizations can enhance their capacity to manage waste effectively¹⁴⁴.
5. **Awareness and Education:** Raising awareness among the public about the environmental impact of plastic pollution and promoting sustainable alternatives can drive behavioral change¹⁴⁵.

Strategies for overcoming resistance and fostering behavior change in plastic pollution in Uganda

Plastic pollution is a global challenge, and Uganda is taking steps to address it. Here are some strategies that can help overcome resistance and foster behavior change in plastic pollution in Uganda:

1. **Behavior and labeling interventions:** Research suggests that behavior and labeling interventions can be effective in reducing plastic pollution. For example, plastic labels could include a sustainability scale, regional disposal instructions, and list additives¹⁴⁶.
2. **Waste management behavior change:** Shifting behaviors is challenging, but there are six strategic levers that can help: material incentives, rules and regulations, information, context in which choices are made, emotional appeals, and social influence¹⁴⁷.
3. **Education and awareness:** Information campaigns can play a crucial role in raising awareness about the impact of plastic pollution and motivating environmentally responsible behaviors¹⁴⁸.
4. **Clean Seas Campaign:** Uganda has joined the Clean Seas Campaign, a global movement dedicated to ending marine plastic pollution. The campaign aims to transform habits, practices, standards, and policies around the world¹⁴⁹.
5. **Reducing plastic production and use:** Reducing plastic production and use is another important strategy. Weaning off disposable plastics and replacing them with reusable alternatives can make a significant difference¹⁵⁰.

¹⁴⁴ Ibid

¹⁴⁵ Ibid

¹⁴⁶ <https://www.foodpackagingforum.org/news/behaviour-and-labeling-interventions-to-reduce-plastic-pollution>.

¹⁴⁷ <https://www.ungm.org/public/notice/178933>

¹⁴⁸ <https://egov.eletsonline.com/2021/12/behaviour-change-an-efficient-strategy-for-waste-management>.

¹⁴⁹ Ibid

¹⁵⁰ Ibid

Building a resilient framework to adapt to changing circumstances of plastic pollution in Uganda

Uganda has joined the **Clean Seas Campaign** to combat plastic pollution in its lakes, rivers, and the ocean. The campaign, initiated by the UN Environment Programme (UNEP), aims to curb the flow of marine litter and plastic waste worldwide¹⁵¹. Uganda's largest freshwater ecosystem, **Lake Victoria**, is part of the Great Lakes region and is threatened by pollution from unsustainable production, irresponsible consumption, and insufficient waste disposal¹⁵². Plastic pollution poses a significant threat to aquatic life and human health in Uganda¹⁵³. The country generates approximately **600 tonnes of plastic waste daily**¹⁵⁴.

Creating a resilient framework to adapt to changing circumstances of plastic pollution requires a multi-faceted approach. It involves raising awareness about the environmental impact of plastic pollution, promoting sustainable production and consumption practices, improving waste management systems, and encouraging recycling initiatives. By implementing these measures, Uganda can mitigate the adverse effects of plastic pollution on its ecosystems and protect the health and livelihoods of its communities

A Blueprint for Sustainable Progress in plastic pollution Uganda

I found a press release from the **United Nations Environment Programme (UNEP)** that mentions Uganda's commitment to curbing plastic pollution. Uganda has joined the **Clean Seas Campaign** to reduce marine litter and plastic waste in its lakes, rivers, and the ocean¹⁵⁵. The Clean Seas Campaign, launched by UNEP in 2017, is a global movement that aims to end marine plastic pollution from source to sea. It has 63 country partners, including Uganda¹⁵⁶.

¹⁵¹ Ibid

¹⁵² Ibid

¹⁵³ Ibid

¹⁵⁴ Ibid

¹⁵⁵ Ibid

¹⁵⁶ Ibid

Uganda's largest freshwater ecosystem, **Lake Victoria**, is part of the Great Lakes region. Unfortunately, it has been affected by unsustainable production, irresponsible consumption, and insufficient waste disposal¹. A recent study found that about 1 in 5 fish in Lake Victoria had ingested plastic¹⁵⁷. To address this issue, Uganda is developing a **national action plan** to tackle litter and plastic pollution with support from UNEP¹⁵⁸. The plan aims to protect the health and livelihoods of communities and preserve the ecosystems of Lake Victoria and other water bodies¹⁵⁹.

Synthesizing key findings and insights from the book in plastic pollution in Uganda

Plastic pollution is a major environmental concern in Uganda. According to a recent study, less than **5%** of plastic is recycled in the country ¹⁶⁰. Uganda generates **600 tonnes** of plastic waste daily, which is a significant contributor to water and soil pollution ¹⁶¹. The Great Lakes region, including Lake Victoria, is threatened by the catastrophic effects of plastic pollution from decades of unsustainable production, irresponsible consumption, and insufficient waste disposal ⁴. A recent study found that about **1 in 5** fish in Lake Victoria had ingested plastic ¹⁶².

Uganda has joined the Clean Seas Campaign, launched by the UN Environment Programme (UNEP) in 2017, to curb the flow of marine litter and plastic waste entering lakes, rivers, and the ocean ⁴. The Clean Seas Campaign is a global movement devoted to ending marine plastic pollution from source to sea. With now 63 country partners, commitments by signatory countries cover more than 60% of the world's coastlines ¹⁶³.

Outlining a comprehensive roadmap for plastic pollution mitigation and sustainable progress in Uganda

Uganda has joined the **Clean Seas Campaign** to curb the flow of marine litter and plastic waste entering its lakes, rivers, and the ocean. The campaign, launched by the UN Environment Programme (UNEP) in 2017, has been a catalyst for change, transforming habits, practices, standards, and policies around the globe.

¹⁵⁷ Ibid

¹⁵⁸ Ibid

¹⁵⁹ Ibid

¹⁶⁰ Ibid

¹⁶¹ Ibid

¹⁶² Ibid

¹⁶³ Ibid

With 63 country partners, the Clean Seas Campaign is a global movement devoted to ending marine plastic pollution from source to sea. Uganda's commitment to this campaign demonstrates its dedication to curbing plastic pollution in its lakes and rivers¹⁶⁴.

Uganda is part of the Great Lakes region and is home to Lake Victoria, the largest freshwater ecosystem in the country. However, Lake Victoria and its related ecosystems are threatened by unsustainable production, irresponsible consumption, and insufficient waste disposal. Plastic waste and nutrients from agricultural run-off pose significant challenges to the health and livelihoods of communities in Uganda. Recent studies have found that about 1 in 5 fish in Lake Victoria have ingested plastic¹⁶⁵. To address these issues, Uganda is working on a national action plan to tackle litter and plastic pollution with support from UNEP¹⁶⁶.

Calling for global collaboration and replicable models of governance in plastic pollution in Uganda

It's great to hear that you are interested in global collaboration and replicable models of governance in plastic pollution in Uganda. Uganda has been taking steps to address plastic pollution, including joining the 63 signatories of UNEP's Clean Seas Campaign ¹⁶⁷. The National Environment Management Act of 2019 bans the importation/manufacture of plastics bags of less than 30 microns ¹⁶⁸. The Ugandan government has created a broad-based policy environment for regulation of the sub-standard plastics in Uganda ¹⁶⁹. Despite all this, plastic waste remains a huge challenge in Uganda with only about 5% of plastics being recycled with the rest ending up in dumping sites, burnt or indiscriminately dumped into the environment ¹⁷⁰.

The Governing Plastics Network's partners at Makerere University in Kampala have conducted research on building laws, policies and educational programmes capable of addressing Uganda's plastic pollution crisis and ask who is driving these agendas and what strategies they use to generate change ¹⁷¹. They have also looked at the progress that has been made in fighting plastic pollution and who is making a difference ¹⁷².

¹⁶⁴ Ibid

¹⁶⁵ Ibid

¹⁶⁶ Ibid

¹⁶⁷ Ibid

¹⁶⁸ Ibid

¹⁶⁹ Ibid

¹⁷⁰ Ibid

¹⁷¹ Ibid

¹⁷² Ibid

Reflecting on Uganda's journey and achievements in tackling plastic pollution

Uganda has made significant strides in tackling plastic pollution. In June 2021, Uganda joined the Clean Seas Campaign, a global movement launched by the UN Environment Programme (UNEP) in 2017, to end marine plastic pollution from source to sea. The country's commitment to curbing the flow of marine litter and plastic waste entering lakes, rivers, and the ocean is demonstrated by this move¹⁷³.

Uganda is part of the Great Lakes region with its largest freshwater ecosystem, Lake Victoria. The water body, shared with Kenya and Tanzania, is the source of the iconic River Nile that flows 6,695 kilometers

¹⁷³ Ibid

before ending in the Mediterranean Sea. However, Lake Victoria and its related ecosystems are threatened by the catastrophic effects of the triple planetary crises – biodiversity breakdown, the climate emergency, and rampant pollution – from decades of unsustainable production, irresponsible consumption, and insufficient waste disposal. For Uganda, this pollution takes the form of waste such as plastics and fishing gear, and nutrients from agricultural run-off, degrading ecosystems services and threatening the health and livelihoods of its communities¹⁷⁴.

Direct dumping of garbage into lakes or rivers in Uganda is still widespread in many areas across the country. According to Dr. Were, most plastic pollutants find their way into water bodies in Uganda through direct littering or dumping. It is important to continue raising awareness about plastic pollution and its impact on our environment. We must all play our part in reducing our plastic footprint by adopting sustainable practices such as recycling and reducing single-use plastics.

Emphasizing the ongoing importance of vigilance and action of plastic pollution in Uganda

Plastic pollution is a significant environmental concern in Uganda. The country has joined the **Clean Seas Campaign** to combat plastic waste and marine litter in its lakes, rivers, and the ocean¹. Uganda's largest freshwater ecosystem, **Lake Victoria**, is particularly affected by pollution from unsustainable production, irresponsible consumption, and insufficient waste disposal¹⁷⁵. A recent study found that approximately **1 in 5 fish** in Lake Victoria had ingested plastic¹⁷⁶. The country generates around **600 tonnes of plastic waste daily**².

To address this issue, Uganda is working on a national action plan to tackle litter and plastic pollution. The government aims to curb the flow of marine litter and plastic waste by implementing measures to reduce plastic consumption, promote recycling, and improve waste management¹⁷⁷. However, it's worth noting that less than 5% of plastic is currently recycled in Uganda¹⁷⁸. Plastic pollution not only poses a threat to aquatic

¹⁷⁴ Ibid

¹⁷⁵ Ibid

¹⁷⁶ Ibid

¹⁷⁷ Ibid

¹⁷⁸ Ibid

life but also affects agriculture, water quality, and soil health¹⁷⁹. It's crucial for individuals, communities, and organizations to remain vigilant and take action to reduce plastic waste through responsible consumption, recycling initiatives, and proper waste disposal.

Inspiring readers to envision a future where sustainable progress is within reach in plastic pollution in Uganda

There are several ways to envision a future where sustainable progress is within reach in plastic pollution in Uganda. One way is to promote recycling and reusing of plastic bags, bottles, and aluminum beverage cans¹⁸⁰. Another way is to develop a circular economic model for the PET market in Uganda, which aims to minimize the introduction of new raw materials and maximize the reclamation and re-usage of already existing resource inputs¹⁸¹.

It's important to note that plastic pollution is not only harmful to aquatic life but also human health. For instance, a study suggests that about 14% of children between the ages of eight and 14 living in Kampala have bronchial asthma¹⁸². Therefore, it's crucial to take action towards reducing plastic waste and promoting sustainable practices.

The Impact of plastic pollution and garbage collection on natural resources in Uganda

Environmental pollution is the addition of any substance (solid, liquid, or gas) or any form of energy (such as heat, sound, or radioactivity) to the environment at a rate faster than it can be dispersed, diluted, decomposed, recycled, or stored in some harmless form.

- The major kinds of pollution, usually classified by environment, are - air pollution, - water pollution, - and soil/land pollution.
- Modern society is also concerned about specific types of pollutants, such as - noise pollution, - light pollution, and - plastic pollution

¹⁷⁹ Ibid

¹⁸⁰ Ibid

¹⁸¹ Ibid

¹⁸² Ibid

Plastic Pollution

Plastic pollution is the accumulation of plastic objects and particles (e.g. plastic bottles, bags and microbeads) in the Earth's environment that adversely affects humans, wildlife and their habitat. Plastics that act as pollutants are categorized by size into micro-, meso-, or macro debris. Plastics are inexpensive and durable, making them very adaptable for different uses; as a result, manufacturers choose to use plastic over other materials. However, the chemical structure of most plastics renders them resistant to many natural processes of degradation and as a result they are slow to degrade. Together, these two factors allow large volumes of plastic to enter the environment as mismanaged waste which persists in the ecosystem and travels throughout food webs.

This book is to explore the dangers of waste plastic material to aquatic, land, and human beings through different themes, namely, the fish, the octopus, the bird, and the crocodile. These themes were created from collected waste plastics, that is, bottles and Kavera that are poorly disposed on the streets in Uganda to create awareness of the dangers of these waste plastics. The researcher used bottles and polythene bags commonly called "Kavera. These plastics are selected because they are abundantly available at any household level. In addition, Kavera is flexible and, as such, easy to manipulate in the production of sculptures.

According to the national management authority, Uganda has produced over 12330 metric tons of PET plastics since 2018. In Kampala Metropolitan area 135,804 tons of plastic waste are generated per year.

Of this, 42% is uncollected, 15% collected through the value chain approach and 43% collected by the service providers. About 21,728T of plastics is burned and 47,457T is landfilled/dumped, 27,160T is retained on land and 13,580T finds its way into water systems. NEMA also affirms that as a consequence, of plastic pollution, the country is seeing increased unexplained cancers, floods, poor water quality, poor air quality, decreased soil fertility, siltation of waterbodies, death of livestock, fish and wildlife through ingestion and entanglement and above all, enhanced greenhouse gas emissions.

Plastic pollution in our water bodies has become a global crisis, posing a severe threat to marine life. Each year, millions of tons of plastic waste find their way into the world's water bodies, wreaking havoc on marine ecosystems and causing immeasurable harm to the creatures that inhabit them. This article explores the

devastating effects of plastic pollution on marine life and the urgent need for action to mitigate this ecological disaster.

The Prevalence of Plastic Pollution.

Plastic is a versatile and durable material that has undoubtedly revolutionized modern life. However, its persistence in the environment, particularly in the marine environment, is a growing concern. Plastics don't biodegrade; instead, they break down into smaller and smaller pieces through a process known as photo degradation, which can take hundreds of years.

The Consequences for Marine Life.

Marine animals, from plankton to large mammals, often mistake plastic debris for food. This can lead to blockages in their digestive systems, malnutrition, and even death. Albatrosses, for instance, have been found with stomachs full of plastic items, from bottle caps to cigarette lighters.

Lost or discarded fishing gear, such as nets, lines, and traps, constitute a significant portion of marine plastic waste. Sea turtles, seals, and seabirds are particularly vulnerable to becoming entangled in these items, which can cause injuries, infections, or death.

Plastic waste also absorbs and retains various toxic chemicals, many of which are released into the water over time. These chemicals can contaminate the marine ecosystem, affecting the health of marine organisms and those that consume them, including humans.

Accumulated plastic debris can smother and damage fragile coral reefs and other critical marine habitats. This harms not only the corals themselves but also the multitude of species that depend on these ecosystems for survival.

Tiny plastic particles, known as micro plastics, pose a unique threat. These particles are often ingested by filter-feeding organisms, entering the food chain and potentially affecting all levels of marine life, including humans.

Mitigating Plastic Pollution.

Governments and businesses must work together to reduce the production and consumption of single-use plastics. Bans on certain plastic items, like straws and plastic bags, have already been implemented in various regions. Uganda, like some other countries in Africa, implemented a ban on plastic bags. The ban, which went into effect in 2007, aimed to reduce the use of single-use plastic bags. Despite the ban, plastic bags were still in use in some areas, and enforcement of the ban varied.

Proper disposal and recycling facilities need to be developed and accessible to all communities. This includes implementing effective waste collection systems and promoting recycling and responsible waste disposal. In many regions of Uganda, there is lack of efficient waste management systems. This has resulted into the improper disposal of plastic waste, which often ends up in water bodies and the environment, contributing to pollution.

Education campaigns can raise awareness about the consequences of plastic pollution and encourage responsible consumer choices. Individuals can also take small steps, such as reducing their plastic use and participating in beach clean-ups. In addition, some communities and organizations in Uganda are taking action to combat plastic pollution. They have organized clean-up activities and promoted recycling and responsible waste disposal.

Researchers are also exploring innovative solutions, such as biodegradable plastics and new materials, to mitigate the environmental impact of plastics.

In a nutshell, the issue of plastic pollution harming marine life is one of the most pressing environmental challenges of our time. The consequences are dire, affecting not only marine ecosystems but also the health and well-being of humans who rely on the water bodies for sustenance. Addressing this crisis requires concerted efforts from individuals, communities, governments, and industries to reduce plastic consumption and improve waste management. Only through collective action can we hope to protect our water bodies and the diverse marine life that depends on them.

At WWF in Uganda, we are calling for an integrated approach, which accounts for the interconnectedness of both technical and natural systems, a “one planet perspective.” This is an approach that resonates particularly closely with the current strategy of WWF, No Plastic in Nature, and focuses additionally on

outlining better choices for managing, using, and sharing the natural resources within our planet's limits — to ensure food, water, and energy security for all.

The event was marked by planting trees and an exhibition that showcased how we can attain No plastic in nature by reducing, re-using and recycling plastics.

World Environment Day (5th June) was declared to be celebrated globally to raise awareness about environment conservation and sustainability during the United Nations conference on human environment. The theme for this year was, "Solutions to plastic pollution."

Uganda is witnessing an increase in soft drinks and mineral water packed in plastic bottles of various sizes. This increase is unfortunately coming with the challenge of increased plastic pollution.

The mushrooming beverage companies, both international and local largely are not doing much to avert a problem they are creating in regards to recycling their plastic bottles. Most manufacturers favour plastic bottles over glass bottles because of their lower cost. But poor garbage disposal habits among Ugandans who litter everywhere and anyhow are not helping protect the environment from these plastic bottles.

According to the Ministry of Water and Environment, plastic waste is becoming disastrous to urban and rural areas due to poor disposal practices. All store purchases are packaged in polythene bags, and without proper disposal, plastic garbage can be seen everywhere. "During the rainy season, they are washed into water channels, where they block drainage. Single-use packaging for soda, water, and other drinks results in mountains of garbage heaping up in legal and illegal dumpsites," said Brian Kizito, an environment officer in the capital Kampala.

"It is unfortunate that in our country, there is no law against the disposal of waste. When someone buys a soda or water in a plastic bottle, after drinking it, he simply throws it anywhere. Can you imagine most people who drink soda in taxis or private vehicles simply throw the used bottles out the windows?" he remarked. Often times the leaders of Kampala Capital City Authority have blamed the endless rain induced floods on poor disposal of plastics bottles which block drainage channels. Now the Ministry of Water and Environment is moving to ban single use plastic bottles in packaging beverages. Instead the Ministry is advising soft drinks

making companies to use glass bottles for their products. Government has given manufacturers of beverages up to 2024 to have abandoned single use plastic bottles in favour of glass bottles.

According to the Executive Director of the National Environmental Management Authority (NEMA), Dr. Barirega Akankwasah, NEMA has embarked on sensitization campaign about the dangers of single use plastics and the need to shun them. According to research conducted by the World Climate School's Uganda chapter, more than 75% of used plastic bottles end up in landfills, lakes, and rivers, which is seriously damaging to the environment. Statistics from NEMA show that plastics take a lion's share of this waste with over 600 tones being produced every day throughout the country. Given that only 40% of this waste is collected and disposed of properly, the remaining 60% finds its way into the environment leading to a number of problems.

"These (60%) constitute the greatest part of pollution of our lakes, rivers, degradation of our soils and rendering fertility and productivity of agriculture ineffective and needless to say the rampant blockage of our drainage channels culminating into floods we see today," Akankwasa said. He said the waste blocks drainage channels and ends up in lakes, rivers and other drainage systems and effects the environment. "These (waste) come along with pathogens which find their way into the food chain like the fish, crops we eat and everything we get from the soil. This is because of irresponsible disposal of waste gets its way into the soil."

Dr. Akankwasa said some waste affects animals which ingest the waste, become infected and when humans consume meat from the animals, the cycle of pathogens continues. "It is our responsibility to ensure we address this challenge." To implement the single use plastic ban, NEMA faces a number of challenges arising from inadequate funding, low staffing, inadequate equipment for environmental monitoring, and fleet and office space. These challenges have further been exacerbated by limited capacity of lead agencies to manage segments of environment under their respective jurisdictions.

The COVID-19 budget cuts left NEMA with an allocation of Shs13 billion, of which Shs10 billion goes towards payment of salaries and other statutory obligations. NEMA has an operational budget of only Shs3 billion for the financial year amidst increasing demands for service delivery in the environment sector. It is not possible for NEMA to respond to all environmental protection needs.

Akankwasah said manufacturers have the responsibility to collect their waste, especially plastics. He said producers must label their products. "Since the extended responsibly places the burden on manufacturers to

collect the plastic waste, as government we will soon be taking the responsibility to the producers fining them with penalties to collect the waste they generate,” he said. Kampala city alone accounts for the large volumes of plastic waste. NEMA says 51% of the plastic garbage in the city is not collected and ends up in drainage channels, wetlands, natural watercourses, manholes, undeveloped plots, and on the roadside. In Uganda, less than 5% of plastic is recycled yet plastic can take over 450 years to decompose completely. Some studies say when plastics are burned, they emit toxic chemicals causing respiratory problems. Uganda does not have serious environmental laws on burning plastics and the existing laws are never enforced. Farmers in rural areas say if careless dumping continues at this rate, “we will have nowhere to grow crops in 15 years from now”. Environmental activists say that it will cost millions of dollars to clean up the polluted land, water, and air, not forgetting the health problems they could have caused in those years.

The studies promoted the use of plastic scraps as sculptural fabric. The investigations went through a process of picking the right kind of solid waste to experiment with. During my research I realized that Iganga Municipality has a variety of plastic trash categories that would be used in a number of tests. These included plastic bags among other things, as well as wrappers, boxes and bottles, furniture, appliances, cutlery, shoes, even baby wipes and tea bags. The researcher researched specific waste materials inside the studio and later profited on Kavera and bottles due to their abundance, ability to soak up an additional percent of all plastic waste in the environment, and reliable flexibility in sculpture production. The researcher found that the way stable waste is disposed of influences the surroundings. Plastic waste is a difficult component of urban solid waste. As it is non-biodegradable, it may live in the surroundings for a longer time, inflicting extreme environmental degradation. Environmental degradation could doubtlessly harm human and organic wealth.

According to the findings, officers are similarly responsible for ensuring proper disposal of solid waste and accumulating within the municipal, but this is inadequately completed due to diverse and demanding situations such as budget. Investment for waste control activities is primarily based on nearby revenue at the time. If it isn't launched for this reason, it takes a long time to gather waste. A few traditional practices of waste management are still applied, not like in the other metropolis councils, like in Mbale, in which recycling is one of the key strategies that management is focusing on to reduce challenges of waste management. Consistent with Mawazi, a manager at one of the collections centers for plastic waste in the municipality, officers do not offer any assistance to the creditors; alternatively, they demand bribes to allow the collectors to use the venue. Furthermore, the municipal council rarely ventured into learning about good practices in the control of plastic waste, which lacked approved gazetted waste disposal locations. All this, blended with

a restricted group of workers' workforces and a good fortune of know-how for plastic waste control, implies that during most instances, waste is amassed after a long period of time, which creates a deficiency in the effectiveness of waste plastic control practices. The collection and disposal of plastic waste have been poor in the examined region, consistent with the researcher 's observations

The amount of plastic waste in is mainly plastic bottles, scientifically referred to as PET. According to the state of environmental report for Uganda (2006), population increase and poor industrial practices, inefficient water use and pollution of rivers and lakes, including wetlands, pose a threat to the water system and the general environment.

Regulatory Framework on Pollution

The Government of Uganda has taken stringent actions to protect public health from environmental pollution & protect the quality of the natural environment. Among the interventions has been the development of management strategies to prevent or control pollution. Most of these strategies also involve legal requirements that must be met by individuals and facilities. These requirements are an essential foundation for environmental and public health protection but they are only the first step. The second step is compliance – getting the groups that are regulated to fully implement the regulations. Compliance doesn't happen automatically – achieving it usually involves efforts to encourage & compel behavior change that is enforcement. One of the primary goals of environmental enforcement program is to change human behavior so that environmental requirements are complied with. Achieving this goal involves motivating the regulated community to comply, removing barriers that prevent compliance, and overcoming existing factors that encourage non-compliance Two broad approaches are used to change human behaviour:

- Promoting compliance thru education & incentives
- Identifying and taking action to bring violators into compliance

The Polluter Pays Principle Implementation Tools

(a) Performance Bonds -Industrial plants that produce highly dangerous or toxic substances & therefore have significant adverse impacts on the environment may be required to deposit bonds as security for good environmental practice.

(b) Environmental Improvement Notice - Improvement Notices may be issued by environmental inspectors under section 80(1)(i)¹⁸³ of Cap. 153 to require a person to cease activities deleterious to the environment.

(c) Environmental Restoration Orders- Restoration Orders are issued under section 67¹⁸⁴ of Cap. 153 requiring a person to restore the environment, or to prevent a person from harming the environment. They may award compensation for harm done to the environment or/and levy a charge for restoration undertaken. Restoration Orders are issued by NEMA or a court giving the person a minimum of 21 days to restore what he has destroyed. Under Section 70(i) of the National Environment Act Cap 153, "where a person on whom an Environmental Restoration Order has been served fails, neglects or refuses to take action required by the Order, the Authority (NEMA) may with all the necessary workers and other officers, enter or authorize any other person to enter any land under the control of the person on whom that order has been served and take all the necessary action in respect of the activity to which that order relates and otherwise to enforce that order as may deem fit."

(d) Record Keeping and Inspections- Persons whose activities are likely to have a significant impact on the environment are required to keep records of the amount of wastes and by products generated by their activities and as to how far they are complying with the provision of the Act. Inspections are carried out by gazette inspectors who have very wide powers under the Act e.g to take samples, seize any plant equipment or substance and close any facility or issue improvement notices.

(e) The Use of Criminal Law & Community Service Orders -Criminal law remains a veritable instrument for the control of behavior because of the natural tendency of people to fear the infection of pain, isolation or economic loss. Therefore, the Act provides for serious penalties for infraction of its provisions. As an

¹⁸³ National Environment Act

¹⁸⁴ National Environment Act

alternative to imprisonment and fines, persons committing environmental wrongs may be required to perform duties in the community as a reparation to the community for the wrong done.

Waste Collection (Management)

Solid-waste management is a challenge in many cities, especially in low-income countries, including Uganda. Simple and inexpensive strategies such as solid-waste segregation and recycling have the potential to reduce risks associated with indiscriminate waste management. Unfortunately, these strategies have not been studied and adopted in slums in low-income countries. This cross-sectional qualitative study, therefore, used the behavioral-centered design model to understand the drivers of recycling in Kampala slums. Data were coded using ATLAS version 7.0, and content analysis was used for interpreting the findings. Our findings revealed that the study practices were not yet habitual and were driven by the presence of physical space for segregation containers, and functional social networks in the communities. Additionally, financial rewards and awareness related to the recycling benefits, and available community support were found to be critical drivers. The availability of infrastructure and objects for segregation and recycling and the influence of politics and policies were identified. There is, therefore, need for both the public and private sector to engage in developing and implementing the relevant laws and policies on solid waste recycling, increase community awareness of the critical behavior, and create sustainable markets for waste segregated and recycled products.

Waste Management (WM) in Uganda is a decentralized function vested in local governments which oversee collection, transportation and disposal. However, inadequacies in the stages of waste collection, disposal, and recycling have compelled the majority of the city, municipal and town authorities to adopt a Public Private Partnership (PPP) approach to WM by crowding in (informal) waste collectors, private recycling, upcycling and WM companies. Kampala grew from a colonial and royal resting place, achieving municipal status in 1950 and becoming a city in 1962. For 59 years, it was the only city in Uganda.¹⁸⁵ Due to population growth and urbanization, the Government of Uganda (GOU) approved 15 new cities along with new municipalities and town councils in 2020. Out of the 15 approved cities, seven cities are now funded and formally

¹⁸⁵ Kampala Solid Waste PPP Project <https://disclosure.pppunit.go.ug/project/14/kampala-solid-waste-management>.

operational, while eight are pending. The operational cities include: Arua, Gulu, Mbale, Jinja, Masaka, Mbarara and Fort-portal. Under the aforementioned cities are 22 municipalities, 174 town councils and 204 town boards spread across the country. The municipalities which present the biggest potential for waste and recycling are those located within the Greater Kampala Metropolitan Area (GKMA). It is the catchment area of the “Waste Collection and Management Master plan” which targets to manage municipal waste generated in Greater Kampala Metropolitan through efficient collection, transportation, treatment and safe disposal. WM in most urban areas in Uganda is characterized by non-separation of waste at both source and final disposal. Most of the waste is not satisfactorily collected or disposed. The municipal authorities are inadequately equipped and financed to execute their mandate of providing WM services. According to Kampala Capital City Authority (KCCA), Kampala generates between 2,000 and 2,500 tons of waste per day but is only able to collect and dispose an average of 1,300 to 1,500 tons per day. This implies that approximately 50% of the waste is uncollected or improperly disposed. Such waste remains a prime environmental concern in Uganda because it is a major cause of ungazetted waste dumpsites in all the five divisions of Kampala and Greater Kampala Metropolitan area¹⁸⁶.

With the foregoing, KCCA has taken steps to improve the WM services by engaging the private sector through a PPP framework to promote efficiency in waste collection, disposal, recycling and up-cycling. KCCA collaborates with World Bank / International Finance Cooperation (IFC) to improve efficiency of WM by financing a new landfill located in Ddundu, Mukono District. This is due to replace the exhausted land fill at Kiteezi. In order to tackle the problem of waste generation, Deutsche Gesellschaft für Inter-Snationale Zusammenarbeit (GIZ) GmbH in Uganda ¹⁸⁷follows the circular economy approach and advocates for behavioral change, policy change and recycling for more sustainability in the sector.

Recycling

The recycling sub-sector in Uganda is majorly private sector driven, the recycling value chain is comprised of mainly plastics, paper, organic and metal recycling sub-sectors. However, the recycling sub sector is heavily reliant on informal waste pickers, who collect, sort, store and sell the waste to recycling hubs for

¹⁸⁶ Sector Brief Uganda – Waste and Recycling GIZ 2023

¹⁸⁷ KCCA Waste and Management Sector Overview.<https://www.kkca.go.ug/>

onward conveyance for processing. This is prevalent with PET plastic waste, metal and paper waste. To a very small extent, organic waste is being processed into compost and in-waste-to-energy by small and medium enterprises (SMEs) and cottage industries. In collaboration with the National Enterprise Cooperation (NEC), the National Environmental Authority (NEMA) launched the e-waste management center in 2021. The center aims to collect, sort, dismantle and dispose e-waste in a sustainable way, it is expected to progress into a recycling facility.¹⁸⁸

The National Water and Sewerage Cooperation (NWSC) is the leading Government agency that provides water and sewerage services. As part of sewerage management, it processes fecal sludge into organic fertilizer and carbonized briquettes. The recycling sub sector in Uganda has until recently been characterized by low mechanization and value addition. This presents significant opportunities for investment, trade, technology transfer, and job creation. China, India and Turkey have the current leads in foreign investment, technology transfer and trade in semi-processed plastic waste. They provide offtake opportunities for recycling factories in Uganda. One example is Acacia Foundation Limited, a Chinese led company that has one of the largest plastic recycling plants in Uganda.

Up cycling

Up cycling refers to activities that change “old” products and give them a second chance at life as something new. The ultimate result is a “new product” with a higher value than the original due to the creative mixing of used materials, components, and products. In some instances, up cycling refers to creatively repurposing or altering materials or objects and extending their useful lives in the process. Although up cycling is not a recent phenomenon, it is becoming increasingly popular as consumers become more ecologically mindful of their purchasing decisions.

Up cycling is mostly discussed in relation to old clothing and furniture, but a lot more materials can be up cycled. You’ve probably heard the term “up cycling” before, but you may still be unclear about what it is and how it differs from recycling methods. We’ll address some of the most important points about up cycling here.

Ugandan start-ups are leading the charge in up cycling banana waste into innovative products, transforming the nation’s circular economy. With 11 million tons of bananas produced annually, companies like TexFad,

¹⁸⁸ ibid

Nsenene, and Green Heat are unlocking the potential of the 70% waste banana production produces. TexFad creates banana fibre products such as carpets and hair extensions, while Nsenene focuses on biodegradable packaging made from banana leaves. Green Heat converts the waste into cooking fuel briquettes, reducing deforestation.

Banana fibre offers a wide range of economic and ecological advantages. In addition to creating banana fibre carpets, local artisans are experimenting with turning the fibre into biodegradable hair extensions and cotton-like textiles suitable for apparel and the fashion industry. The fibre is also being developed into vegan leather, while by-products are carbonized into charcoal briquettes for clean energy. These innovations not only contribute to a greener economy but also support job creation among Uganda's youth through vocational training, skills development, and business incubation.

Uganda is not the only country where up cycling waste streams takes hold. Banana-based products like 'Banofi' banana leather, developed by Kolkata-based Atma Leather, are making waves in the global market. By up cycling banana crop waste and transforming it into fibres, companies like Atma Leather are providing a premium plant-based material that consumes 90% less water and produces 90% less CO₂ compared to animal leather. Fruit waste is increasingly being transformed into vegan leather for the fashion industry, contributing to cruelty-free, sustainable materials and reducing waste and pollution.

A polythene bag is a type of plastic textile made of thin, flexible, plastic film. These are commonly used for packaging, containing and transporting goods such as foods, and produce around Uganda and are often disposed of anywhere.

Reform Africa¹⁸⁹ employs over 100 single mothers and youth who are paid to collect polythene bags from several dumpsites and landfills around Kampala, a city of 3 million residents.

Every week the women at Reform Africa collect around 50 tons of polythene bag waste. After collecting, the women sort and wash the bags getting rid of any dirt and mud before drying them in the sun. When the material is ready, with a unique technique, it is tailored into fashionable backpacks, shopping bags, cross bags or smaller toiletry kits that are sold to potential customers

¹⁸⁹ www.reformafrika.org.Erstellt mit wix.com

The enterprise is promoting a cleaner and plastic-free environment while providing formal employment opportunities for women and youth. It is one of the many enterprises involved in the plastic waste collecting, up cycling and recycling business in Uganda. These have created numerous job opportunities for marginalized groups, including women and the majority of unemployed youth.

However, not all has been smooth sailing for the enterprise. Ignorance among the general public about the advantages of plastic recycling and the dangers of plastic pollution are some of the reasons for less customer acquisition and low sales of recycled bags. The enterprise plans on engaging in online marketing and sensitizing people about plastic pollution.

countries endorsed a historic resolution to end plastic pollution and forge an international legally binding agreement by 2024. The resolution addresses the full lifecycle of plastic, including its production, design and disposal.

“Today marks a triumph by planet earth over single-use plastics. This is the most significant environmental multilateral deal since the Paris accord. It is an insurance policy for this generation and future ones, so they may live with plastic and not be doomed by it,” said Inger Andersen, Executive Director of UNEP in a statement.

The plastic waste problem remains a major crisis for Africa’s growing economies. According to United Nations Environmental Programme, sub-Saharan Africa alone produces over 17 million tonnes of waste annually, only 12 percent of the region’s plastic waste is recycled. The ever-growing population, rapid urbanization, as well as the weak, are some of the reasons for the plastic waste crisis.

Uganda’s disposal, recycling and waste management systems remain inefficient, with 70 per cent of plastic and non-plastic waste ending up in landfills, sewers, and water bodies. The government has put in place necessary laws to regulate the use and disposal of plastic waste.

According to the Uganda National Environment Management Act 2019, section 76 stipulates that a person who imports or manufactures plastics shall as a precondition for continued operation; ensure that recycling is part of that person’s active operations; label the plastics or plastic product, and put in place a mechanism that is satisfactory to the Minister to buy back or remove from the environment plastic and plastic products.

However, implementation and enforcement of this law remain a pipe dream and environmentalists argue that there is no political will to see it through.

Brenda Ntambirweki, a Research Fellow at [Advocates Coalition for Development and Environment](#) which is a member of Uganda's green economy coalition, says that in the wake of Covid-19, Uganda needs decisive policy action aimed at tackling plastic waste pollution and management.

While countries like Kenya and Rwanda have succeeded in banning single-use plastic bags, Uganda is yet to implement the same. In 2018, Uganda's President Yoweri Museveni banned single-use plastic bags but enforcement of the measure was never effected.

Robert Tumwesigye, the Director at Pro-Biodiversity Conservationists, a local environment group, says that there is a lack of political will to enforce the total ban on single-plastic use in Uganda, even when the environmental impacts are already being felt.

"There is no silver bullet to solving the problem of plastics waste in Uganda. It has to be a top-down approach," he says. "Interventions are needed at every stage of the plastic lifecycle: from production to disposal, waste management, recycling and to transitioning to a circular economy approach."

Across Africa, plastic pollution threatens marine life, and human health and contributes to climate change. According to the new report from [the Intergovernmental Panel on Climate Change](#)¹⁹⁰ plastics remain major contributors to greenhouse gas emissions that are responsible for global warming and climate changes. The report estimates that the carbon contribution of the plastic industry could rise to 2.8 gigatons of carbon dioxide per year by 2050.

Plastic bags are resistant to many natural processes of degradation which makes them harmful to the environment. Even when they break down-a process known as photo degradation, chemical and harmful substances get released into the highly toxic environment. These toxic pollutants cause land and water pollution. Open burning of plastic waste which is common in many African countries is a major source of air pollution. Burning plastics releases black carbon that has a global warming potential up to 5,000 times greater than carbon dioxide.

¹⁹⁰ Climate change 2022: Impacts, Adaptation

In the marine environment, animals are killed every year by plastic bags which they often mistake for food. Early last year, thousands of tons of dead fish washed up on the shores of Lake Victoria- Africa's largest freshwater ecosystem, that Uganda shares with Kenya and Tanzania. The phenomenon scientists have blamed on increased levels of plastic waste that is choking the lake. As countries across the world gear up for this year's COP27 summit in Egypt, climate campaigners have tasked governments to place plastic at the center of the agenda since the global plastics industry is the fifth-largest emitter of greenhouse gases on the planet, behind the US, China, India and Russia.

According to Dr Akankwasa Barirega,¹⁹¹ the Executive Director at NEMA, the amount of plastic waste generated in Uganda overwhelms the urban authority's capacity to collect and dispose of given the enormous resources involved. "Plastic manufacturers have the responsibility to collect the plastics from the environment. NEMA will soon will up with punitive express penalty fines for companies whose plastics are widespread in the environment," he says. NEMA also wants urban authorities nationwide to criminalise common littering by persons and institutions.

Uganda recently launched the country's first-ever green growth report for the year 2020, entitled: "Stimulating resource use efficiency in manufacturing and waste management for sustainable development". The report reflects Uganda's progress towards implementing its Green Growth Development Strategy which was developed to operationalise broad green growth principles emphasized in the global Agenda 2030. The strategy seeks to achieve inclusive, low-emission economic growth that prioritizes the efficient and sustainable use of natural, human, and physical capital. The report highlights that greater public awareness of waste management is still required as well as greater gender awareness so that women and young people are encouraged to take part in green jobs and growth initiatives. "Now is the time for investments, and innovations in waste management so that Uganda can build back from the Covid-19 pandemic greener and more resilient," said Hon. Beatrice Anywar Atim, Minister of State for Environment at the launch of the programme.

The market segments in the waste and recycling sub sector are segregated according to different waste streams:

¹⁹¹ Barirega Akankwasah PhD Executive Director at National Environment Management Authority NEMA visited by researchers on April (2022)

Types of Wastes

1. Low-Density (LD) and High-Density (HD) Plastic waste: Low density and high-density plastics are on high demand among plastic recyclers in Uganda. Low density plastics are recycled into products such as nursery bed pouch bags, carry bags, garbage bags, dump course sheets, post-harvest drying sheets, bricks, pavers, roofing tiles, granules for export, etc. High density plastic waste is typically recycled into jerry cans, basins, buckets, conduit pipes, and granules for export. LD and HD plastic waste saw a rise in demand between 2018 and 2021 when China stopped importing recycled plastics from Uganda. Most recyclers turned to LD and HD plastics as promising business opportunity because it could be easily absorbed locally.
2. PET Plastics: PET Plastics recycling is the leading sub-sector in Uganda, with up to 600 metric tons of plastic waste generated daily, however only 6% of plastic waste is collected. The emerging plastic recycling sector has since led to the establishment of the Uganda Plastics and Manufacturers and Recyclers Association (UPMRA) in 2010, the association aims to sensitize the masses through campaigns on proper waste disposal. The association is the voice for the plastic recycling sector and advances member interests. It works with public and private agencies to develop the sector. Some of the leading private sector players include Plastic Recycling Industries Limited (owned by Coca-Cola Beverages Uganda), Nile Plastics, AK Plastics and Dunia (owned by Mukwano Group). In Kampala alone, there are over 3,000 informal waste recyclers. The notable businesses include Eco-plastile limited, Pipeline Designs & Foam Industries Limited, Aquila Limited and other small & medium enterprises recycle plants.¹⁹²
3. Organic Waste: Uganda produces 10 million tons of banana (matooke) waste, making it a large chunk of organic waste generated in the GKMA. This waste is being turned into manure/ fertilizer and other products. Several SMEs have ventured into this enterprise, notable among them are Green Bio Energy, Bikuta traders and Marula Proteen. These players enter into agreement with KCCA to collect waste from markets and roadsides and process it into different products (organic manure, briquettes, and insect protein for feeding livestock and fish). Marula Proteen Uganda Limited's products meet international standards and offer a viable alternative to traditional chemical fertilizers that can be harmful to the environment and human health.

¹⁹² Uganda Plastic and Manufacturers and Recyclers Association <https://upmra.org/>

4. **Fecal Sludge:** NWSC is the leading agency managing the fecal sludge value chain in Uganda. It leads the collection, transportation and processing of human waste to compost. The compost is sold to clients who apply it to trees, flowers and grass. It is not yet authorized to be introduced to the human food chain due to the risks involved. It is notable too, that only 1% of the urban population in GKMA have access to central sewage collection and management system, the majority of residents in Kampala and other cities across Uganda rely on on-site human waste disposal and private sector-driven retrieval.¹⁹³
5. **Paper Waste:** Due to an increased demand for paper in organizations, industries, hospitals, and schools, Uganda's paper market is worth over 500 Billion UGX (equivalent to Euro 130 Million based on consumption of 7kg per person per year). The sharp increase in population denotes further growth in demand for paper. Several SMEs and cottage industries have ventured into paper recycling, while waste pickers collect wastepaper and sell it to established companies for processing. Foreign companies from India and China are dominant in the paper recycling sector.
6. **Steel recycling:** Over 10,000 people in Uganda earn a living from steel recycling, with the supply chain serving both local artisans and established steel rolling companies. An estimated 4,000 tons of steel waste is recycled monthly to make construction materials, particularly, steel bars. Tembo Steels is one of the leading steel recyclers in Uganda. The number of steel recyclers has caused a spike in demand for scrap steel, which compels micro waste collectors to engage in vandalism of steel from utilities, rails, signposts etc.
7. **E-waste:** The generated E-waste in Uganda was estimated at 17,000 tons / year in 2018 and is projected to rise 4,500 tons per annum. E-waste is sorted and dismantled in the short run, with a long-term view of progressing towards refurbishment and recycling. This is done at the e-waste management center, located in Kampala's Industrial Area under the management of NEMA and NEC.

Drivers of waste recycling in Uganda

Uganda's steps toward a green and circular economy is enshrined in Uganda's vision 2040 that provides the foundation for sustainable management of the environment. It aims to leverage strategic opportunities and use them to catalyze higher returns across all sectors of the economy. The identified opportunities include

¹⁹³ National Water and Sewage Cooperation. <https://www.nwsc.co.ug/>

among others, waste management. Uganda's National Planning Authority (NPA), in collaboration with the MWE and with the support of the GIZ Natures programme, developed the country's first Green Growth Report under the theme "Stimulating resource use efficiency in manufacturing and waste management for sustainable development". The Uganda Green Growth Report confirms that Uganda is making progress in transitioning from depletive and polluting production to a restorative and circular economy. The report highlights key observations in Uganda's green growth progress between 2017–2020, emerging issues, as well as challenges. It also strengthens the opportunities for scaling up green manufacturing and waste-to-wealth activities and mentions policy concerns. It moreover identifies, documents and reports lessons learned as ways to strengthen the activities required to achieve sustainable manufacturing and waste management in Uganda. This transition to a circular economy is also reflected in the National Development Plan (NDP III), where Uganda recognizes the benefits of a circular economy (CE) which acknowledges waste as a resource born out of industrialization and urbanization. The Government of Uganda recently adapted the climate change Act (2021) and is committed towards the National low carbon industrialization strategy. Uganda recently launched the Green Economy Recovery Plan, under the Ministry of Finance and Economic Development (MoFPED). It provides directions for approaching the challenges of the country's COVID-19 recovery and climate change. Furthermore, it lays the focus on green projects ranging from climate-smart agriculture to greening Uganda's cities and the industrial sector. The plan gives special attention to waste and fecal sludge management. The drivers for the transition to a greener and more circular economy in Uganda include job creation, investment opportunities in low-carbon industrialization, and engagement of the private sector for increased uptake of opportunities in the Waste Management space. This is strengthened by Uganda's Green Growth Development Strategy (UGGDS) under the NPA. The strategy operationalizes the global agenda on climate change and green economy. The UGGDS focuses on catalytic investment in areas that include increased private sector participation in the green economy, raising awareness and designing opportunities for private sector investment in waste management. Business opportunities in waste management Opportunities for businesses and investors are constantly growing. New technologies appear in Uganda and methods of waste management are introduced. Below are some business opportunities that fit Uganda's context. Establishment of a glass recycling industry in Uganda

Recycling PET flakes into various products: Recycled PET flakes are required to solve the input challenge of businesses which make final products such as yarn/ fibre, wood-plastic composite and PET packaging. There is a strong opportunity of establishing an outfit that helps mop PET plastics churned out into the environment every day.

Blending plastic waste to make and repair roads: There is an opportunity to work with cities and municipal councils in Uganda to blend plastic waste with bitumen in road construction and repairs. The funds consumed annually for repair and paving of new roads are projected to increase annually in the new local administrative units. This business model of mopping up huge amounts of plastic waste has been piloted in India and South Africa.

Bio fuels: There are initiatives to use organic waste like saw dust, agro-waste or fecal sludge to make biogas and briquettes for domestic and industrial use. The fecal sludge innovations for fuel (briquette manufacturing) have been explored by NWSC. This is also a potential area for investment.

Financing and investment: Financing / equity to waste and recycling SMEs with innovative and scalable business models. The companies listed below in the section of examples of business models present potential for financing and investment.

Construction, housing and furniture manufacturing: There is an opportunity to invest in the plastic recycling sector targeting affordable housing in Uganda to solve the deficit. A blend of plastic waste with saw dust or organic fiber (which can be obtained from abundant banana agro-waste) can be used to make doors, panels for house construction and furniture. A PPP with the Government can be explored to provide such products for construction and furnishing of homes for the security forces, and government funded entities.

Private sector cooperation: Supply of technologies (machinery, equipment and knowledge transfer) PPP with NWSC for processing sludge waste into fertilizer

Manufacturer driven waste collection: There is a growth in the “Extended producer responsibility”. Riding this tide to investment in the waste collection and conveyance supply chain is an area of interest. Replicating this model from the developed countries. This presents an investment opportunity in the circularity of the beverage and packaging industry where sustainable and dignified jobs are created in the value chain.

Environmental crime

Environment means the physical factors of the surroundings of human beings, including land, water, atmosphere, climate, sound, odour, taste, the biological factors of animals and plants and the social factor of

aesthetics and includes both the natural and the built environment¹⁹⁴. Environmental crime is an illegal act which directly harms the environment¹⁹⁵. It covers the amount of activities that breach environmental legislation and causes significant harm or risk to the environment, human health or both¹⁹⁶

The term environmental crime covers not only the illegal trade in wildlife, but also forestry and fishery Crimes, illegal dumping of waste including chemicals, smuggling of ozone depleting substances and illegal mining.¹⁹⁷

The environment provides the very foundation of sustainable development, our health, food security and our economies. Eco-systems provide clean water supply, clean air and secure food and ultimately both physical and mental well-being. Natural resources also provide livelihoods, jobs and revenues to governments that can be used for education, health care, development and sustainable business models. The role of the environment is recognized across the internationally agreed seventeen sustainable development goals adopted in 2015.

However, the environment as the very foundation of sustainable development, peace and security is now at risk. The researchers state that environmental crime is vastly expanding and increasingly endangering the entire ecosystems, sustainable livelihoods and revenue streams to governments. Environmental crimes are no-longer restricted to iconic wildlife and rare wood species alone, they have become part and parcel of the larger global network of trans-national organized environmental crimes. Environmental crime in Uganda also include corporate crime in the forestry sector, illegal exploitation and sale of gold and minerals, illegal fisheries/fishing, trafficking in hazardous waste and chemicals and threat finance using wealth generated illegally from natural resources to support non-state armed groups and terrorism. Those who engage in environmental crime do so to meet either commercial or subsistence objectives and they include individuals, small independent groups and wealth generated illegally from natural resources to support non-state armed group and terrorism¹⁹⁸ those who engage in environmental crime do so to meet either commercial or

¹⁹⁴ Section 1 para (0) National Environment Act 1995 Cap 153

¹⁹⁵ <https://en.m.wikipedia.org/wiki>

¹⁹⁶ <https://www.europol.europa.eu/en>

¹⁹⁷ <https://wedocs.unep.org/>

¹⁹⁸ Agumwamba J.C. 1998 pollution and solid waste, management in Nigeria. (problems and issues environmental management) volume 22no 6 london

subsistence objectives and they include individuals, small independent groups, organized groups and corporate bodies¹⁹⁹.

Environmental crimes in the forestry sector include illegal trade in sandal wood, illegal logging, illegal trade in endemic flora, including bio-prospecting and bio-piracy; forest excisions, forest encroachment, illegal grazing, illegal forest fires, growing of bhang, and illegal charcoal making. Environmental crimes in the wildlife sector include illegal trade in wildlife and their products poaching, and illegal grazing. In the tourism sector, crimes include blockage of access to natural resources for local communities, aesthetic pollution, off road driving, destruction of marine, lacustrine and river ecosystems, and wastes pollution.

Crimes in the water sector include diversion of water bodies, water pollution, reclamation of wetlands and illegal development of riparian areas. Environmental crimes in the fisheries sector include illegal trade in ornamental fish, illegal fishing methods, illegal fish farming, illegal trawling and illegal fishing by foreign fisher folk. There are other environmental crimes in Uganda and these include hazardous wastes, and failure to comply with the provisions of the National Environmental Management Authority Act and its regulations. The researchers aver that Uganda faces many environmental challenges as it strives to create a sustainable future for its citizens. Conservation challenges in Uganda include high population growth, deforestation, lack of alternative fuel sources, and wildlife trafficking and expanded oil exploration in the unique Albertine Rift valley. Hence the essence of this study.

Environmental crimes encompass a broad list of illicit activities, including illegal trade in wildlife, smuggling of ozone depleting substances, illicit trade of hazardous waste, illegal, unregulated, and unreported fishing; and illegal logging and trade in timber. On one side, environmental crimes are increasingly affecting the quality of air, water and soil, threatening the survival of species and causing uncontrollable disasters.²⁰⁰

On the other hand, environmental crimes also impose a security threat to a large number of people and have a significant negative impact on the development and the rule of law.²⁰¹

¹⁹⁹ Silengo, M 1998 Environmental policy and practice in southern Africa A case of (Zambia Environmental policy and practice) volume 8 no 1 lusaka

²⁰⁰ www.unicri.it/topics/environmentalcrimes

²⁰¹ ibid

The level of organization needed for these crimes indicates a link with other serious offences, including theft, fraud, corruption, drugs, human trafficking, counterfeiting, firearms smuggling, and money laundering, several of which have been substantiated by investigations²⁰². A broad understanding of environmental crime includes threat to finance from exploitation of natural resources such as minerals, oil, timber, charcoal, marine resources, laundering, tax fraud and illegal trade in hazardous waste and chemicals, as well as the environmental impacts of illegal exploitation and extraction of natural resources.²⁰³

Environmental crime has in recent years received global attention due to its serious and deleterious impact on the environment and ecosystems, as well as on peace security and development.²⁰⁴

Environmental law in Uganda is body of ruled and regulations which have as their objective to protect the environment from pollution and the wasteful depletion of natural resources and ensure sustainable development. There is the proposition that the environmental has no been developed as a self-contained discipline, but has simply borrowed concepts from other areas of law²⁰⁵One result is undoubtedly a degree of incoherence but another is that; the objective of the protection of the environment is not always served by the legal mechanisms available, because these other areas are not developed with the particularly problems of environmental protection in mind.²⁰⁶

In Uganda, some of the widely known environmental laws are the Constitution of the Republic of Uganda, 1995; the National Environment Act, Cap 153; the Local Governments Act, 2015; and the Uganda Wildlife Act, 2000. The body of environmental law includes not only the text of these laws but also regulations, implementations and the judicial decisions that interpret this legislation²⁰⁷ Environmental law touches on practically every facet of society. It seeks to protect human health, manage natural resources and sustain

²⁰² *ibid*

²⁰³ The environmental crime crisis in a rapid response Assessment ed. Christian Nelleman(Nairobi and Arendal:GRID Arendal, UNEP)

²⁰⁴ <https://wedocs.unep.org>>

²⁰⁵ Twesigye Morrison Rwakakamba (2018); “How Effective are Uganda's Environmental Policies?” (Accessed on 27th January 2024).

²⁰⁶ Pierre Failler, Patrick Karani & Wondwosen (2020): “Assessment of the Environment Pollution and its impact on Economic Cooperation and Integration Initiatives of the IGAD Region;” National Environment Pollution Report – Uganda; University of Portsmouth, National Report Affiliation: BEA International.

²⁰⁷ Robert L. Glicksman (2019); “Environmental Protection: Law and Policy” Aspen Casebook; 7th edition; Wolters Kluwer Publishers

the biosphere.²⁰⁸ This is frequently done, among other ways, through laws that set standards for environmental planning, wildlife, plant, mineral resources, land use management and other activities that can affect the air, water and soil²⁰⁹ In general, the standards set forth in environmental laws can apply to either private parties or the government²¹⁰ These laws mandate certain pollution-reducing technology or limit the levels of pollution from power plants and factories.²¹¹ The National Environmental Management Authority (NEMA) applies only to the actions of the Ugandan government.

NEMA requires that the government undertake a comprehensive environmental impact assessment before it can proceed with projects that are likely to harm the environment.²¹² Taking this line of thinking to its logical conclusion, this study elicits the need to think and focus beyond simply beefing up enforcement effort to reduce the levels of environmental harm. There is need to know who the perpetrators are, and factors that are encouraging their involvement in environmental crimes, the information which may then inform the environmental policies and prevention strategies in the affected areas.

According to Nathanson (2022), all human activities have the capacity to create waste. Its the way these wastes are gathered, stored, and disposed of that can pose risks to the surroundings and to public fitness. As city populations grow and consumption patterns change, solid waste management (SWM) has become a growing global issue. As a result, the problems, and troubles of SWM seem of vast importance in developing cities. Demanding 2 situations that relate to waste tracking and strategic management are numerous. They

²⁰⁸ RHAMZ International & UNDP (2020); “An energy audit experiment to promote renewable energy in large institutions and households” Report submitted to UNDP, Retrieved from <https://www.ug.undp.org/content/dam/uganda/docs/2020/undp-ug-Energy%20Audit-%20Draft%20Report-2020.pdf> (Accessed on 2nd February 2024).

²⁰⁹ UNICEF (2021); “Water, sanitation and hygiene (WASH): Increasing access to safe drinking water, improved sanitation and hygiene practices” UNICEF Uganda, Retrieved from <https://www.unicef.org/uganda/what-we-do/wash> (Accessed on 28th January 2024)

²¹⁰United Nations, (2019); “UNEP Compendium on Human Rights and the Environment: Selected international legal materials and cases,” United Nations Environment Programme; Center for International Environmental Law. Retrieved from <http://wedocs.unep.org/handle/20.500.11822/9943> (Accessed on 2nd February 2024).

²¹¹ Uganda National Meteorological Authority (2022); “Daily Forecasts” Retrieved from <https://www.unma.go.ug/daily-forecasts/> (Accessed on 4th February 2024).

²¹² *ibid*

vary from rapid loss of biodiversity, depletion of natural ecosystems, unsustainable use of natural resources, depletion of nonrenewable sources, and over-exploitation of fishing resources mainly in the inshore areas

Article 254 of the Republic of Uganda 1995 as amended states that Parliament shall, by law provide for measures intended to;

- i) Protect and preserve the environment from abuse, pollution and degradation
- ii) Manage the environment for sustainable development and
- iii) Promote environmental awareness

This article stipulates the utilization of Uganda's natural resources shall be managed in such a way to meet the development and environmental needs of present and future generations of Ugandans and in particular the state shall take all possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution and other causes.

It is however important to note that in spite of these policy provisions, government commitment to environment is still questionable given the meager budget allocation to the environment sector in Medium Term Expenditure Framework and corresponding annual budget allocations. They depend on action relating to implementation, financing and budgeting providing personnel and human resources to do the job, and comprehensive and sustainable effort geared towards sensitizing the general public and convincing them to become custodians of their environment

The seriousness of and commitment to combatting environmental degradation therefore cannot be judged by the mere existence of laws and provisions in the constitution or law books.

Article 237(2) (b)²¹³ and section 44(1) of Land Act Cap 227 provides that natural resources such forest reserves are held in trust by the state government and local government to be reserved for ecological and touristic purposes for the common good of the people. This means that the government reserves the right to determine in what manner these resources are to be utilized. The fact that these resources are being openly encroached upon and depleted, with no reaction from the government who is the rightful owner therefore, reveals critical problems in responsible ownership, commitment and strictness in applying the law.

²¹³ The Republic of Uganda 1995 as amended

Environmental issues have been a common concern to all Ugandans for a long time but many environmental crimes go unnoticed or simply ignored or unabated²¹⁴ The researchers aver that a truck driver who illegally disposes gallons of unwanted waste on the roadside rather than taking them to a proper disposal site is often not considered as contributing to environmental crime. In the same regard a commercial horticultural farmer empties his tank of unwanted pesticides into a stream, without thinking of the great health risks he is exposing to humans and the environment. Many tourist hunters, shoot or even smuggle rare birds or animals out of the natural reserves but not arrested and charged²¹⁵ There are so many illegal loggers in the forests who have contributed to forest cover and resource decline and yet the climatic conditions in Uganda and elsewhere in Africa continue to deteriorate²¹⁶ Available evidence points to institutional conflict as well as growing structural weaknesses in enforcement agencies as major contributing factors²¹⁷ This is illuminated by the several agencies with conflicting authority and power to enforce different sections of the environmental laws²¹⁸ Such include the ministries of environment, agriculture, fisheries, forest services, and local authorities²¹⁹ Therefore because of lack of streamlined coordination, there are always conflicting inroads on who has what mandate²²⁰.

²¹⁴

Hardin Garrett (1968); “The Tragedy of the Commons.” *Science* 162 (1968): 1243– 1248

²¹⁵ United Nations, (2019); “UNEP Compendium on Human Rights and the Environment: Selected international legal materials and cases,” United Nations Environment Programme; Center for International Environmental Law. Retrieved from <http://wedocs.unep.org/handle/20.500.11822/9943> (Accessed on 16th February 2024)

²¹⁶ Senyonjo N. and Nabulime C. (2021); “Designing and Implementing Effective Chemical Management Partnership Projects through Collaboration of Government, Industry, Public Interest And Labour Organizations” Uganda Environmental Education Foundation, Kampala, Uganda.

²¹⁷ David Oduut (2021), “Brick Burning Threatens indigenous trees in Bukedea” *Daily Monitor* (29th January 2024), Retrieved from <https://www.monitor.ug> (Accessed on 316th February 2024)

²¹⁸ Bassi, Vittorio; Kahn, Matthew E. et.al (2021) “Pollution in Ugandan Cities: Do Managers Avoid It or Adapt in Place?” Policy Research Working Paper; No. 9743. World Bank, Washington, DC. © World Bank. Retrieved from <https://openknowledge.worldbank.org/handle/10986/36054> (Accessed on 10th February 2024).

²¹⁹ *ibid*

²²⁰ 37 UNICEF (2021); “Water, sanitation and hygiene (WASH): Increasing access to safe drinking water, improved sanitation and hygiene practices” UNICEF Uganda, Retrieved from <https://www.unicef.org/uganda/what-we-do/wash> (Accessed on 28th January 2024)

In this report, the researchers argue that, although the legal and policy framework provides an important foundation for sustainable management of the environment, Uganda's lack of an institutional clearing house to mediate the conflicting rules and regulations regarding the management of the environment, Uganda's lack of institutional clearing house to mandate the conflicting rules and regulations regarding the management of the environment has contributed to the rising of environmental crime in the country.

Therefore, this book shows that despite the fact that Uganda has a number of laws and policies geared toward conserving the environment, natural resources continue to be encroached upon. The rate of depletion is growing at an exceedingly high speed, and as a result the majority of rivers, swamps, wetlands and other catchment areas have already been depleted. For Uganda, environment conservation is no longer just a matter of scenic beauty but a question of economic survival for both households and nation.

This book helps to improve and develop better research skills and will help them compel the Government to address the impact and prevention of environmental crimes.

The book will assist in acknowledging environmental laws and policies put in Place in combating environmental crimes; the study is aimed at assessing the challenges in combating environmental crimes in Uganda. the study is carried out to understand and compare the different approaches used by the jurisdictions in the implementation of the environmental laws and combating environmental crimes.

The main focus of crime analysts when using environmental criminology theory is to analyze the environment for factors that might encourage criminal activity. Such factors include lack of lighting, physical obstructions that prevent line of sight and natural surveillance, and a lack of control of through traffic.

The classical theory of criminology states that individuals have free will and therefore choose to commit crimes. The main tenet of the classical theory states that punishment for a crime should be significant enough to prevent the criminal from committing it again and further dissuade others from committing it as well. It supports tough laws, longer prison sentences, and argues that a legal system should correct the flaws within a criminal's free will. The writings of Beccaria and later Jeremy Bentham in the Encyclopedia of Criminology

Theory :2014 established the criminal justice system of today, including the court systems, police, and correctional facilities.

This book is based on deterrence theory that is Thomas Hobbes, Deterrence theory, (2010). It is based on the argument that statutory provisions including national and regional laws should give clear guidance on the criminal laws and evidence of combating wildlife trafficking.

The proponent of deterrence theory argues that society may choose to obey or violate laws based on the capacity of punishment. Thomas Hobbes posits that humans are rational enough and their self-interested nature would lead to crime.

Environmental crime is a complex and ambiguous term for several reasons²²¹. According to Clifford & Edwards²²² it is sometimes used as an umbrella term for crimes related to biodiversity, wildlife, animals, natural resources, hazardous waste, banned substances, and environmental quality, but scholars have also developed typologies to capture the unique dimensions of each form of environmental crime. They continued to state that disagreements regarding whether to distinguish violations of environmental laws (addressed via civil prosecution or administrative actions) from environmental crimes (criminally prosecuted), and whether to also consider environmental harms (legal activities that harm the environment) or environmental risks produce further confusion. Given the complexities of this area of study, scholars have developed and/or tested a wide range of theoretical perspectives on and interventions to address environmental crime. Consistent with conceptual disagreements, these theoretical frameworks and corresponding interventions vary (arguably the most) based on whether the dependent variable is environmental crime (as defined by law), or environmental harm or risk defined using other criteria.

On the other hand, according to Moore & Luoma²²³, understanding and addressing environmental crime is extremely important. They stress that their impacts to the natural environment, including ecosystems, flora, and fauna, are often extensive and long lasting. These crimes also impact human health, causing birth defects and cancer among other health problems²²⁴. In addition, people living near polluted air, water, and

²²¹ Carole Gibbs: Environmental Crime @Pg 1

²²² (1998); Shover & Routhe, 2005

²²³ (1980); Peterson et al., 2003

²²⁴ Cohen, M.A. 2012: Sentencing the environmental criminal. In M. Clifford & T. D. Edwards (Eds.), Environmental crime (2d ed., pp. 265–284). Burlington, MA: Jones & Bartlett Learning.

land often report high levels of stress, citing concerns about family health and economic ties to the affected resources²²⁵.

Carole Gibbs²²⁶ in her writings analyses the different typologies developed by different scholars to capture the unique dimensions of each form of environmental crime. For instance, White and Heckenberg²²⁷ distinguish between the harms associated with “brown,” “green,” and “white” environmental issues. “Brown issues tend to be defined in terms of urban life and pollution (e.g., air quality); green issues mainly relate to wilderness areas and conservation matters (e.g., logging practices); and white issues refer to science laboratories and the impact of new technologies (e.g., genetically modified organisms)”.

According to Twesigye Morrison Rwakakamba in his Article entitled How Effective are Uganda’s Environmental Policies of 2008, He discussed the status of water catchments in four districts and stated that 11% of the wetlands, 5% of the forests, and 4% of the rivers and streams have been completely depleted. He further states that reasons for encroachment ranged from a need for farmland for crop cultivation to overgrazing. Poor methods of farming like bush burning and economic activities such brick laying along wetlands. Weaknesses in implementing existing laws and policies were detected, reflecting political interference and corruption. He states that encroachment was particularly strong in Ntungamo and Mbarara. The Nyamwamba River in Kasese, the Mugwanjura gravity flow scheme in Ntungamo and the river Rwizi in Mbarara were found to be experiencing drastic water reduction.

Environmental enforcement organizations make another set of distinctions²²⁸. For example, the INTERPOL Environmental Crime Programme has three key areas: biodiversity, natural resources, and environmental quality²²⁹. Crimes that impact biodiversity include illegal activities that remove flora and fauna from the natural environment; cruelty to animals; and illegal possession of wildlife, illegal trade, and exploitation²³⁰. Natural resource exploitation refers to illegal logging, mining, and fishing. Crimes related to environmental quality,

²²⁵ Gill, D.A. Picou, J.S., & Ritchie, L.A. (2011)

²²⁶ Carole Gibbs: Environmental Crime @Pg 2

²²⁷ (2014), Green criminology: An introduction to the study of environmental harm. New York: Routledge @Pg 69

²²⁸ Supra n12

²²⁹ White R (2016): Building Nests to combat environmental crime networks. Trends in Organized Crime, 19, 88–105.

²³⁰ Nurse, (2015); Wellsmith, 2011

such as air pollution, soil contamination, and the illegal disposal of hazardous waste or banned substances are considered pollution crimes.

Agunwamba J.C states that the African general public attitude towards environmental protection is poor²³¹ the researchers opine that in Uganda ,the structural problems of poverty and unfavorable social attitudes can militate well inter- tuned efforts in environmental protection . the general Lack of information to the public due to insufficient institutional support for sustained research and monitoring compounds the situations. Public involvement in environmental protection can act as a good spring board for the success of the implementation of environmental policy in Uganda.

Silengo .M argues that lack of political will has been recognized as the main reason for non-implementation of good environmental regulations in many developing countries²³². He further asserts that commitment to the same as expressed in the policy documents should fully support initiatives to protect the environment²³³ The researchers agree with Silengo and note that currently, this is lacking in Uganda, as the country is battling with other problems such as terrorist attacks from ADF, drought, HIV/Aids, impact of Covid-19 and so on.

Attention has been lifted from environmental issues for more pressing problems and this has consequently affected Uganda environmental policy implementation.

Hardin Garrett set his argument on the parable of herdsmen sharing a common pasture who are led by rational decisions of optimizing personal gain and ended up destroying their shared resource²³⁴. He recommends adoption of mutual coercion, mutually agreed upon which is to the effect that society should come up with stringent measures which hold persons accountable for their actions. The researcher agrees with this argument because if humanity is governed by freedoms only and no coercion; the prevalence of law.

²³¹ Agumumbwa J.c 1998 Pollution and solid waste Management in Nigeria. (Problems and Environmental Management volume) 22n no. 6 London pp 849-856

²³² Silengo M (1998) Environmental policy and practice in southern Africa a case af Zambia Environmental polict and practice volume 8 no 1 lusaka pp27-31

²³³ ibid

²³⁴Hardin Garret (1968) the tragedy of commons science 162 1968 1243-1248

Barirega Akankwasah argues that; Lack of enforcement legal provisions and lack of institutional capacity to implement their rules negates all efforts of environmental policy..."²³⁵ the researchers note that for proper implementation of these policies, there needs to be legal and institutional frameworks in place. This is a must as poor funding of policy objectives implementation is one of the serious problems affecting environmental management efforts in Africa and Uganda is no exceptional.

Due to economic depression in Uganda; Ugandan government allocates little funds towards environmental protection. Despite donor funding, the finances are not adequately sustainable. This discourages efforts made to protect the environment through the proposed policy instruments. On the other hand, corruption and misuse of public funds, a characteristic of Uganda government has aggravated this problem further. A major rethinking is required for successful implementation. More emphasis is being directed towards private sector involvement.

Christopher Morris believes that the scale of man actions constitutes its most destructive quality. That the less violent man made changes ,the greater the probability of successful preservations of the eco-system²³⁶The researchers agree with this assertion because they believe with every choice that humans make, there is always a consequence. Better choices breed better consequences. The researchers however criticize this perspective because it does not directly address the ways in which consumption contributes to environmental problems²³⁷. The researchers argue that the environment is in some form of homeostasis and is constant. Nature, when disturbed from its perfect state is capable of returning to it. This is a wrong assumption and Ugandans ought to move away from the myth that environment is constant and understand that it changes.

Julie Ayling posits that the cost of environmental waste should be borne by the person responsible for causing the waste²³⁸. This principle is a sanction aimed at deterring the commission of acts that are detrimental to the environment. The researchers agree with this principle because it holds offenders accountable for their actions. The various environmental laws in Uganda employ this principle through

²³⁵ Barirega Akankwasah PhD Executive Director at National Environment Management Authority NEMA visited by researchers on April (2022)

²³⁶ Christopher Morris (2012) *The Big Muddy*. (an environmental history of the mississippi and its people from hernando de Soto to hurricane Katrina) Oxford University Press

²³⁷ *ibid*

²³⁸ Julie Ayling *Harnessing: Third Parties of Transitional Environmental Crime Prevention* Cambridge University Press (2013) pp 340

imposing fines and punishments. However, it has a weakness. Enhancing the severity of punishment has little impact on the people who believe that they will not be apprehended for their actions²³⁹. The researcher agrees with this position as it is not new.

Robert Percival believes that disruptions of the natural order are not necessarily to be avoided ²⁴⁰. Robert argues that market systems contribute to the environment degradation because of many natural inputs into the production of goods and services²⁴¹. The author further asserts that in the absence of government or legal intervention, the resources will be misused²⁴². The researchers agree with this argument because the government holds the interest of the public as opposed to the private and selfish individual interests. If the government, as the balancing factor doesn't intervene, then the environment is doomed.

According to Joshua S. Ebner, 2018 the global wildlife trafficking industry experienced an unprecedented growth since the 1990s which created varied and complex issues for law makers and warranted the establishment of the laws and regulation to control the acts against the wildlife which were skyrocketing. This helped the researchers to unpack and appreciate the mischief that legislation creating offenses and penalties for wildlife crime including wildlife trafficking sought to cure.²⁴³

Authors indicated that dealing with crimes against the wildlife like trafficking involves a collective effort from the different institutions surrounding enforcement. According to John Musinguzi, 2018 dealing with wildlife offenses requires the effort of the community that helps in the investigation and then one would need the buy-in of enforcement agencies such as police and customs, in order to address the causes and consequences of this phenomenon efficiently. This nonetheless included making the judiciary understand the seriousness, impact and potential profits of wildlife crime has had loopholes in Uganda. This helped the researcher under the other factors that deter the curbing of the wild life tracking amidst having a

²³⁹ Wilkie, D S and Painter M (2016) Rewards and risk associated with community engagement in anti-poaching and anti- trafficking US Agency of International Development Washington Dc.

²⁴⁰ Robert Percival, et al (2013), "Environmental Regulation: Law, Science and Policy" (1st edition, Wolters Kluwer Law and Business 2013) 10

²⁴¹ Wanyama, F et al. (2014) "Aerial surveys of the Greater-Virunga Landscape." Wildlife Conservation Society, Kampala

²⁴² *ibid*

²⁴³ Joshua S. Ebner, 2018

comprehensive law creating offenses, the penalties and the specific tribunal /court that adjudicates cases in regards to trafficking.

According to Mubatsi Asinja Habati “It is unfortunate that in our country, there is no law against the disposal of waste. When someone buys a soda or water in a plastic bottle, after drinking it, he simply throws it anywhere. Can you imagine most people who drink soda in taxis or private vehicles simply throw the used bottles out the windows?” he remarked. Often times the leaders of Kampala Capital City Authority have blamed the endless rain induced floods on poor disposal of plastics bottles which block drainage channels.

Now the Ministry of Water and Environment is moving to ban single use plastic bottles in packaging beverages. Instead the Ministry is advising soft drinks making companies to use glass bottles for their products. Government has given manufacturers of beverages up to 2024 to have abandoned single use plastic bottles in favor of glass bottles²⁴⁴.

An intricate issue caused by the excessive disposal of plastic waste in the environment and water sources is plastic pollution, (Earth Eclipse Staff, 2019). The issue has significant effects on the environment and public health. Since plastic pollution can be physically seen, this issue has drawn a lot of attention from international stakeholders, including scientists, policymakers, and notably the public and the media (Laura, 2019). Contrary to other contaminants in science history, this issue has received enormous attention, by Environmental protection Agency, 2022. New paradigms and comprehensive viewpoints have arisen to assess, investigate, and manage the plastic waste problem because of the problem of plastic and micro plastic contamination receiving more attention. This chapter provides an analysis of the relevant literature that is entirely grounded in contemporary study. The in-depth parts go into greater detail on issues that many students have brought up (EPA, 2022).

Rand et al, (2000) notes that one of the approaches to waste management is by separating or sorting waste generated and eventually using it for other form of production. Separating waste materials at the household level occurs to some extent almost universally, and prevents the most valuable and reusable materials from being discarded. Following in-home retention of valuable material, waste-pickers currently remove most valuable materials either before garbage enters the waste stream or en route, especially in the lower and middle-income areas of many municipalities. In Uganda sorting of waste has not been successful for unclear

²⁴⁴ Magazine, News Analysis Plastic Pollution Worries NEMA 2022

reasons (UNEP, 2006). Companies could help to divert many materials out of the waste stream. Since recycling materials is a financially viable undertaking, small enterprises have and will continue to spring up whenever there is an opportunity. In fact, the theft of source separated 17 recyclable materials has been documented in many pilot schemes in both developed and developing nations (UNEP, 2006). Municipalities should not only recognize the trade in recyclables, they should embrace it. By allowing small enterprise to address the problem, valuable funds are saved, jobs are created and landfill space is saved. Perhaps through micro-loans or some small-scale assistance, local governments could support and legitimize these entrepreneurs.

Johannessen (2009) asserts that recycling inorganic materials from municipal solid waste is often well developed by the activities of the informal sector although such activities are seldom recognized, supported, or promoted by the municipal authorities. Some key factors that affect the potential for resource recovery are the cost of the separated material, its purity, its quantity and its location. The costs of storage and transport are major factors that decide the economic potential for resource recovery. In many low income countries, the fraction of material that is won for resource recovery is very high, because this work is done in a very labor-intensive way, and for very low incomes. Recycling has the advantage of reducing costs of the disposal facilities, prolonging the site span.

In synopsis, environmental crimes refer to any illegal activities that cause harm to the environment, such as pollution, deforestation, wildlife trafficking, and illegal waste disposal.

These crimes have serious implications for both the environment and human health. To prevent environmental crimes, various monitoring approaches, innovative technologies, and compliance programs can be used. These approaches aim to deter individuals and corporations from engaging in such activities by increasing the risk of detection, prosecution, and punishment.

Overall, a combination of monitoring approaches, innovative technologies, and compliance programs can be used to prevent environmental crimes. By increasing the risk of detection and punishment, these approaches can deter individuals and corporations from engaging in activities that harm the environment.

The legal framework on environmental crimes in Uganda.

An environmental crime is any deliberate act or omission leading to degradation of the environment and resulting into harmful effects on human beings, the environment and natural resources. Environmental crimes include all violations of environmental laws attracting criminal sanctions.²⁴⁵

The regulation of activities that have or are likely to have a negative impact on the environment is the main province of environmental crimes. The law is anticipatory in that even attempts to commit an offence are regarded as bad as actual commission of criminal offences. Even where a violation of the Law may not necessarily result in any direct or immediate injury to person or property, failure to comply with the Law is an offence. In such cases, the Law seeks to guard against the danger or probability of injury or damage and thereby minimize it. This is especially true in areas of EIA, management of hazardous wastes and toxic chemicals and in Trans boundary movement of hazardous wastes.

Air pollution:

Air pollution refers to a situation where the air (atmosphere) becomes contaminated with other elements such as poisonous gases or solid particles.

Among the main drivers of air pollution in Uganda, open waste burning, biomass energy for domestic use (cooking and lighting), bush fires, mining, industrialization, as well as rapid urbanization²⁴⁶

In case of pollution or degradation violations (e.g. prohibition of water pollution, soil erosion) the condition of the area in question prior to pollution or degradation is not a factor in the considerations leading to conviction.²⁴⁷

The illegal dumping and trade of wastes has resulted in global contamination of air land water systems, and threaten local ecosystems, affecting animal and plants in addition to human health. The illegal consumption of chlorofluorocarbons and other ozone depleting substances fall under this category. Waste is uncontrollably

²⁴⁶ Research paper by Amin Tamale Kiggudu on Assessment of capabilities and gaps in urban Air quality management in Uganda.

²⁴⁷ Robert Wabunoba and Vicent Wagoona in their Handbook on the Environmental law vol . Mr Robert Wabunoba is the senior legal counsel at NEMA, Uganda and Mr Vicent Wagoona is a senior State Attorney with the DPP Uganda.

released into the environment, while at the same time, polluting rivers, lakes, aquifers. This is a serious crimes because not only does it cause the local wildlife to die, or get ill but also, as a result of water leaking into the soil, it finds its way to pollute the surrounding flora as we, affecting the food chain. ²⁴⁸

Water Act Cap 152

This act provides for the use, protection and management of water resources and supply; it also facilitates the devolution of water supply and sewerage undertakings.

Prohibition of pollution²⁴⁹.

A person commits an offence who, unless authorized under this Part of the Act, causes or allows -

- (a) Waste to come into contact with any water;
- (b) Waste to be discharged directly or indirectly into water²⁵⁰:

The poor communities around the lake dump solid waste directly into the water, while some solid waste pours directly into lake following the degradation of wetlands which previously filtered waste matter. For lack of toilets, some use buckets and polythene paper as lavatories which they keep waiting to dump in the drainages channels when it rains. This human waste and other garbage disposed of wrongly runs straight into fresh water lake choking it with pollutants. Thus having contaminated water flowing freely into L. Victoria.

Many wetlands have been encroached on, which are supposed to help filter the waste before it makes its way into the lake. Factories and industries too are dumping waste in Lake Victoria, hence worsening the already deplorable situation in the lake.²⁵¹

Dumping and illicit trading in hazardous wastes is in contravention with the 1989 Basel convention on the control of Trans boundary movement of hazardous wastes and other wastes and their disposal.

²⁴⁹ S 31 water act

²⁵⁰ S 31(1) water Act

²⁵¹ Daily monitor reported on Saturday march 25th 2017

Several criminal measures have been introduced in Uganda's legislation in order to achieve environmental goals. These may be divided into several aspects: prohibition, prevention, licensing and inspection, orders, restoration to previous conditions, penalties and public participation, among others.

(a) Prohibitions –

The prohibitions in the National Environment Act are absolute, dispensing of the need to prove intent or negligence. In case of pollution or degradation violations (e.g. prohibition of water pollution, soil erosion, the condition of the area in question prior to pollution or degradation is not a factor in the considerations leading to conviction. This makes the burden lighter since it is a form of strict liability offence. Examples here include; Waste management²⁵²,²³ for which the law provides that every person is under a duty to manage wastes generated by his establishment in such a manner that he does not cause ill health to people or damage the environment. It is also provided that every person is under obligation to treat, reclaim and recycle the wastes as a waste minimization measure. No person is allowed to dispose of wastes into the environment, unless he or she follows the law and established standards.

(b) Anticipatory Prevention

Environmental law is anticipatory, as it requires preventive measures to be taken prior to commencement of proposed activities. The provisions relating to environmental impact assessment, environmental audits and where damage has occurred, the "polluter pays principle" plays the role of ensuring that anticipated modification or any modification of the environment does not adversely affect the environment. In environmental impact assessments, the criminal implication is that failure to submit or creates a criminal offence which can lead to 8 months' imprisonment or fine of not less than Ug. Shs.180, 000 and not more than Shs.18 million or both. Further, developing a project without an EIA is, per se, an environmental crime. The burden is on the developer to conduct and submit an EIA report. The obvious evidence in EIA related environmental crime is absence of an approval from NEMA and the developer's activity, for example, a building or farm.

(c) Permits and licenses

²⁵² Wastes are under section 2 of the National Environment Act as any matter which has been prescribed to be a waste

An especially effective means of ensuring compliance with environmental management regulations in the granting of licenses and permits by regulatory authorities, such as NEMA and other lead agencies. The law confers power on the regulatory authorities to issue, revoke or incorporate conditions in licenses and permits. As regards the criminal aspects of permitting and licensing, the very act of managing a project without a license or permit, even where no environmental damage has occurred, constitutes an environmental offence under the law.

Institutional frame work in Uganda

Between 1991 to 1994 the Government of Uganda developed a National Environment Action Plan (NEAP)²⁵³The NEAP provided a framework for addressing gaps in environment management as well as a strategy for integrating environment into the national socio-economic development.²⁵⁴ One of the outcomes of the NEAP was the formulation of the National Environment Management Policy (NEMP) of 1994. The overall Goal of the NEMP is sustainable social and economic development which maintains or enhances environmental quality and resource productivity on a long term-basis that meets the needs of the present generations without compromising the ability of future generations to meet their own needs. This policy goal has informed subsequent policies such as the 2004/5- 2007/8 Poverty Eradication Action Plan (PEAP) and the Plan for the Modernization of Agriculture (PMA).

The Policy provides strategies to guide and assist decision makers and resource users in determining priorities in the national context and also at the sectoral, private sector and individual level. It provides for integration of environmental concerns in national socioeconomic development planning process, avenues for inter-sectoral cooperation, and comprehensive and coordinated environmental management. As a result, environmental management is now a key criterion for national socio-economic development decisions.

The Policy also recognized the need for sectoral policies in addressing the specific concerns of the identified environmental sectors. It therefore provided a framework under which several sectoral policies were developed. These include the 1995 Water Policy, the 1996 National Wetlands Management Policy, the 1996 Wildlife Policy, the 2000 Fisheries Policy, the 2001 Forestry Policy and several district environment

²⁵³ National environment Action Plan NEAP will be revised after every five years or less see section 17-1 of the national environment act Cap 153 laws of Uganda 2000 Uganda law reform commission

²⁵⁴ National Environment Act section 182a

management policies from 2000 onwards. In addition, the policy provided a basis for the formulation of a comprehensive environmental legal framework under the 1995 Constitution and the National Environment Act.²⁵⁵ It also provided a framework for multi-sectoral approaches to resource planning and management of natural resources. These approaches found expression in the various environmental and development policies and in legislation such as the Uganda Wildlife Act,²⁵⁶ the Water Act,²⁵⁷ the Land Act,²⁵⁸ the National Forestry and Tree Planting Act,²⁵⁹ among others.

The constitution has provisions for enhancing conservation and management of the environment and natural resources. Objective X III of the National Objectives and Directive Principles of State Policy and Article 237(2)(b) of the constitution pronounce the public trust doctrine. The content and scope of this doctrine is being tested in the Government efforts to study possible change of land use for parts of the Central Forest Reserves comprised in Mabira Forest and Bugala Island in Kalangala district. It is envisaged that in the near future a public interest action may be filed in the courts to define this doctrine and the role of the state as public trustee. The constitution also enshrines a constitutional right to a clean and healthy environment in its Article 39. Civil society has used Article 50 of the constitution to enforce this right using public interest litigation.

The Regulatory Framework of Environmental Crimes in Uganda.

The development of environmental regulatory framework in Uganda was initiated by the national environmental action planning process in 1990, as realization that environment needed special focus. Following the 1995 constitution, a number of environment legislations were enacted and others were revised to take into account environmental cardinal principles and considerations including embedding in them environmental regulatory provisions.

The Constitution of the Republic of Uganda 1995

Uganda's 1995 constitution the supreme law of the country makes provision for protection of natural resources including land, water, wetlands, mineral, oil, fauna, and flora by the state on behalf of the people.

²⁵⁵ National Environment Act

²⁵⁶ Uganda Wildlife Act 1996 Cap 200 laws of Uganda 2000

²⁵⁷ Uganda Water Act Cap 152

²⁵⁸ Uganda land Act Cap 227

²⁵⁹ Uganda National Forestry and Tree Planting Act

Furthermore, General objective XXVII mandates the state to among others promote public awareness of the need to prevent or minimize their damage by pollution, create and develop parks, reserves and recreation areas and, implement, environmentally sound energy policies, and rational use of these resources so as to ensure conservation for the current and future generations.²⁶⁰

The constitution has provisions for enhancing conservation and management of the environment and natural resources.

Article 254 of the Republic of Uganda 1995 as amended states that Parliament shall, by law provide for measures intended to;

- i) Protect and preserve the environment from abuse, pollution and degradation
- ii) Manage the environment for sustainable development and
- iii) Promote environmental awareness

This article stipulates the utilization of Uganda's natural resources shall be managed in such a way to meet the development and environmental needs of present and future generations of Ugandans and in particular the state shall take all possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution and other causes.

It is however important to note that in spite of these policy provisions, government commitment to environment is still questionable given the meager budget allocation to the environment sector in Medium Term Expenditure Framework and corresponding annual budget allocations. They depend on action relating to implementation, financing and budgeting providing personnel and human resources to do the job, and comprehensive and sustainable effort geared towards sensitizing the general public and convincing them to become custodians of their environment

The seriousness of and commitment to combatting environmental degradation therefore cannot be judged by the mere existence of laws and provisions in the constitution or law books.

²⁶⁰ Uganda wildlife society policy brief no 1 2018

Article 237(2) (b)²⁶¹ and section 44(1) of Land Act Cap 227 provides that natural resources such forest reserves are held in trust by the state government and local government to be reserved for ecological and touristic purposes for the common good of the people. This means that the government reserves the right to determine in what manner these resources are to be utilized. The fact that these resources are being openly encroached upon and depleted, with no reaction from the government who is the rightful owner therefore, reveals critical problems in responsible ownership, commitment and strictness in applying the law.

Environmental crime is generally used to describe any illegal activity that harms the environment. It can also have serious human health and social impacts. This outlines the different types of environmental crime and options for tackling them.

Environmental Crime The phrase "environmental crime" refers to a wide range of particular offenses including criminal activities or misdemeanors involving the sale of environmental commodities or damage to the natural environment itself, such as pollution of air, water, or earth. The acts taken frequently inflict harm not just to animals and natural habitats, but also constitute a direct or indirect threat to human health, well-being, and security, or result in pecuniary loss to a person or group.

Environmental crime refers to criminal acts that harm the environment by exploiting and/or destroying natural resources, water, air, and land, or causing damage to protected areas in order to profit groups or people.

Environmental criminals pose a grave threat to our everyday lives, our planet and to future generations. Borders do not restrict environmental crimes, which range from ivory trafficking and overfishing of protected species, to illegal logging and the dumping of hazardous waste.

The same routes used to smuggle wildlife across countries and continents are often used to traffic weapons, drugs and people. Indeed, environmental crime often occurs hand in hand with other offences such as passport fraud, corruption, money laundering and even murder.

Unlike the illegal trade in drugs and other illicit goods, natural resources are finite and cannot be replenished in a lab. As such, there is a sense of urgency to combat environmental crime.

²⁶¹ The Constitution of the Republic of Uganda 1995 as amended

Our Environmental Security Unit brings together member countries, international organizations, civil society organizations and the private sector.

We have four global enforcement teams (Fisheries, Forestry, Pollution and Wildlife) which help dismantle the criminal networks behind environmental crime by providing law enforcement agencies with the tools and expertise they need to protect the environment from being exploited by criminals.

They offer investigative support to international cases and targets, coordinate operations, assist member countries to share information and conduct analysis into environmental criminal networks.

Ocean Crimes

Our oceans are a key source of food and employment for millions of us around the world, but fish stocks are being depleted, making fish a valuable commodity. Organized, transnational criminal groups are increasingly turning to illegal fishing, which is threatening food security, and the economic, social and political stability of coastal nations.

The illegal activity does not stop at fishing - criminals use fishing vessels to traffic drugs and people, because their nomadic navigation patterns and long periods at sea make it easy for these vessels to blend into the maritime background without suspicion. Criminal networks also use the proceeds of large-scale commercial fishing to finance other illegal activities.

The criminals responsible for illegal logging and illicit timber trafficking are not just destroying biodiversity but they also threaten the livelihoods of those reliant on forest resources. For example, criminal land clearing can cause landslides and deny forest-dependent communities access to food, medicine and fuel.

Blue Economy

The Blue Economy describes the sustainable use and conservation of aquatic resources in both marine and freshwater environments. This includes oceans and seas, coastlines and banks, lakes, rivers and groundwater.

It comprises activities that exploit aquatic resources (fisheries, mining, petroleum, biotechnologies, etc.) or use aquatic environments (maritime transport, coastal tourism, etc.), once they are done in an integrated, fair

and circular manner. These activities help to improve the health of aquatic ecosystems by establishing protective and restorative measures.

Contributions of the Blue Economy vary by sector. For example, about 80% of the world's international trade is transported by water, 50% of international tourists travel to coastal destinations, and around 30% of the world's oil and gas production comes from offshore.

The Blue Economy concept includes recognition that the productivity of healthy freshwater and ocean ecosystems is a pathway for aquatic and maritime-based economies and can ensure that islands and other coastal countries, as well as land-locked States, benefit from their resources. It also requires an integrated, holistic and participatory approach that includes sustainable use and management of Blue Economy resources for societal progress in a diverse Africa.

The Blue Economy promotes the conservation of aquatic and marine ecosystems and sustainable use and management of associated resources and builds on principles of equity, low carbon development, resource efficiency, and social inclusion. The concept integrates the Blue Economy sectors through a socially inclusive process aimed at triggering structural transformation, promoting integrated development, and improved regional cooperation and coordination.

The EAC endeavors to ensure sustainable use of water resources for economic growth, improved livelihoods, and jobs while preserving the health of water ecosystems through economy coping with global water crisis; innovative development economy and development of marine economy.

Currently, the Lake Victoria Fisheries Organization (LVFO), an institution of the EAC based in Kisumu, Kenya, is implementing the E€OFISH programme in the EAC region in Lake Victoria. The overall objective of the E€OFISH programme is to enhance equitable economic growth by promoting sustainable fisheries in the East African-South African-Indian Ocean (EA-SA-IO) region.

The specific objective of the project is “to support sustainable management and development of fisheries in order to contribute to poverty alleviation, food and nutrition security while addressing climate change resilience and enhancing marine biodiversity”, thereby contributing to sustainable fisheries for the blue economy of the Eastern and Southern Africa and Indian Ocean regions.

Blue Economy covers all bodies of water, including lakes and rivers, in addition to seas, coasts and oceans. It thus includes land-locked States in, for example, the Great Lakes Region. The main sectors of the Blue Economy are traditional sectors such as fisheries, aquaculture, tourism, transport, and ports, as well as emerging sectors such as renewable energy and deep sea mining. These sectors do not function in isolation. This report highlights the importance of traditional and newly emerging Blue Economy sectors and the issues involved in their effective development in Eastern Africa. It also provides a deeper understanding of their potential, as well as the geopolitical dimensions associated with their access and management, and reviews potential climate-change impacts on the Blue Economy and sustainable natural-resource management in the region. The report further provides reflections on the necessary actions to build the foundations and enabling environment for a thriving Blue Economy in the Eastern Africa. It serves as a building block for further development of policies to support the Blue Economy.

Additional growth of the blue economy is possible in a number of areas, especially: fisheries, aquaculture, mariculture, coastal tourism, marine biotechnology, and ocean energy. While some of these sectors will require little encouragement and additional governance, others need more and better planning to achieve their full potential and return more sustainable outcomes. Ambitious governance reform supported by the World Bank in Morocco for instance, helped the country develop its aquaculture sector to generate jobs, especially for women, in rural areas where employment prospects are challenging. Providing technical knowledge of marine ecosystems, legal certainty and security to attract private investment have been key success factors in that instance.

Significant contributions of marine and freshwater ecosystems:

Food security, nutrition and health: Fish contributes over 16 percent of the animal protein consumed by the world's population and 6.5 percent of all protein consumed, with 1 billion people relying on this source of protein. Fish is also a particularly critical source of nutrition. Even in small quantities, provision of fish can be effective in addressing food and nutritional security among the poor and vulnerable populations around the globe.

Livelihoods: FAO estimates that fishers, fish farmers and those supplying services and goods to related industries assure the livelihoods of as many as 660–820 million people worldwide. In addition, women play a critical role in fishery supply chains – it is estimated that women account for 15 percent of people directly

engaged in fisheries and up to 90 percent of jobs in secondary activities (particularly in fish processing, whether in the formal or informal sector). Oceans and coasts also form the foundation for extensive employment in tourism - one of the top five industries in smallest island states.

Mitigation of climate change: Oceans constitute a major sink for anthropogenic emissions, absorbing 25 percent of the extra CO₂ added to Earth's atmosphere by burning fossil fuels. 'Blue carbon' sinks like mangrove forests, sea grass beds and other vegetated ocean habitats are up to five times as effective as tropical forests at sequestering carbon.

Homes and shelter: Roughly 40 percent of the world's population lives within 100 kilometers of the coast. Healthy coastal ecosystems provide protection from natural hazards, coastal erosion and rising sea levels particularly in small island developing states (SIDS) and low-lying, exposed delta regions.

Sustainable economic growth: A large number of developing coastal and island nations depend on tourism and fisheries for a significant part of their gross domestic product and public revenues. Aquaculture is projected to continue to grow rapidly and if done sustainably, can serve as a major source of food and a cornerstone of the blue economy. Advances in seaweed production hold promise for replacing fishmeal and animal feeds with plant materials produced with less pollution. Tourism, and particularly nature-based tourism, also provides an important path towards the sustainable development of marine and coastal ecosystems. Coastal tourism is a key component of small island state economies. The value of nature-based tourism is expected to increase over time as the supply of pristine natural assets declines while demand, which seems impervious to economic shocks, increases with rising GDPs.

Trade: Seafood is the most highly valued internationally traded food commodity in the world, with 36 percent of all fish produced exported in 2013-2014. At US\$139 billion in 2013, the export value of fish is more than double that of the next most traded commodity – soybeans. More than half of the fish trade originated from the waters of developing countries.

Challenges under mining Blue Economy

The potential to grow the blue economy is limited by a series of challenges. For much of human history, aquatic ecosystems have been viewed and treated as limitless resources and largely cost-free repositories of waste. These resources, however, are far from limitless and we are increasingly seeing the impacts of this

approach. The narrow coastal interface is oversubscribed by myriad sectors, and increasingly impacted by climate change. Rising demand, ineffective governance institutions, inadequate economic incentives, technological advances and insufficient management tools have led to inefficiently regulated or unregulated competition among users. This in turn has resulted in excessive use, and in some cases irreversible change, of valuable aquatic resources and coastal areas. In this increasingly competitive space, the interests of those most dependent and vulnerable (for example small- scale artisanal fishers) are often marginalized.

Most significant human impacts

Overfishing as a result of technological improvements coupled with poorly managed access to fish stocks and rising demand. The FAO estimates that approximately 57 percent of fish stocks are fully exploited and another 30 percent are over-exploited, depleted or recovering. Fish stocks are further exploited by illegal, unreported and unregulated fishing, responsible for roughly 11 to 26 million tons of fish catches annually, or US\$10-22 billion in unlawful or undocumented revenue.

Habitat degradation due largely to coastal development, deforestation, mining, and unsustainable fishing practices as well as pollution, in the form of excess nutrients from untreated sewerage, agricultural run-off and marine debris such as plastics. Coastal erosion also destroys infrastructure and livelihoods.

Climate change related phenomena -- both slow onset events like sea level rise and more intense and frequent weather events. Long term climate change impact on ocean systems is fraught with uncertainty, but it is clear that changes in sea temperature, acidity, and major oceanic currents, among others, threaten marine life and habitats.

Unfair trade: Exclusive Economic Zones (EEZ), zones in which a state has special rights over exploration and use of marine resources, are crucial to the economies of island states, and often dwarf their corresponding land mass and government's administrative capacity. (In Tuvalu, for instance, the size of the EEZ is more than 26,000 times that of the land mass.) Moreover, much of the value from international seafood trade does not remain in developing countries of origin, let alone in fishing communities.

Ad hoc development: Unplanned and unregulated development in the narrow coastal interface and near shore areas have led to significant externalities between sectors suboptimal siting of infrastructure, overlapping uses of land and marine areas, marginalization of poor communities, and loss or degradation of critical habitats.

Despite a range of actors and large investments, current attempts to overcome these challenges have mostly been piecemeal, with no comprehensive strategy (for example fisheries governance; improving ports; marine litter efforts). Even when one sectoral policy achieves some success, these results are often undermined by externalities from activities in another sector. Often, for example, coastal zone management efforts, or support to coastal fishers, are undermined by unbridled sand mining, ill-sited ports or aquaculture farms or unregulated tourism development. In coastal zones, declines in mangrove forest habitat resulting from wood harvest, sea level rise, and changes in sediment and pollutant loading from river basins combined with land reclamation for agriculture or infrastructure negatively impact fisheries by reducing or degrading spawning and feeding habitats. Loss of mangrove forests, for example, threatens profits from seafood harvests exceeding US\$4 billion per year. In Belize, mangrove-rich areas produce an average of 71 percent more fish biomass than areas with few mangroves.

A more systematic approach, based on a better understanding of nationally defined priorities, social context and resource base, can guide sustainable and inclusive blue growth. Countries increasingly recognize that they need more knowledge about the biophysical characteristics, carrying capacity, synergies or trade-offs between sectors to ensure an efficient and sustainable management of different activities. Marine and coastal spatial planning and integrated

maritime surveillance are needed to give authorities, businesses and communities a better picture of what is happening in this unique space. Digital mapping of maritime and coastal space and natural assets can form the basis for cross-sector analysis and planning in order to prevent conflicts and avoid externalities. Similarly, the growing science of data-limited stock assessments can provide critical information needed for improved fisheries management. In places such as South Africa and Indonesia, mobile technology is being tested to gather previously unavailable data, for example on fishery landings and fish stock health.

Integrated coastal zone management can enhance the protection of coastal and near shore resources while increasing the efficiency of their uses. Coastal zones are among the most productive areas in the world, offering a wide variety of valuable habitats and ecosystems services that have always attracted humans and human activities. Coastal zones are also among the areas most vulnerable to climate change and natural hazards. Risks include flooding, erosion, sea level rise as well as extreme weather events. These impacts are far reaching and are already changing the lives and livelihoods of coastal communities. Unlike sectoral approaches that can lead to disconnected decisions, inefficient resource use and missed opportunities, integrated coastal zone management (ICZM) seeks to coordinate the application of different policies affecting the coastal zone and maritime activities. ICZM is an iterative process which includes a variety of approaches, from mapping, delineation and demarcation of the hazard lines and coastal sediment cells, to building the capacity of agencies, institutions and communities to make informed decisions about growing the blue economy within the carrying capacity of its living natural resource base.

1. *Growing the blue economy requires assessing the value of marine resources.* Not only are marine living resources poorly measured and understood, they are also rarely valued properly. In Mauritania, for instance, a study showed that the value of fisheries and other renewable marine resources was much greater than that of the minerals upon which the Government had previously based most of its marine resource management decisions. Understanding that in comparison with mineral resources, marine living resources are a) of much higher total value, and b) renewable, the Government adopted an alternative approach to development based on realizing the long-term potential for blue growth.
2. *New data can also sway decision-makers.* Well managed, the goods and services produced from aquatic ecosystems could make a much greater contribution to reducing poverty, building resilient communities, fostering strong economies and feeding over 9 billion people by 2050. For example, the World Bank's 2016 *Sunken Billions Revisited* study shows that fisheries properly managed, with a significant reduction in overfishing, could provide an additional US\$83 billion to the global economy each year. That amount represents about two-thirds of official development assistance in 2012 and almost 30 times the annual net benefits currently accruing to the fisheries sector.

Forestry Crimes

From a law enforcement perspective, forestry crime involves criminal activity in the forestry sector, covering the entire supply chain, from harvest and transportation to processing and selling. It also refers to criminal offences that facilitate such activity, including document fraud, corruption and money laundering.

Forestry crime is:

- The illegal exploitation of high-value endangered wood species (many of which are now CITES listed)
- Illegal logging in protected areas, on indigenous lands or outside concession boundaries
- Laundering of illegal harvested wood through plantation and agricultural front companies
- Document fraud and misdeclarations to conceal illegal activity and tax evasion.

Both illegal logging and the international trade in illicitly harvested timber have a serious economic, social and environmental impact. For example:

- It is estimated that such international crimes account for 15-30 per cent of all timber traded globally.
- The trade of illegally logged timber has an estimated value of between USD 51-152 billion annually, representing a major loss in tax revenues.
- Illegal logging is responsible for deforestation, habitat loss, species extinction, and contributes to global warming.
- Illicit proceeds from forestry crime may be used to fund conflicts

Forests are destroyed to feed a worldwide furniture industry, as well as to clear land for development, infrastructure, and agricultural usage, such as the cultivation of rubber, soya, and oil palm, which are utilized in hundreds of common items. Along with the legitimate wood trade, there is an insatiable criminal traffic that results in huge deforestation and timber exchanged in vast amounts, laundered across governments, relabeled, and sold into industry all over the world.

Pollution crimes impact our health and safety on a daily basis. The use of illegal chemicals in oil blending compromises the quality of the air we breathe; mercury illegally released from illegal mining into rivers and the sea endangers ecosystems and water supplies; and waste illegally dumped in landfill sites contaminates

the soil where food is grown. As consequence, pollution crimes threaten environmental sustainability, public health, safety and the quality of life.

Pollution crimes take various forms, such as waste crime, marine pollution crime, illicit trafficking in chemicals and carbon trading crime. Illegal mining activities also create severe pollution issues, due to the chemicals and machinery used.

As with any other type of environmental crime, pollution crime is primarily driven by a high-reward, low-risk business model, where criminals exploit regional inequalities such as labour costs, weak environmental legislation and law enforcement capacity. These global inequalities create criminal opportunities for hazardous substances to be illegally trafficked between countries and/or illegally disposed on land, in rivers or at sea, to cut costs or gain profit.

Organized crime has been found to be involved in several cases of pollution crime, converging with other crime types such as theft, human trafficking, fraud, drugs and firearms trafficking, and money laundering. Transnational and cross-over offences are also linked to pollution crimes, requiring a coordinated law enforcement response, both at the national level (inter-agency cooperation) and internationally.

Plants and animals are incredibly important for the health of our planet. The delicate balance in our ecosystems relies on biodiversity, and wildlife crimes pose a great threat to this. From hunting elephants for ivory to smuggling endangered plant species, wildlife crimes often span many national borders so an international approach is needed.

The illegal trade in wildlife is estimated to be worth up to USD 20 billion per year (Source: UNEP-INTERPOL Report: The Rise of Environmental Crime). Wild flora and fauna can be exploited by criminals along the entire supply chain, from poaching and transportation to processing and selling.

Hazardous Wastes

The disposal of electronic toxic and other damaging trash is a global problem that is growing in tandem with the world's population and ever-increasing demand for consumer products. While many countries may have implemented effective and suitable waste disposal methods, the export of garbage and transportation over large distances creates difficulties in monitoring that disposal.

Criminals take advantage of these difficulties by dumping rubbish in nations where monitoring and/or enforcement are poor. The repercussions include contamination to land as chemicals leak into soil and streams, danger to humans who come into touch with garbage, either intentionally or unintentionally, and damage to the atmosphere when waste degrades or is burned.

Ozone-depleting Substances

Ozone-depleting substances (ODS) are man-made compounds that are mostly utilized as refrigerants but are also used for other uses. They include chloral-fluorocarbons, or CFCs, which rose to prominence in the 1970s after it was revealed that they contribute to ozone layer depletion. Halons, methyl bromide, and hydro chlorofluorocarbons (HCFCs) are examples of other ODS.

The ozone layer, a layer of gasses that surrounds the globe, shields life from the sun's damaging rays, which may cause cancer and cataracts in humans and are hazardous to agricultural development. ODS depletes the ozone layer, allowing damaging radiation to reach the Earth's surface

As we deplete the Earth's ozone layer through the illicit use of ozone-depleting compounds, more harmful ultraviolet radiation strikes the Earth's surface, increasing the risk of skin illness and diminishing plant production. Natural catastrophes are becoming more common, and with rising populations, the effect and repercussions are higher than ever. (Davies et al., 2008)

Impact of the environmental crimes in Uganda

The impact of such calamities would be less severe if forests were not cut down, resulting in flooding and landslides; and the destruction of mangroves for construction means that coastal regions no longer have any natural protection against erosion or storms. Global warming also causes rising sea levels and subsequent floods. Increasing demand for fragile flora and fauna can lead to species extinction, and habitat loss can result in some species vanishing before they are found.

Furthermore, environmental crime in the forestry industry has been highlighted as a key contributor to climate change, which has been regarded as possibly the world's most important security and economic concern.

Although the country has lost more than a quarter of its forest cover since 1990, Uganda was among the countries that pledged support to the African Union mandate towards the Bonn Challenge. The government has promised to restore 2.5 million hectares of forest by 2030 as part of the AFR100 reforestation program.

In an attempt to uphold this pledge, Uganda has involved many specialists. The United States-based non-profit Wild Forests & Fauna is part of the broader effort to restore forest landscapes in the climate change-vulnerable tropics through native species restoration under the Native Seeds Project with the aim of restoring Northern Uganda's tree cover.

The International Union for Conservation of Nature (IUCN) has also provided assistance, helping to evaluate the possibilities for restoration throughout the nation. This included determining the best restoration options through the use of the Restoration Opportunities Assessment Methodology (ROAM). Together with the development of creative tools such as the Africa Tree Finder Application (in collaboration with ICRAF) and an interactive radio series to promote FLR, IUCN has also directly funded innovative grassroots FLR financing mechanisms such as the Community Conservation Environment Fund and the ECOTRUST Trees for Global Benefit program.

Uganda Breweries Limited (UBL), through its Water of Life initiative, has signed a partnership with Rotary Uganda to jointly restore 200 hectares of forest reserves within Lake Victoria water catchment areas. Many organizations, companies, and individuals have supported this conservation and restoration process.

However, the strategies to reach the government's stated target have not been well implemented. It is estimated that no institution in Uganda has restored 100,000 hectares as part of the 2.5 million that has been promised. So far only about 3,500 ha of degraded natural forests have been restored, roughly 5,400 ha of the 60,000 ha set aside for commercial tree plantations have been developed, and 950 km of external boundaries have been resurveyed.

It is estimated that the current rate of deforestation in Uganda is among the highest in the world, and the consequences of this destruction are wide-ranging and severe. The loss of forest cover has caused significant

damage to the country's biodiversity, leading to the loss of species and habitats. Moreover, the destruction of forests has serious implications for climate change, as trees play a critical role in regulating the global climate by absorbing and storing carbon dioxide.

Main drivers of deforestation

According to environmentalist, Mayina Paul, the desire for land is the primary and most visible reason contributing to deforestation in Uganda.

“Uganda’s population has been rapidly expanding as a developing country. This expansion has put a strain on existing land resources and raised demand for agricultural land, which is frequently located in forested areas.”

He pointed out that the government itself has been encouraging people to clear forests for agricultural purposes in order to boost food production and “make Uganda self-sufficient”.

“While economic factors drive deforestation in Uganda, it is crucial to highlight that the country has been hit by a number of natural calamities, including droughts and floods. These have resulted in significant human and property losses, as well as food shortages for millions of people.”

According to a World Resources Institute report, farming is a major cause of deforestation in Uganda, accounting for more than half of all deforestation. People destroy forests and convert the area to agricultural land as they move to more rural regions and develop farms. Other causes of deforestation in Uganda include illegal logging and charcoal production. Charcoal production is of particular concern as it is the main source of energy for many rural households. Charcoal production is illegal in Uganda but it remains widespread due to the lack of enforcement by the government. Illegal logging is also an ongoing problem in Uganda with large-scale logging operations taking place in the forests of the country.

Tom Obong Okello, Executive Director of the Uganda National Forestry Authority, told Development Aid that the government has passed legislation prohibiting deforestation for any purpose other than food production. It has also been seeking to strengthen the enforcement of these regulations and to crack down on illegal logging and charcoal manufacture. Furthermore, the government has established a number of forestry reserves, protected areas, and wildlife sanctuaries to conserve the country's forests and biodiversity.

The government is also investing in sustainable forestry practices that can help to reduce deforestation while still providing economic benefits, such as agroforestry which involves growing trees in conjunction with crops, and community forestry which involves local communities in forest management and co-management.

This leads to the practice of illegal fishing, or catching undersized, sexually immature fish, among locals as a means of either providing for their families with food or cooking and smuggling them to sell for profit.

Illegal fishing exacerbates the overfishing problem in Lake Victoria and has drawn the attention of the Ugandan army. Fish are Uganda's second largest export and the Army has cracked down on illegal fishing in order to protect it. The vast majority of legal fish are caught by major factories, leaving only illegal fish in their wake. If local communities wanted to forgo illegal fishing and buy the fish from the factories, many of them would lack the purchasing power to do so.

As a result, local communities are faced with the decision to either take their chances and fish the lake, hoping for legal catches, or move inland, where they have a chance of gaining employment. Failure on either front can mean malnutrition or even starvation in a region that is fully capable of providing it's people a nutrient dense food source and means of living.

The Solution: Aquaponics

Aquaponics has been described as having great potential for the region and may be the answer that it needs. "Aquaponics" is a closed, circular system wherein fish are farmed and plants are grown hydroponically in conjunction with one another. The waste produced by the fish provides nutrients for the plants to grow and as the plants grow, they purify the water. This closed-loop system is sustainable and nearly self-sufficient. Implementation of this type of system could work in two ways: individual households setting up their own closed-loop systems or small communities sharing and utilizing larger scaled systems.

Aquaponics systems can generally be built with materials found at local hardware stores, providing a dual benefit of stimulating the local economy. Large enough and well-maintained systems are capable of providing thousands of pounds of food per year, capable of sustaining multiple families at a time. Implementing an aquaponics system is greatly beneficial for food sovereignty and the ecosystem of the lake, as it will decrease the amount of fishing that must be done.

Environmental planning as a tool of environmental management is intended to ensure that development activities and exploitation of natural resources for different purposes are harmonized with the need to conserve the environment²⁶².

The publication of national state of environment reports assist in providing the much needed information for planning purposes, resource allocation, national and institutional budgetary processes.

Environmental monitoring and impact assessment (hereafter referred to as EIA) processes, provided for under the framework law, have been useful tools in regulating activities which have or are likely to have deleterious impacts on the environment and an EIA database has been created to track this activity. The success of the EIA process is such that the number of EIAs has grown from 10 in 1996 to about 1,500 in March 2007²⁶³.

In some of the recently approved projects such as the use of DDT for indoor residual spraying for malaria control and approval of environmental aspects for Bujagali hydro power development, it has been sought to circumvent this challenge by creating joint monitoring teams. It is yet to be seen how well these teams will operate, given their multi-sectoral nature and the limited resources at their disposal²⁶⁴.

The use of economic and social incentives as an approach to environmental regulation has provided a basis for payment of fees, levies and charges under the permit and license system.

The disincentives approach was also used in the 2002-2003 National Budget to impose tax of 50 per cent (later reduced to twenty per cent), on polythene carrier bags. It was equally used in the 2006-2007 National Budget to impose an environmental tax on imports of second hand clothing and motor vehicles of more than 10 years from the date of manufacture.

²⁶² *ibid*

²⁶³ *ibid*

²⁶⁴ *ibid*

In addition, local administrative units in districts such as Mukono, Iganga and Kamwenge have applied the incentive/disincentive approach in the collection of charges, levies and user fees within their jurisdiction. It could be argued, however, that the use of incentives should go hand in hand with valuing natural resources, considering the cost that development activities have on the environment and calculating the contribution of the environment sector to the gross domestic product (GDP), among other factors²⁶⁵.

NEMA, in collaboration with its development partners, has started some work along the lines of valuing natural resources. However, a lot still needs to be done in this and related areas.

Enforcement provisions include the use of environmental restoration orders, improvement notices and inspections.

NEMA has successfully used these enforcement measures usually after attempts at achieving compliance have failed. Although recourse to court is provided for and is urged, NEMA prefers to use the above mentioned regulatory tools at its disposal, taking into account the fact that in some instances environmental awareness is not high enough to warrant use of enforcement measures, the cost of compliance may be prohibitive thereby calling for a longer compliance schedule, and poverty impacts on how the local people use natural resources thereby calling for poverty alleviation interventions, among other factors²⁶⁶

Challenges in Monitoring and Enforcement of Environmental Laws.

First, there is the problem arising from failures at different institutional linkages for environmental management. Whereas for example wetlands are held in trust by Central Government or local Government for the common good of the people of Uganda, recent examples of wetland abuse have included cases where Local Authorities have been the very violators of these constitutional and legal provisions. Where this has happened, local authorities have indicated that they converted wetlands for the sake of providing their communities with economic growth opportunities and for fighting poverty. It is therefore a dilemma that the

²⁶⁵ *ibid*

²⁶⁶ *ibid*

very institutions entrusted with the protection of wetlands have in some cases not assisted the crusade for their conservation.

Issuance of Land Title in wetland areas by the Central and Local Governments -Where as it is a constitutional and legal requirement that areas such are wetlands, riverbanks, lakeshores are held in trust by Government and Local Government for the common good of all the citizens of Uganda, there are incidences where the very institutions that are charged with this responsibility are the very ones who alienate these wetlands and even issued land titles.

There is the problem of enforcement of the legal requirements for protection of the environment and public health. Whereas it is now largely accepted that environment is important worth protecting, and whereas enforcement of environment regulations, is expected to be done through a hierarchy of enforcement levels from national (NEMA), Districts down to community levels, the enforcement capacity available at all these levels appears not to be able to match the widespread nature of the problem of environment degradation. In addition, while the responsibility for environment management has been vested under the local authorities, cases of local authority intervention on environmental management are still few, implying that even where local authority intervention would have been enough to stop abuses, such cases still continue to be referred to NEMA. It should be stressed that this state of affairs for a dispersed resource such as wetlands requires an enforcement and intervention mechanisms that is closer as possible to the community level if tangible results are to be achieved.

The “anonymous”, “holiday” and “awkward hour” dumping syndrome and noise pollution -Without an effective grassroots enforcement mechanism, it has been extremely difficult to control indiscriminate dumping of materials in wetlands along the roads and other remote areas by anonymous individuals such as truck drivers who probably view wetlands as “good” open space to dump in rather than drive long distances to designated dumping sites. Time and again, people living in and around wetland areas where marrum and waste dumping has taken place have indicated that the dumping is done by unknown truck drivers at awkward hours. In addition to the above, there has also been a problem of wetland filling during holidays and awkward hours when those dumping probably have full knowledge that enforcement staff are not on duty. It remains an uphill task to prosecute these cases, and the affected wetlands can hardly recover their original state even if the culprits are required to restore them.

How to transfer management and enforcement responsibility to local authorities and to resource users level. With the expansion of Central Government enforcement machinery not likely to happen in the foreseeable near future, it is plausible to believe that increased local authority and local community role on matters of wetland management, planning and enforcement, including stopping wetland abuse through community policing could be a more sustainable way to stem further degradation. However, there still remains a fundamental weakness in the sense that local authorities have not translated the authority vested under them for natural resources management into meaningful action as far as wetland resources are concerned. The approach adopted by the Wetlands Inspection Division for community wetland management planning is worthy support in this regard. However, lessons learnt from this approach are yet to be popularized to other communities. management, planning and enforcement, including stopping wetland abuse through community policing could be a more sustainable way to stem further degradation. However, there still remains a fundamental weakness in the sense that local authorities have not translated the authority vested under them for natural resources management into meaningful action as far as wetland resources are concerned. The approach adopted by the Wetlands Inspection Division for community wetland management planning is worthy support in this regard. However, lessons learnt from this approach are yet to be popularized to other communities.

Need to harmonize urban planning and land–use in general with modern wetland conservation goals. Until now, NEMA continues to receive development proposal on wetland areas that have been demarcated as plots by planning authorities. This apparently continues to send wrong signals to other wetland users who seem to perceive a sense of no action being taken in especially urban areas where wetland encroachment continues. In Kampala District, most of the wetlands which served as flood relief areas were allocated for industrial and residential developments and this trend has not been halted completely yet. Worth mentioning is the difficulty of enforcing planning requirements in peri-urban flood prone areas where the urban poor communities have massively and indiscriminately encroached into the wetlands, such as is the case in Bwaise and Bukoto areas.

Poverty and wetland resources use relationship- Over the recent years, there appears to be increasing cases of activities being implemented in wetlands in the name of fighting against poverty. While some of these activities are out-rightly not compatible with wetland conservation nor wise use goals, their promoters have vigorously defended them as intended to assist in the fight against poverty. Activities such as brick making in wetlands which are done for economic gains have tended to give no regard at all to conservation nor

restoration of the affected wetlands. It is probable that this attitude stems from the old perception that wetlands in their natural state are wasted land.

Comparative analysis

African countries are home to some of the most stunning flora and fauna and wildlife, which attract thousands of tourists yearly that in turn boost the economies of some of the poorest countries in the world.

Unfortunately, many of the protected species are disappearing rapidly, and more and more are entering endangered species lists, due in part to climate changes and rapid urbanization, but also, and more disturbingly due to an increasingly active illegal trade in flora and fauna, wildlife and pollution/dumping of toxic waste. Environmental crimes range from illegal logging from the sandalwood forests of Kenya, whose primary destination is Western Europe; rhino horns, elephant tusks and ivory products, which are sent to black markets across Asia, and poaching and cattle rustling across national borders.

Environmental crime in Eastern Africa is becoming increasingly organized and transnational in nature and can be seen, just as drug and firearms trafficking, as one of the most significant areas of trans-border criminal activity, threatening to disrupt societies in the region and hinder sustainable development.

Of still greater concern, many of these criminal activities are carried out by members of the local communities, who in turn link to national and international organized crime syndicates to move those goods overseas. National law enforcement is challenged to stop these crimes, as some local populations have been known to protect smugglers and traffickers.

History in the Eastern Africa region has shown that resource-based conflicts are easily triggered, especially where income levels are low, inequality is high, and borders are long and mutable. Although various legal frameworks and protocols have been adopted by a number of countries, one of the major impediments in the fight against environmental crime in the region, is the uneven adoption and implementation. This results in a situation where certain activities are criminal in one country and legal in the neighboring one, giving organized groups almost carte blanche to pillage the region's most precious natural resources with impunity.

In the case of environmental crime, taking preventative action is essential. A forest destroyed takes four decades to replenish, and a species once extinct is lost forever.

Among the work of environmental lawyers which does attempt to provide some comparative analysis, one finds indeed at least three broad categories. First, a large number of environmental law studies, whether on domestic, transnational or international legal matters, contain some occasional or in passing references to other legal systems or approaches. Second, there is a strand of work which focuses specifically on the social and political dimensions of risk regulation, with a general vocation.²⁶⁷ In most cases, although the scope of the work is of general relevance, in truth the analysis is based on an extrapolation of a single legal system, typically from the Anglo-American tradition. For all the value of these contributions, with some notable exceptions discussed later, genuine comparative legal analysis remains implicit or ancillary. Third, a rarer body of contributions has made the comparison of environmental laws and policies its specific object.²⁶⁸ The number of studies focusing on comparative environmental law as such is rare enough to attempt an overall examination of this field, which is the aim of this article.

Beyond these studies on the foundations and methodologies of comparative environmental law, a larger number of contributions focus on what are, for mere convenience, called 'topical aspects'. These contributions are closer to the first and second categories of work referred to in the Overview, in that they concentrate on certain specific issues. However, they are addressed in this examination for their significant, and sometimes highly sophisticated, treatment of the comparative dimension.

Importantly, in order to compare, these contributions generally craft a 'comparable' construct, which varies greatly in scope (from something as general as 'constitutionalism'²⁶⁹ or the management of 'scientific uncertainty'²⁷⁰ to something as specific as 'environmental impact assessment'²⁷¹ or 'oversight bodies' and angle (eg 'political systems', 'regulatory organization', 'property rights', scientific-policy interfaces, courts, liability, planning. No 'meta' cartography capable of placing these 'sub-sets' within a broader 'set' (or series

²⁶⁷ Jasanoff, S, *Science at the Bar: law, science, and Technology in America* (Harvard University press 1995)

²⁶⁸ *The Human Environment, Vol II: Summary of National Reports Submitted Preparation of the United Nations Conference on the Human Environment* (Washington DC 1972) pg 103-9

²⁶⁹ R O'Gorman, 'Environmental Constitutionalism: A comparative Study' (2017)

²⁷⁰ H Li and JB Wiener, 'Comparing Environmental Risk Regulations in China and the United States' (2022) pg 42

²⁷¹ N Craik, 'The Assessment Impact' in Lees and Vinuales

thereof) is offered. But this work effectively provided an important foundation for the development of such a cartography in the more recent work.

The main consideration in structuring such studies—and the broader cartography—is the identification/development of comparable constructs or concepts. ‘Topical’ constructs, to use a broad heading, can be contrasted with other types of constructs. In comparative law, the most frequent construct used has been the ‘national’ or ‘jurisdictional’ one. Environmental lawyers have kept this broad focus overall. This is not an arbitrary decision because, as noted earlier, the organisation of legal authority remains structured around States, with the main exception of the EU legal order, which relies nevertheless on States for implementation. Jurisdiction or State-based constructs are therefore important, even pivotal. Yet, they also have limitations, including the tendency to confine comparison to a similar ‘chapter structure’ in what are otherwise summaries of domestic legal systems, or the marginalization of important phenomena such as transnational networks, private self-regulation, aboriginal law, among others. ‘Geographical’ constructs are a variation of national constructs of particular relevance when there is a certain level of real integration or harmonization, such as in EU law.

Humanity faces a truly unprecedented challenge, historically and even pre-historically. Human activity has turned into a disruptive force of geological proportions threatening the very conditions under which humanity has thrived in the last 11,700 years. As noted earlier, there are indications that action is needed within a closing window of a decade, ie an infinitely small time period in geological or even historical terms. And the main technology humanity has developed so far to organise, guide and govern its response to environmental degradation is environmental law, taken as a whole.

Kenya

In Kenya those who engage in environmental crime do so to meet either commercial or subsistence objectives and they include individuals, small independent groups, organized groups and corporate bodies. Environmental crimes in the forestry sector include illegal trade in sandalwood, illegal logging, illegal trade in endemic flora, including bio prospecting and bio piracy; forest excisions, forest encroachment, illegal grazing, illegal forest fires, growing of bhang, and illegal charcoal making. Environmental crimes in the wildlife sector include illegal trade in wildlife and their products; poaching, and illegal grazing. In the tourism sector, crimes include blockage of access to natural resources for local communities, aesthetic pollution, off road driving,

destruction of marine, lacustrine and river ecosystems, and wastes pollution. Crimes in the water sector include diversion of water bodies, water pollution, and reclamation of wetlands and illegal development of riparian areas. Environmental crimes in the fisheries sector include illegal trade in ornamental fish, illegal fishing methods, illegal fish farming, illegal trawling and illegal fishing by foreign fisher folk. Other environmental crimes in the country include hazardous wastes, and failure to comply with the provisions of the Environmental Management and Coordination Act (EMCA) and its regulations²⁷².

To address environmental crime adequately, the key institutions need to be mandated by law, which should provide for sufficiently punitive deterrents. These institutions should also be supported by an intelligence network capable of detecting crimes, able enforcers to apprehend the perpetrators, and able prosecutors. This whole system should also be seen to be fair and address the issues of corruption. Kenya has not designated a single national institution to fight environmental crime as such, but there are key institutions which address various crimes.

Plastic Pollution in Kenya

The introduction of plastics changed the world forever; its pollution, however, has also set the world in motion for what seems like a never-ending battle. Plastic pollution is a serious problem in Kenya. It is estimated that the country generates 500,000 tons of plastic waste every year, with only 10% of this being recycled. The rest of the waste ends up in landfills or in aquatic and terrestrial environments, where it can take hundreds of years to break down. The impact of plastic pollution is significant, with plastic waste choking waterways, harming wildlife, and damaging ecosystems. It also poses a threat to human health, with chemicals from plastic leaching into the environment and entering the food chain. In addition, plastic waste pollution in Kenya poses a serious threat to aquatic life. Some solid waste materials that have been retrieved from the country's beaches include plastic beverage bottles, fishing gear, plastic bottle caps, food wrappers, plastic lids, plastic takeaway containers, and plastic grocery bags (UNCTAD, 2022). At least 14 million metric tons of plastic end up in the oceans every year, and microplastics are also becoming a major problem as they are easily ingested by aquatic animals due to their tiny mass. Plastic debris has become the most prevalent form of litter in the

²⁷² BBC News. (2019). Kenya Plastic Bag ban: Has Kenya's Plastic Bag Ban Worked? BBC News.
<https://www.bbc.com/news/world-africa-49421885.amp>

ocean, constituting 80% of all marine debris found from surface waters to deep-sea sediments, according to the Heinrich Böll Foundation (2022)²⁷³.

Kenya's economy relies heavily on plastics, with a significant amount of plastic being used for single-use purposes such as packaging and bags. Unfortunately, the environmental crisis caused by this cannot be overemphasized, as it has led to plastic waste littering the streets, rivers, and oceans, polluting the environment, and threatening the health of humans and wildlife. But the country, while struggling to manage the mounting piles of plastic waste generated every day, continues to import and produce plastic, leading to more plastic waste generation and pollution. According to Business Insider Africa, Kenya makes the list as the fifth-highest producer of plastic waste in Africa, measuring 1,279,843 metric tons.

Plastic pollution in Kenya affects other areas and is intensifying the climate crisis. When plastic waste is not properly disposed of, it can contribute to greenhouse gas emissions through the release of methane and other harmful gases. It also prevents the percolation of water into the soil, fueling a food crisis, particularly in rural areas where agriculture is a primary source of income. It has also exacerbated inter- and intra-communal conflicts where natural resources, such as water sources and grazing lands, are limited. Plastic waste pollution in Kenya has significant social and economic impacts, as it affects livelihoods and tourism and can harm marine ecosystems, which are essential sources of income for many Kenyans.

While the government has introduced measures to tackle the issue, more needs to be done to reduce the use of plastics and promote alternatives. The involvement of individuals and communities has been crucial in addressing plastic pollution, and everyone must take responsibility for their actions. Individuals and communities have also played a significant role in addressing plastic pollution in Kenya. Many people have embraced the use of reusable bags, bottles, and containers, reducing their reliance on single-use plastics. Community initiatives such as beach clean-ups and tree planting have also been instrumental in raising awareness of the issue and mobilizing people to take action.

²⁷³ Heinrich Böll Foundation. (2022). Kenya Should Lead the Way in Ending Plastic Pollution in Africa. Heinrich Böll Foundation. <https://ke.boell.org/en/2022/06/15/kenya-should-lead-way-ending-plastic-pollution-africa>

The efforts of non-governmental organizations (NGOs) and civil society organizations (CSOs) have led to increased awareness about the impact of plastic on the environment and encouraged individuals and businesses to adopt more sustainable practices. One such innovative way of reducing the need for other building materials, particularly sand and concrete blocks, is the use of plastic and glass bottles in construction. This method not only reduces the demand for these materials but also reduces the amount of waste generated from plastic bottles. It also provides an affordable and sustainable option for building houses, particularly in areas where traditional building materials are scarce or expensive.

Tanzania

The environmental crimes in Tanzania include: Illegal and unsustainable deforestation. A majority of Tanzanians rely on wood and agricultural residues for their energy needs, causing deforestation and environmental degradation. The problem, of course, doesn't stop there. Deforested areas no longer provide a home for wildlife - leading to biodiversity loss - and are also susceptible to soil erosion.

In 2007, traffic showed that organized illegal timber crime is causing millions of dollars' worth of timber revenue to be lost each year in Tanzania. Who's fault? Poor governance and rampant corruption in the forestry sector.

Overgrazing and unsustainable range management. Large cattle size and many goats may be a blessing for farmers, but when their numbers exceed the area's natural carrying capacity; this can turn to a serious disadvantage.

When vegetation disappears, the ground becomes exposed to soil erosion, which greatly reduces its ability to grow new plants. Eroded soil also runs into rivers and out at sea, where it smothers sensitive corals.

Pollution

In Tanzania's major towns and cities, solid and liquid wastes are left untreated. As a result, air and water are contaminated with pollutants, a major health hazard for those who live in under-privileged areas. Take Dar

es Salaam for example, where few people are connected to a sewage system. The few sewage systems that exist discharge their waste directly into the ocean, affecting marine habitats and the species that live there.

Illegal and unsustainable wildlife exploitation

In village areas, people often resort to poaching. Sometimes, this happens in retaliation to wildlife attacks which destroy crops, and hence livelihoods. Such conflicts between humans and wildlife are also straining relations between wildlife authorities and local people.

In an effort to educate the public about marine conservation, a young science teacher in the East African country of Tanzania is running a campaign to protect the ocean from the looming threat of plastic pollution, which is responsible for the deaths of fish and loss of livelihoods for coastal communities.

Zuhura Ahmad is working to enlighten her community on the outskirts of Dar es Salaam about the dual threats of plastic pollution and climate change. "Plastic waste is a big threat to marine life. We must work even harder to crush this vicious tide," she said. Every year, thousands of tons of plastic waste flow into the Indian Ocean, causing pollution that affects marine organisms, according to local scientists.

Although plastic materials have made life easier, Ahmad said they pose the greatest threat to fish species. "Plastic wastes are choking the oceans beyond repair. If we don't act now to protect the seas, the consequences will be severe," she told Anadolu Agency.

Although the task of managing plastic waste perpetually discarded into the ocean seems daunting, the youthful environmental activist and fellow volunteers are determined to do it. "Plastic is something we use every day. We have what it takes to stop it from destroying our lives," she said. Ahmad, who is working with multiple environmental organizations, is hailed for promoting sustainable fishing practices and reducing plastic pollution. "I am happy to do this work for my community. Helping my own people gives me peace of mind," she said.

United Kingdom

In the UK there are two different legal systems: England and Wales and Scotland. The legislation in the field of environmental criminal law is highly fragmented in many statutes and regulations, mainly due to the

considerable amount of reforms carried out in the last twenty years. The most relevant one is the Environmental Protection Act, which embodies a whole range of criminal sanctions enforced by the appropriate Authority. A certain level of standardization reached is a result of the transposition of EU law, particularly, the Environmental Crime Directive.

It appears that in the UK, environmental crimes are not a priority for the Government or for the national and local policing. The rules of general criminal procedure apply to environmental crimes, although there are some rules, which are specific to environmental crimes. Most environmental crimes impose strict liability (i.e. no need to prove fault), which not only makes easier for regulators to enforce and prosecute environmental offences, but also constitutes a strong incentive for operators to take all possible risk-minimizing measures.

The UK legal system provides neither a specialized legislation concerning the environmental organized crime nor, more generally, legislation dedicated to the organized crime. Due to the transposition of the European legislation in to the UK legal system, the enforcing officers, such as the police, can decide whether it is more appropriate to prosecute the crime under the domestic legislation or under the EU legislation or under both.

In the UK there are two different legal systems: England and Wales and Scotland. The legislation in the field of environmental criminal law is highly fragmented in many statutes and regulations, mainly due to the considerable amount of reforms carried out in the last twenty years. The most relevant one is the Environmental Protection Act, which embodies a whole range of criminal sanctions enforced by the appropriate Authority. A certain level of standardization reached is a result of the transposition of EU law, particularly, the Environmental Crime Directive.

Australia

Environmental crime covers a wide range of Commonwealth offences, including:

- environmental pollution, such as illegal waste disposal or oil dumping
- illegal fishing
- illegal trade in endangered species and plants.

Some environmental crime has links to transnational serious and organized crime. It can often go hand-in-hand with other offences, such as:

- corruption
- money laundering
- murder
- passport fraud.

Australia is also a signatory to the Convention on International Trade in Endangered species of wild Flora and Fauna. This aims to ensure international trade in wild animals and plants doesn't threaten the survival of any species.

This includes offences that may have a significant impact on Australia's:

- World Heritage sites
- National Heritage sites
- Commonwealth marine areas
- wetlands of international importance
- threatened and migratory species
- nuclear activities (including uranium mining).

We work with state and territory governments to protect our unique land, animals and ecosystems, and enforce the law. If an environmental crime doesn't breach a Commonwealth law, then state and territory agencies would normally investigate.

We also work with other national bodies, including:

Australian Border Force

Australian Fisheries Management Authority

Australian Maritime Safety Authority

Department of Climate Change, Energy, the Environment and Water

Department of Agriculture, Fisheries and Forestry

Russia

Effectiveness of Regulatory Provisions of the Framework of Environmental Law

Environmental planning as a tool of environmental management is intended to ensure that development activities and exploitation of natural resources for different purposes are harmonized with the need to conserve the environment²⁷⁴.

The publication of national state of environment reports assist in providing the much needed information for planning purposes, resource allocation, national and institutional budgetary processes.

Environmental monitoring and impact assessment (hereafter referred to as EIA) processes, provided for under the framework law, have been useful tools in regulating activities which have or are likely to have deleterious impacts on the environment and an EIA database has been created to track this activity. The success of the EIA process is such that the number of EIAs has grown from 10 in 1996 to about 1,500 in March 2007²⁷⁵.

In some of the recently approved projects such as the use of DDT for indoor residual spraying for malaria control and approval of environmental aspects for Bujagali hydro power development, it has been sought to circumvent this challenge by creating joint monitoring teams. It is yet to be seen how well these teams will operate, given their multi-sectoral nature and the limited resources at their disposal²⁷⁶.

The use of economic and social incentives as an approach to environmental regulation has provided a basis for payment of fees, levies and charges under the permit and license system.

The disincentives approach was also used in the 2002-2003 National Budget to impose tax of 50 per cent (later reduced to twenty per cent), on polythene carrier bags. It was equally used in the 2006-2007 National

²⁷⁴ *ibid*

²⁷⁵ *ibid*

²⁷⁶ *ibid*

Budget to impose an environmental tax on imports of second hand clothing and motor vehicles of more than 10 years from the date of manufacture.

In addition, local administrative units in districts such as Mukono, Iganga and Kamwenge have applied the incentive/disincentive approach in the collection of charges, levies and user fees within their jurisdiction. It could be argued, however, that the use of incentives should go hand in hand with valuing natural resources, considering the cost that development activities have on the environment and calculating the contribution of the environment sector to the gross domestic product (GDP), among other factors²⁷⁷.

NEMA, in collaboration with its development partners, has started some work along the lines of valuing natural resources. However, a lot still needs to be done in this and related areas.

Enforcement provisions include the use of environmental restoration orders, improvement notices and inspections.

NEMA has successfully used these enforcement measures usually after attempts at achieving compliance have failed. Although recourse to court is provided for and is urged, NEMA prefers to use the above mentioned regulatory tools at its disposal, taking into account the fact that in some instances environmental awareness is not high enough to warrant use of enforcement measures, the cost of compliance may be prohibitive thereby calling for a longer compliance schedule, and poverty impacts on how the local people use natural resources thereby calling for poverty alleviation interventions, among other factors²⁷⁸.

²⁷⁷ *ibid*

²⁷⁸ *ibid*

Recommendations on how address plastic pollution and environmental garbage

To address plastic pollution and environmental garbage through effective governance in Uganda, several recommendations can be made, drawing on successful practices from other countries. Here are detailed recommendations with practical examples:

1. Implementing Strict Plastic Bag Bans and Regulations

Uganda can strengthen its plastic bag regulations by implementing a comprehensive ban on single-use plastics.

Example: Rwanda

- Policy: Rwanda has banned the manufacture, use, sale, and importation of all plastic bags since 2008.
- Enforcement: The government conducts regular inspections and imposes hefty fines on violators.
- Results: The streets of Kigali are notably clean, and the ban has boosted the economy by creating jobs in alternative packaging industries.

2. Promoting Extended Producer Responsibility (EPR)

Uganda should hold manufacturers accountable for the entire lifecycle of their plastic products.

Example: Germany

- Policy: Germany's Packaging Act requires producers to register and pay for the recycling of their packaging materials.

- Enforcement: Non-compliance leads to heavy fines, ensuring that producers take responsibility for their waste.

- Results: Germany has one of the highest recycling rates in the world, with 67% of its waste being recycled.

3. Enhancing Waste Management Infrastructure

Investment in waste collection and recycling infrastructure is crucial for effective waste management.

Example: Sweden

- Policy: Sweden has an advanced waste management system with a focus on recycling and waste-to-energy conversion.

- Infrastructure: The country has extensive recycling centers and incineration plants that convert waste to energy.

- Results: Less than 1% of Sweden's household waste ends up in landfills.

4. Public Awareness and Education Campaigns

Educating the public about the impacts of plastic pollution and encouraging sustainable practices is essential.

Example: Japan

- Policy: Japan's government and various organizations run continuous public awareness campaigns about waste separation and recycling.

- Education: Schools incorporate environmental education into their curriculum.
- Results: Japan has a very high rate of recycling due to the public's diligent separation of waste at the source.

5. Supporting Innovation and Alternatives

Encouraging the development and use of alternatives to plastic can reduce dependence on harmful materials.

Example: India

- Policy: India promotes the use of jute and cloth bags as alternatives to plastic.
- Incentives: The government provides subsidies to industries producing biodegradable materials.
- Results: The use of alternatives is gradually increasing, reducing plastic waste.

6. Implementing Deposit Return Schemes (DRS)

Introducing DRS can incentivize the return and recycling of plastic bottles and cans

Example: Norway

- Policy: Norway has a highly effective DRS for plastic bottles and cans.
- Incentives: Consumers pay a small deposit when purchasing a beverage, which is refunded when the container is returned for recycling.
- Results: The return rate for plastic bottles in Norway is around 97%.

7. Strengthening Legislation and Enforcement

Robust legal frameworks and strict enforcement are necessary to ensure compliance with environmental laws.

Example: South Korea

- Policy: South Korea has comprehensive waste management laws that include strict penalties for non-compliance.
- Enforcement: Regular monitoring and inspections ensure adherence to waste management regulations.
- Results: South Korea boasts high recycling rates and efficient waste management practices.

8. Collaborating with International Organizations

Partnering with global organizations can provide technical and financial support for waste management initiatives.

Example: Global Partnership on Marine Litter (GPML)

- Policy: The GPML works to reduce marine litter through coordinated international efforts.
- Support: It provides countries with resources, expertise, and funding for implementing waste management projects.
- Results: Participating countries benefit from improved waste management practices and reduced marine litter.

By adopting and adapting these strategies, Uganda can make significant strides towards reducing plastic pollution and managing environmental garbage effectively. Implementing these recommendations will require coordinated efforts from the government, private sector, and civil society to achieve sustainable progress.

9. Incentivizing Circular Economy Practices

Promoting a circular economy where products are designed to be reused, repaired, or recycled can significantly reduce waste.

Example: The Netherlands

- Policy: The Netherlands has adopted a circular economy strategy with the goal of becoming fully circular by 2050.
- Incentives: The government offers tax reductions and subsidies for businesses that adopt circular practices.
- Results: Many Dutch companies are now designing products for longevity and recyclability, leading to a significant reduction in waste.

10. Encouraging Community-Based Waste Management

Empowering local communities to manage their own waste can lead to more effective and culturally appropriate solutions.

Example: Indonesia

- Policy: Indonesia supports community-based waste banks where residents can exchange recyclable waste for money or goods.

- Community Involvement: Local communities are involved in waste sorting and collection processes.
- Results: These waste banks have improved recycling rates and provided economic benefits to local communities.

11. Supporting Research and Development

Investing in R&D to find innovative solutions to plastic pollution can provide long-term benefits.

Example: Singapore

- Policy: Singapore invests heavily in research to develop new technologies for waste management and recycling.
- Innovation: The country has developed advanced waste-to-energy plants and plastic recycling technologies.
- Results: Singapore has a highly efficient waste management system and is a global leader in environmental innovation.

12. Fostering Public-Private Partnerships

Collaboration between the public sector and private companies can lead to more efficient and effective waste management solutions.

Example: Canada

- Policy: Canada encourages public-private partnerships in waste management projects.

- Collaboration: Governments and businesses work together to develop and implement waste management solutions.

- Results: These partnerships have led to improved waste collection, recycling, and the development of innovative waste management technologies.

13. Adopting Technological Solutions

Utilizing technology for waste tracking, management, and enforcement can enhance the efficiency of waste management systems.

Example: South Africa

- Policy: South Africa has implemented a National Waste Information System (SAWIS) to track waste generation and management.

- Technology: The system collects data on waste types, volumes, and disposal methods.

- Results: This data-driven approach helps in planning and improving waste management strategies.

14. Creating Economic Incentives for Waste Reduction

Introducing financial incentives for waste reduction and recycling can encourage sustainable practices.

Example: Austria

- Policy: Austria uses economic instruments like landfill taxes and recycling subsidies.

- Incentives: Businesses and households that reduce waste generation and increase recycling receive financial benefits.

- Results: Austria has high recycling rates and low levels of landfill waste.

15. Developing Comprehensive Waste Management Plans

Formulating and implementing detailed national and local waste management plans can ensure a systematic approach to waste reduction.

Example: Denmark

- Policy: Denmark's Waste Management Plan focuses on reducing waste generation and increasing recycling rates.

- Strategy: The plan includes specific targets, timelines, and responsibilities for various stakeholders.

- Results: Denmark has achieved significant waste reduction and high recycling rates through its comprehensive approach.

16. Providing Training and Capacity Building

Building the capacity of local authorities and waste management professionals through training and education.

Example: Malaysia

- Policy: Malaysia runs training programs for local government officials and waste management workers.

- Capacity Building: The programs cover best practices in waste management, recycling, and enforcement.
- Results: Improved skills and knowledge have led to better waste management practices across the country.

17. Leveraging International Cooperation

Participating in international initiatives and agreements can enhance Uganda's waste management capabilities.

Example: European Union (EU)

- Policy: The EU has various directives and regulations promoting waste reduction and recycling.
- Cooperation: Member states share knowledge, technologies, and resources to achieve common waste management goals.
- Results: The EU as a whole has made significant progress in reducing waste and increasing recycling rates.

By drawing on these examples, Uganda can adopt and adapt successful strategies to address its plastic pollution and environmental garbage challenges. Implementing these recommendations will require a multi-faceted approach involving policy changes, public and private sector collaboration, technological innovation, and community engagement. This comprehensive strategy can lead to sustainable progress in managing waste and protecting the environment in Uganda.

Waste collection and plastic pollution

1. To be able to guarantee environmental safety and preservation, alternative sites for the disposal of hazardous waste must be identified. The disposal procedures need to adhere to appropriate standards and laws under the current system.

2. Improving policies and regulations on managing plastic waste and adoption of a comprehensive legal frame work will provide a solution to the problem of identified in the study. However, such policies will work perfectly in presence of improved technologies and machinery, public participation and community sensitization. While supporting local groups, there is need to acknowledge and recognize the instrumental role played by plastic waste collectors. Provision should be made to support all players involved in the process of collecting, sorting and manipulating plastic waste and turning it into the desirable products. They also hire retailers to uncover these wastes and gazette landfills.
3. In order to enhance environmental protection and conservation, alternative sites of disposal of hazardous waste should be located, the disposal operation should follow acceptable methods and standards in the existing legislature.
4. To address the issues raised by the study, rules, and regulations regarding the management of plastic garbage should be improved, and a complete criminal justice system framework should be implemented. Such laws and regulations will, however, function flawlessly in the presence of innovative equipment, public involvement, and network sensitization.
5. It's important to recognize and comprehend the crucial function that plastic waste collectors play in supporting local corporations. All participants in the system of gathering, classifying, manipulating, and turning plastic garbage into acceptable products need to be guided.
6. Undertaking of thematic studies: There is a need to carry out further studies on the various sectors to come up with the actual levels of the crimes listed, and others which might not have been captured. Key among these crimes are those relating to hazardous wastes, where information is minimal and non-authoritative, especially on dumping and transportation of waste. The situation is similar with snaring, the bush meat trade and illegal logging. A monetary value should be determined for economic crimes and further studies conducted in the key sectors identified broadly in this study.
7. Formulating an environmental communication strategy: It is important to formulate a communication strategy on environmental crimes that will be both internal (among the key players) and external (targeting the media, politicians and technocrats, public and private sector and local communities). Raising awareness on the nature, extent and status of environmental crime, especially among local communities, and formal and informal institutions, will assist in the fight against it
8. Acknowledge the multiple dimensions of environmental crime and its serious impact on the environment and sustainable development goals, and help support and balance the appropriate coordination and sharing of information from stakeholders, such as civil society, private sector,

indigenous peoples, governments and a wider UN system with the need and recognition of also the role of law enforcement in good environmental governance.

9. Implement a comprehensive coordinated UN system and national approach to environmental crime by helping coordinate efforts on environmental legislation and regulations, poverty alleviation and development support with responses from the enforcement sector to curb environmental crime, as part of a holistic approach to challenge the serious threat to both the environment and sustainable development caused by the continued environmental crime.
10. Support UNEP as the global environmental authority to address the serious and rising environmental impacts of environmental crime and to engage the relevant coordination mechanisms of the UN system to support countries and national, regional and international law enforcement agencies with relevant environmental information to facilitate their efforts to combat the illegal trade in wildlife species and their products, as well as illegal logging and illegal trade in timber.
11. Encourage the entire international and bilateral donor community to recognize and address environmental crime as a serious threat to sustainable development and revenues, and to support national, regional and global efforts for the effective implementation of, compliance with and enforcement of targeted measures to curb illegal trade in wildlife species and their products as well as illegal logging in timber.
12. Support immediate, decisive and collective action to narrow the gap between commitments and compliance, such as the ones expressed in multilateral environmental agreements, through national implementation and enforcement, including the relevant decisions and resolutions taken by their governing bodies intended to combat the illicit trade in wildlife and forest products.

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ABOUT THE BOOK

In a world increasingly grappling with the detrimental effects of plastic pollution, Uganda stands as a microcosm of both challenges and opportunities. This thought-provoking book delves deep into the heart of Uganda's battle against plastics pollution, examining how robust environmental garbage law governance can pave the way for sustainable progress in the face of a pressing global issue.

Drawing on meticulous research and on-the-ground insights, this book presents a comprehensive analysis of Uganda's efforts to tackle plastics pollution and enhance its environmental legislation. It offers a nuanced understanding of the multifaceted aspects surrounding plastics pollution, from its adverse impact on ecosystems to its repercussions on public health. Through an engaging narrative, readers will discover the intricate interplay between policy frameworks, legal structures, and societal behaviors, all of which contribute to shaping Uganda's environmental landscape.

The authors bring to light the remarkable strides made by Uganda in enacting and enforcing garbage laws that address plastics pollution head-on. By examining key case studies, regulatory frameworks, and successful interventions, the book showcases how Uganda's journey towards sustainable progress is driven by the synergistic collaboration between government initiatives, civil society activism, and grassroots involvement.

"Plastics Pollution and Environmental Garbage Law Governance in Uganda: A Case for Sustainable Progress" not only provides a comprehensive overview of the challenges but also offers an inspiring narrative of hope and change. It serves as a clarion call to policymakers, environmentalists, researchers, and concerned citizens worldwide, urging them to understand the power of effective environmental garbage law governance as a catalyst for sustainable progress.

Through its insightful exploration of Uganda's experiences, this book illuminates the path towards a cleaner, healthier, and more resilient future. It serves as a vital resource for anyone seeking to understand the intricate dynamics of plastics pollution, environmental law, and the indispensable role of governance in shaping the destiny of a nation and the planet as a whole.



ISAAC CHRISTOPHER LUBOGO