National Implementation of Global Environmental Agreements in Rwanda

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National Implementation of Global Environmental Agreements: Rwanda

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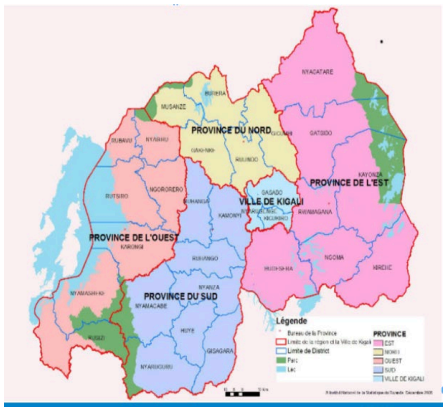

Capital:	Kigali
Area (Total):	26,338 km^2 (144th out of 194 countries and territories) 73% Agricultural Land 19.5% Forest Land
Population:	11,901,484 hab. (76th out of 195 countries and territories) 30.7% urban
GDP (purchasing power parity)[1]: **(2018 est.)** **(2017 est.)**	Total: $24.85 billion (139th out of 192 countries) Per capita: $2,081 (167th out of 187 countries) Developing country
HDI (2017):	0.524 (158th out of 189 countries)

Relevant Regions: Africa[2]

Table 1: Key environmental indicators[3]

Deforestation (Average annual % 2000-15)	*-2.2%*
Threatened species (Mammals)	*24*
Threatened species (Birds)	*16*
Threatened species (Fish)	*9*
Threatened species (Higher plants)	*8*
CO2 emissions per capita (metric tons)	*0.1*
PM2.5 exposure (% of population exceeding WHO guidelines)	*100.0%*
Mineral depletion (% of Gross National Income-GNI)	*0.0%*
Net forest depletion (% of Gross National Income-GNI)	*6.3%*
Access to improved sanitation[4] (% of total population) **Rural (% of rural population)** **Urban (% of urban population)**	*62%* *63%* *59%*
Access to improved water source[5] (% of total population) **Rural (% of rural population)** **Urban (% of urban population)**	*76%* *72%* *87%*

Introduction

Countries around the world have taken on international commitments to protect and preserve the environment. To safeguard species, ecosystems, and human health, governments have created international agreements that guide their national behavior to regulate pollution and manage land use change and biodiversity conservation. Implementing the obligations under the conventions reflects the extent to which countries are committed to environmental protection and shows good governance. In this report, we analyze Rwanda's performance in implementing five global environmental conventions in two thematic clusters:1) biodiversity and 2) chemicals and waste.

We use the Environmental Conventions Index developed by our team at the Center for Governance and Sustainability at the University of Massachusetts Boston in the United States to provide an overall empirical assessment of the level of implementation. We then follow up with deep dive analysis of the legislative, policy, and practical results across the various environmental issues covered by the conventions in an effort to explain Rwanda's performance and identify lessons learned. The goal is to provide systematic, comparative information about the country's performance on global environmental goals and obligations in order to assist policymakers in articulating clear goals, strategies, and actions to mobilize the necessary financial, human, and institutional resources to address gaps and improve performance.

Environmental Conventions Index: Empirical Tool

The Environmental Conventions Index (the Index), developed at the University of Massachusetts Boston, is an empirical tool that measures the implementation of global environmental conventions and enables self-assessment and comparison with peers. It evaluates the implementation of the conventions by assessing the actions signatory countries have taken to fulfill their commitments as outlined in their national reports to the convention secretariats. The Index includes six conventions in two thematic clusters, one in biodiversity and another in chemicals and waste (See Table 2).

Table 2: Global Environmental Conventions in This Study

Biodiversity cluster	Chemicals and Waste cluster
• 1971 Convention on Wetlands of International Importance (Ramsar Convention) • 1972 World Heritage Convention (WHC) • 1973 Convention on International Trade in Endangered Species (CITES) • 1979 Convention on the Conservation of Migratory Species (CMS) / 1995 Agreement on the Conservation of African-Eurasian Migratory Water birds (CMS-AEWA)	• 1989 Convention on the Control of Transboundary Movements of Hazardous Wastes (Basel Convention) • 2001 Convention on Persistent Organic Pollutants (Stockholm Convention)

Rwanda is a member of all six conventions and, in this report, we analyze five of the conventions since the CMS was not in the scope of the study.[6] Other notable conventions that are not analyzed in this study include the 1992 Convention on Biological Diversity and the 1994 Convention to Combat Desertification. The national reports that countries provide to the Convention on Biological Diversity do not follow a common format and can therefore not be assessed using the rigorous methodology of the Environmental Conventions Index. Given the labor-intensive nature of the Environmental Conventions Index, we have not yet had the opportunity to evaluate the Convention to Combat Desertification.

CITES was the first convention that Rwanda ratified in 1981 (six years after the Convention entered into force in 1975). Rwanda ratified all the remaining conventions after 2000 as Table 3 illustrates. As a relatively new state party to most of the conventions, Rwanda's performance is an indicator of the importance the government assigns to multilateral environmental agreements and global environmental governance.

Table 3 Rwanda Membership in Global Environmental Conventions[7]

Convention	Entry into force	Member since
Biodiversity		
Convention on International Trade in Endangered Species (CITES); Became a party on January 18, 1981 through acceptance	1975	1981
Ramsar Convention on Wetlands of International Importance; authorized by Law N° 37/2003 of December 29, 2003 Became a party on April 1, 2006 through acceptance	1975	2006
World Heritage Convention; Became a party on December 28, 2000 through acceptance	1975	2000
Chemicals & Waste		
Basel Convention on the Transboundary Movement of Hazardous Wastes; Became a party on April 6, 2004 through acceptance	1992	2004
Stockholm Convention on Persistent Organic Pollutants; Became a party on May 17, 2004 through acceptance	2004	2004

A core obligation under each multilateral environmental agreement is for state parties to report on the implementation of the agreement to the secretariat. Parties submit national reports in accordance with a schedule for each agreement ranging from annual reports (for the Basel Convention) to reports for every Conference of the Parties (COP) every three to four years (for the Ramsar Convention). The national reports provide systematic data on the implementation of obligations regarding the following aspects required to address the issues governed by each agreement:

- Information: Obligations to conduct scientific assessment, measurement, and evaluations associated with the activities connected to each convention; submission of reports to the conventions' executive bodies; and the establishment and maintenance of databases and records required for the implementation and operation of each convention.
- Management: Designation or creation of administrative bodies and focal points to manage the implementation and general functioning of each convention, the linkages with the conventions' executive bodies, and the definition of strategic frameworks for the operation of each convention at the national level.
- Regulation: Legislative and policy measures that each state party has to implement according to the framework of each convention.
- Technical: Technical measures and procedures to address or manage the environmental problems associated with each environmental convention.
- Financial: Payment of dues and assistance, and other financial responsibilities by state parties.

For each reporting cycle, the research team analyzed the indicators included in these categories in the national reports. Sample indicators for each category are featured in Appendix 1 on the methodology of the Environmental Conventions Index. Based on the data reported for each indicator, a score was assigned to quantify the level of progress, from 1 (meaning no implementation) to 5 (meaning complete implementation). A score of 0 was assigned when no data are reported or when reports indicate that no information is available. The average of all the scores for each reporting cycle generates an index score for that specific convention. Table 4 below illustrates the reporting requirements for the conventions.

Table 4: Reporting requirements for the conventions included in this study

Convention	Reporting requirements
Basel Convention	According to Article 13 of the convention, reports should include: • Information on focal points • Information on transboundary movement of hazardous wastes and other wastes • Measures adopted to implement the convention • Statistics on the effects of hazardous waste generation, transportation, and disposal • Information on accidents, disposal options, and technologies to manage hazardous wastes. • Information on other agreements for hazardous waste management
Stockholm Convention	According to Article 15 of the convention, reports should include: • Measures adopted to implement the convention, and their effectiveness • Statistical data on the production, import, and export of the chemicals included in the annexes to the convention.
Ramsar Convention	After the convention entered into force, the second meeting of the COP recommended the submission of national reports and requested the Bureau of the Convention (then equivalent to the secretariat) to establish the requirements for this process. Reports are submitted for each COP based on a format established by the standing committee. Questions are based on the convention's strategic plan and are designed to measure progress on key indicators and considering continuity to permit time-series analyses.

CITES	Article VIII para (7) establishes two types of reports for the convention that should be transmitted to the Secretariat: • An annual report containing a summary of the records of trade in the specimens regulated by the convention, including detailed information as indicated in Art. VIII para (6). • A biennial report on legislative, regulatory, and administrative measures taken to enforce the provisions of the present convention.

Source: (Basel Convention, 2016a; IUCN, 1973 Art. VIII; Ramsar Convention, 1984, 2013; Stockholm Convention, 2016a; UNEP, 1989 Art. 13; United Nations, 2001 Art. 15)

The Environmental Conventions Index includes data from 2001 to 2018[8] and illustrates trends within countries (across issues and over time), across countries, and across conventions. It creates a baseline against which to assess performance and empowers subsequent analysis of factors that enable or prevent countries from implementing their obligations.

Rwanda in the Global Environmental Conventions

Information submitted through the national reports for each convention is critical to the assessment of implementation and performance. The institutions fulfilling the reporting requirements vary across the conventions. The Rwandan Environmental Management Authority (REMA), with support from the Ministry of Environment, reports on the chemicals and waste conventions (Basel and Stockholm) as well as the Ramsar Convention on Wetlands. The Rwandan Development Board (RDB) is responsible for reporting on CITES and the Ministry of Sports and Culture for the World Heritage Convention. For many countries, regular reporting is the first hurdle as Figure 1 illustrates comparing reporting rates for Rwanda, Africa and the world. Importantly, Rwanda has complied fully with the reporting obligations for the Ramsar Convention on Wetlands, the Basel convention on transboundary movement of hazardous waste and the World Heritage Convention.

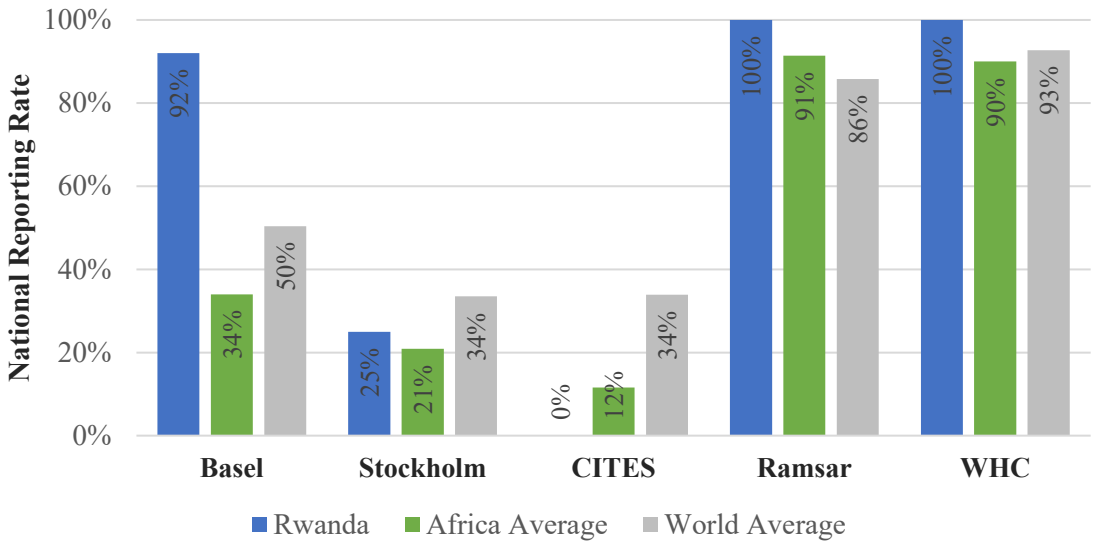

Figure 1: National Reporting Rates to Global Environmental Conventions (Average 2001-2015)[7]

For two of the five conventions reporting is still a challenge. Rwanda has submitted only one out of the four required reports for the Stockholm Convention on Persistent Organic Pollutants and has not submitted any of the implementation reports for CITES.

When compared to six peer African countries – Benin, Botswana, Ethiopia, Kenya, Mauritius, and South Africa – Rwanda emerges as the leader on consistent reporting to the Basel Convention with a reporting rate of 92%, higher than any of the peers (Table 5).

Table 5: Reporting Rates for Peer Countries

Country	Basel	Stockholm	Ramsar	CITES - Biannual	CITES - Annual	WHC
Benin	12%	0%	80%	33%	100%	100%
Botswana	29%	0%	100%	0%	88%	100%
Ethiopia	35%	25%	Not a member	50%	50%	100%
Kenya	12%	25%	100%	17%	100%	100%
Mauritius	64%	75%	100%	0%	88%	100%
Rwanda	92%	25%	100%	0%	88%	100%
South Africa	76%	75%	100%	0%	100%	100%
Average for the group	*46%*	*32%*	*97%*	*14%*	*88%*	*100%*

Note: Reporting rate is calculated based on the total number of reports submitted by February 28, 2019

Importantly, all seven countries have completed their reporting obligations to the World Heritage Convention, and all but one members to the Ramsar Convention have a 100% reporting rate. South Africa and Mauritius lead the reporting on the Stockholm Convention. Rwanda has submitted one of the 4 required reports, the 2018 one. It has submitted the National Implementation Plan (NIP) required under the Stockholm Convention and updated it in 2017 in accordance with Article 7 to address COP 4 and COP 5 amendments.[9] As of February 2019, Rwanda had not yet addressed the COP 6 amendment,[10] and the deadline for transmission of the updated NIP was November 26, 2016. In addition, Rwanda was supposed to transmit by December 15, 2018 NIP updated to address COP 7 amendments.[11]

Notably, CITES requires two national reports – an implementation report on the legislative, regulatory and administrative measures undertaken to be submitted every two years and an annual report on the number and kind of species traded. Rwanda has submitted no biannual implementation reports, which are the main measure of implementation of the convention. Ethiopia leads the implementation reporting on CITES, with a 50% rate for the biannual implementation reports. Benin, Kenya and South Africa have fully complied with their obligations to submit annual reports while Rwanda, Botswana and Mauritius have submitted 88% of those

reports. Rwanda has submitted annual reports but with a significant delay. In 2016, Rwanda retroactively submitted missing annual reports for 2012, 2013, and 2014 and in 2017, for 2015 through 2017. Implementation of the conventions is evolving and the country's performance in both the chemicals & waste and the biodiversity clusters has improved significantly over time. Rwanda has excelled in the implementation of commitments for regulating the transboundary movements of hazardous waste under the Basel Convention. In 2015, the country scored 4.60 (out of 5) and ranked 16th out of 161 member states worldwide and 3rd among 41 states in Africa that have submitted national reports (See Figure 2). Among the peer African countries – Benin, Botswana, Ethiopia, Kenya, Mauritius, and South Africa – Rwanda ranked highest in implementation of the Basel Convention, the Stockholm Convention (with Mauritius a close second), and the Ramsar Convention (See Table 6).

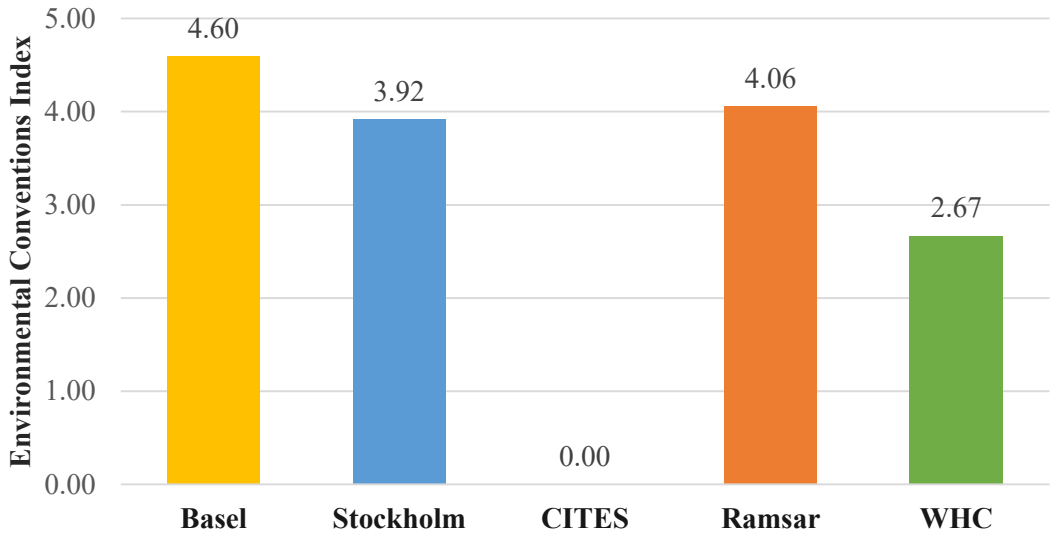

Figure 2: National Implementation of Global Environmental Conventions

Ranking (ECI Rank /Sample size)

	Basel	Stockholm	CITES	Ramsar	WHC
World	16 / 161	N.A.	N.A.	17 / 166	149 / 177
Regional	3 / 41	N.A.	N.A.	5 / 50	41 / 47

In regulating persistent organic pollutants, it is not possible to assess performance over time since only one report is available, for the 4th reporting cycle of the Stockholm Convention, which concluded in 2018. For that year, Rwanda has a score of 3.92. No rankings are available yet since the research team is in the process of assessing the data submitted as of December 31st, 2018.

Table 6: Implementation across Peer Countries

Country	Basel		Stockholm		Ramsar		CITES		WHC
Benin	2.47	2004	N.A.	N.A.	2.23	2018	2.46	2009-2010	4.25
Botswana	2.67	2006	N.A.	N.A.	3.39	2018	N.A.	N.A.	3.93
Ethiopia	3.07	2005	1.54	2010	Not a member	Not a member	3.28	2007-2008	2.68
Kenya	3.87	2009	2.95	2010	2.57	2018	3.20	2003-2004	3.93
Mauritius	3.07	2011	3.89	2018	3.21	2018	N.A.	N.A.	3.04
Rwanda	4.60	2015	3.92	2018	4.06	2018	N.A.	N.A.	2.71
South Africa	4.27	2015	3.04	2018	3.70	2018	N.A.	N.A.	4.86
Average ECI for the group	*3.43*		*3.07*		*3.19*		*2.98*		*3.63*

In the biodiversity cluster, Rwanda's work on wetlands is commendable. In 2015, Rwanda ranked 17th out of 166 state parties to the Ramsar Convention on Wetlands and 5th out of 50 African countries who had reported. In 2018, however, the questionnaire for the Ramsar Convention expanded to include new questions about the contribution of wetlands to sustainable development and Rwanda's score decreased by 8% to 4.06 placing it 29th in the world (out of 167 states) and 7th in Africa (out of 50 states) (see Figure 2 and Figure 3). Performance on the Ramsar Convention is particularly positive as the country's implementation score increased from 2.69 in 2008 (when Rwanda ranked 108th among 141 countries) to 4.24 in 2015. The rankings decreased only slightly in 2018 as the content for the national reports evolved and now information is requested on issues that had not been measured before, most of them related to the impact of wetlands on the implementation of clean water and sanitation policies related to SDG 6 on clean water and sanitation.

The World Heritage Convention requires national reports every five years. As of the latest reporting cycle, with a score of 2.67, Rwanda ranked 149th out of 177 parties and 41st out of 47 parties in Africa. The country, however, has not inscribed any world heritage sites. Among its peer African countries, South Africa performs exceptionally well on implementation of the World Heritage Convention with a score of 4.86 and Benin follows with a score of 4.25 (See Table 6).

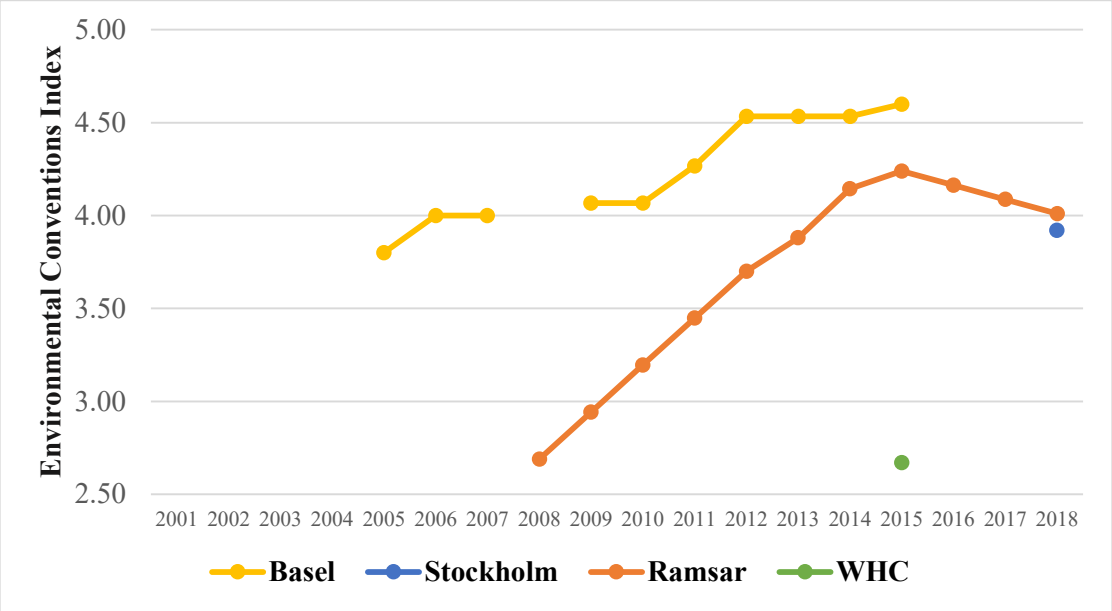

Figure 3: Historic Evolution of Implementation (by Convention)

Overall, Rwanda's performance in both biodiversity and chemicals & waste has been positive. Understanding the reasons behind success in the Basel and the Ramsar Conventions is important. Recognizing the challenges associated with the implementation of the conventions is also critical. Acknowledging the difficulties in reporting can lead to the identification of key factors and the main steps to addressing them. Appendix 2 details the progress Rwanda has made in achieving its commitments under the Basel, Stockholm, and Ramsar conventions, the areas where action is progress, and those where commitments are to be completed.

The following sections summarize the research findings regarding the evolution of implementation of the environmental conventions in the two clusters and highlight best practices and key challenges. Only when equipped with solid empirical analysis, can the government objectively assess the country's performance, define areas for improvement, identify necessary resources, and articulate necessary actions. Table 7 presents the summary findings of the analysis.

Table 7. Summary Findings of best practices and challenges of five conventions implemented in Rwanda

	Basel	Stockholm	Ramsar	CITES	WHC
Best practices	• Comprehensive legislation, regulatory and institutional framework • International and regional cooperation • Plastic bags ban • E-waste management • Vision 2020 and a set of other environmental policies	• Legislative and regulatory framework • Policy framework • Managing some persistent organic pollutants	• Comprehensive legislation • Cultural and historical sustainable approach to wetlands management • International recognition of conservation efforts • Effective bureaucratic processes and regulations	• Awareness raising • Regional cooperation • National conservation programs • Stakeholder engagement in conservation through poverty reduction programs	• Recognition and interest in heritage sites protection
Challenges	• Reducing volume of hazardous waste • Absence of adequate recycling infrastructure • Information gaps	• Lack of reporting to the Secretariat • Low public awareness and stakeholder engagement • Lack of data and poor management of pesticides and contaminated sites	• Funding for engaging local communities • Relocating infrastructure • Wetlands protection in the context of climate change	• Inconsistent reporting • Incoherent legislation	• Lack of instruments supporting the Convention • Lack of world heritage sites inscription

Rwanda's Performance in the Chemicals and Waste Cluster

Chemicals are critical to all aspects of modern life. They play an important role in agriculture, industry, energy, and medicine. Every year the number of chemicals available on the market increases and consumption rises. By 2020, chemicals are expected to represent a third of overall global consumption (UNEP, 2012a) and global trade and supply chains are becoming increasingly complex. Chemicals pose threats to human health and the environment. As the Global Chemicals Outlook II notes, "the World Health Organization estimated the burden of disease from selected chemicals at 1.6 million lives in 2016" adding that this is likely to be an underestimate.[12] Many hazardous substances are transported through air and water across the globe making chemical pollution a global problem. The disposal of hazardous wastes has also become an international concern.

National regulatory systems are critical to the safe management of chemical substances but they are often insufficient as trade volumes increase, opportunities for illegal dumping appear in places around the globe with weak regulatory systems, and the cost of chemical management in industrialized countries increases. Management of chemicals and waste is challenging and requires technical and institutional capacity, which is often lacking in many low-income countries.

Rwanda's performance in regulating the transboundary movements of hazardous waste through implementation of the Basel Convention is impressive and has been improving steadily over time. Rwanda's score on the Environmental Conventions Index increased from 3.80 in 2005 to 4.60 in 2015 ranking the country 3rd in Africa[13] and 16th in the world, which puts it at the same level as countries such as Canada and China. Figure 4 illustrates Rwanda's progress by category – management, regulatory, and technical issues. From the outset, Rwanda has developed and implemented fully all the necessary management and regulatory aspects, including transit restrictions and measures for reduction of the amount of hazardous wastes and other wastes subject to transboundary movement. Indeed, the lines for the management and regulation categories in Figure 4 overlap as Rwanda has a consistent score of 5 for both. Notably, Rwanda has made critical progress in complying with the technical requirements of the Basel Convention increasing its score by more than 30% in ten years, between 2005 and 2015. Rwanda's experience can therefore be valuable to many other countries seeking to improve their technical capabilities to deal with the requirements under the convention.

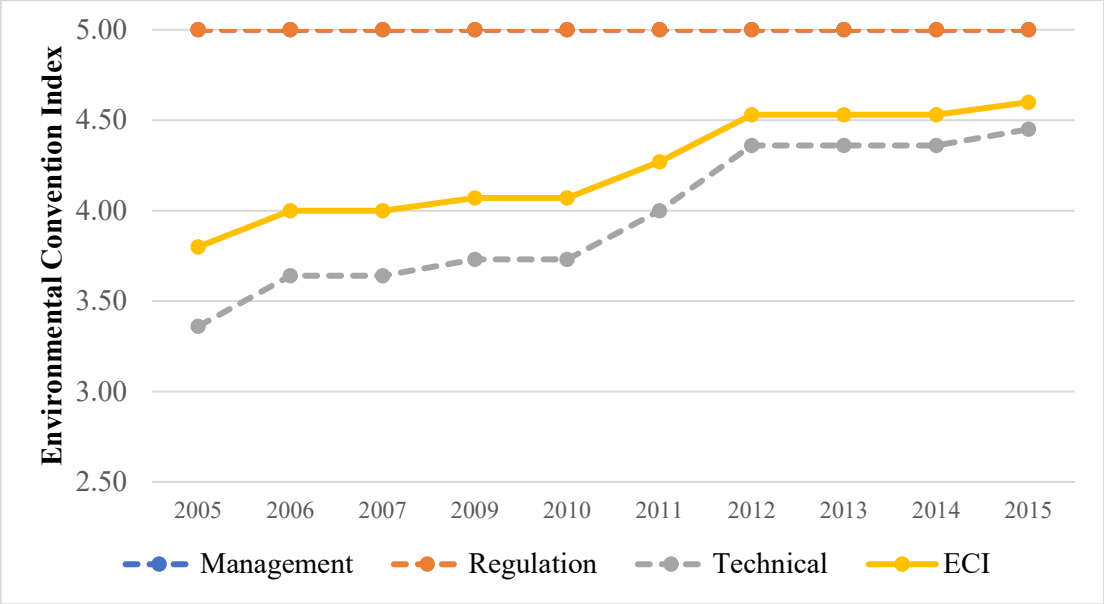

Figure 4 Historic Evolution of Basel Convention Implementation (by Category)

To further strengthen the implementation of the Basel Convention and improve its ECI score, Rwanda needs to implement the Ban Amendment and develop additional requirements for the transboundary movement of different types of waste. As for the Stockholm Convention, the report submitted in 2018 shows that Rwanda is doing well in implementing most of the technical and management obligations, but struggles with the financial ones. Other areas for improvement in the process of the Stockholm Convention implementation include PCB and pesticides management, assessment of industrial chemicals, the participation on regional and sub-regional action plans, the provision of technical assistance, and the identification of articles contaminated with PCBs among others.

Rwanda has developed **comprehensive legislation** for environmental protection. The Constitution of the Republic of Rwanda adopted in 2003 serves as the legal foundation for the state's role in protecting the environment. Chapter II, article 49 of the Rwandan Constitution affirms that *every person has a right to a clean and healthy environment* and defines the state's responsibility in ensuring environmental protection and the modalities for protecting, safeguarding and promoting the environment as codified by the country's Organic Law. In addition, the Rwandan Constitution serves as the legal basis for Rwanda's compulsory adherence to signed and ratified international agreements. Title X, Article 190 stipulates that "upon their publication in the official gazette, international treaties and agreements which have been conclusively adopted in accordance with the provisions of the law shall be more binding than organic laws and ordinary laws."[14]

Organic Law N°. 04/2005 adopted on August 4, 2005 is another central piece of the national legislative framework for environmental management. It specifies the policies and principles

governing Rwanda's lands (including the agricultural sector), waters, forests, and biodiversity. In addition, Article 7, Paragraph 1 of the Organic Law includes protection or the precautionary principle ensuring that scientific uncertainty is not used as a shield for the benefit of the "destroyers of the environment." Embedded in this law is a mechanism for environmental impact assessment for any new project prior to implementation. Finally, this law demonstrates Rwanda's compliance with the Basel Convention, since its Article B.1. Paragraph 2 provides a national definition of waste used for the purpose of transboundary movement of waste and Paragraph 3 stipulates the national definition for hazardous wastes.

In addition to legal tools for protecting the environment, Rwanda has also established a **regulatory framework** that includes presidential decrees and ministerial orders. Article 91 of Organic Law Nº. 4/2005 officially prohibits the purchase, sale, import, export, transit, storage, and piling of certain chemicals, while 2008 Ministerial Order N° 26/03 establishes the list of those prohibited chemicals including: aldrine, chlordane, dieldrine, endrine, heptachlor, hexachlorobenzene, mirex, toxaphene, and polychlorinated biephenyls. Many of these chemical compounds have also been identified as hazardous persistent organic pollutants (POPs), inventoried and phased out under the Stockholm Convention. Other ministerial orders relevant to the implementation of both the Basel and Stockholm Conventions include the 2008 Ministerial Order N° 006 which regulates the imports and exports of ozone layer depleting substances, and the 2010 Ministerial Order N° 003/16.01, which identifies preventative measures to halt activities that pollute the atmosphere.

Rwanda is one of the pioneers in combating plastic pollution as it was one of the first countries to **ban plastic bags**. In August 2004, the Minister of Lands, Environment, Forestry, Water and Mines (later transformed into Ministry of Environment) issued an order outlawing the manufacture, imports, use, and trade of plastic bags in an effort to eliminate the visible chemical pollution caused by polyethylene bags. In 2008, that order was codified by Law N°57 relating to the prohibition of manufacturing, imports, use and sale of polyethylene bags in Rwanda. The absence of polyethylene bags in Rwanda's waste stream has lessened the extent to which landfills damage the environment.[15] And even though a black market and smuggling of plastic bags might take place, local NGOs and small businesses have had the opportunity to participate in the creation of more environmentally friendly solutions.[16] Other African countries have followed Rwanda's example and Mauritania, Kenya and Morocco have also banned plastic bags.[17] Furthermore, on February 2019, the Rwandan Cabinet approved a draft law that will ban single use

Minister of Environment Vincent Biruta visit to AGROPLAST Ltd, a plastic recycling company (c) Ministry of Environment

of plastics and address the prohibition to their manufacturing, use, and sale. The law is currently under discussion in Parliament.[18] Given the importance of regulatory frameworks for plastics, this presents an opportunity for collaborative learning. Rwanda could convene peers to analyze the effects of the plastics ban, the challenges, and the opportunities.

Rwanda actively engages in **international and regional cooperation**. According to the most recent 2017 national report to the Basel Secretariat, Rwanda continues to be in a preparatory process of implementing the amendment to the Convention (Decision III/1) i.e., **the Ban Amendment**. The Ban Amendment prohibits the transboundary movement of hazardous waste from Annex VII states (members of OECD, EU, Liechtenstein) to non-OECD states for final disposal, recovery, or recycling operations. While Rwanda has yet to ratify this amendment, the Organic Law N° 04/2005 restricts both the imports and exports of hazardous wastes for recovery and final disposal.

E-waste is the fastest growing waste type in the world and many developing countries import such waste. Rwanda is a pioneer in the **sound management of e-waste.** It has built a management and dismantling facility in the Bugesera district, eastern province, 35 km outside Kigali.[19] The Rwandan government invested $1.5 million in the project and after 6 months of testing, the facility collected 120 tons of e-waste and 60 tons have been dismantled. The facility was established to implement the National E-waste Management Strategy which also includes a national framework for recycling and a countrywide collection scheme. The Bugesera facility is of great regional significance as it is only the second “end of life” facility built in Africa with the first one located in South Africa.

At the **regional level,** Rwanda is a signatory to the 1991 Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa. The Bamako Ban, which prohibits the imports of hazardous wastes on the African continent, was ratified by Rwanda on September 30, 2015. In addition, Rwanda is party to the East African Community Customs Management Act of 2004, which is a regional cooperative agreement that obliges states to monitor and restrict prohibited imports and exports including pesticides, e-waste, and hazardous waste.

African waste management experts visit Rwanda e-waste recycling facility (c) Rwanda Green Fund

Rwanda also has a comprehensive **institutional environmental framework** comprising a dense constellation of national-level ministries and decentralized government agencies working

within districts and at the local level. In addition, civil society actors including domestic and international non-governmental organizations (NGOs) and a network universities and research centers work in this area. The Organic Law Nº. 4/2005 (Ch. III, Article 65) established the Rwandan Environmental Management Authority (REMA), a non-sectorial environmental institution that operates under the Ministry of Environment. Law N°16/2006 articulates the functions and responsibilities of REMA including the oversight and coordination of public and private sector actors and the implementation and integration of environment-related international conventions, domestic policies, strategies and legal frameworks across the environmental management landscape.

Furthermore, Vision 2020 is the national-level developmental **policy framework** that articulates Rwanda's strategic vision for the country, establishing 48 targets and indicators ranging from poverty alleviation to sustainable resource management. Vision 2020 aimed at aligning national policy instruments with the United Nations Millennium Development Goals (MDGs) first and is now utilized as a means of attaining the Sustainable Development Goals (SDGs). Environmental considerations have been mainstreamed and integrated in other cross-sectorial development strategies in Rwanda including the 2013 Economic Development and Poverty Reduction Strategy (EDPRS) as well as the 2011 Green Growth and Climate Resilience Strategy (GGCRS) focusing on low carbon development; each vital to the realization of the long-term development goals in Vision 2020.[20] A key guiding principle and strategic objective of the GGCRS is to "achieve sustainable land use and water resource management that results in food security, appropriate urban development and preservation of biodiversity and ecosystem services."[21] The GGCRS also includes a special technical and financial support mechanism that allows for the implementation of fourteen programs of action in areas ranging from sustainable land use management, integrated water use management, sustainable forestry, agroforestry, and biomass as well as low carbon energy grids and climate compatible mining. A new EDPRS, that is currently being launched in Rwanda, discusses many of these issues and incorporates a 2050 vision for the country.

The government of Rwanda developed a National Implementation Plan (NIP) as a visible expression of the country's willingness to meet the commitments under the Basel Convention and to address the challenges related to the movement of hazardous waste within its borders and beyond. Rwanda also has an array of policies that attempt to reduce or eliminate the generation of hazardous waste including the National Environment Policy (2003), the National Land Policy (2004), the National Forest Policy (2017), the National Water Resources Policy (2011), the National Energy Policy (2016) and the strategy of reduction and/or prevention of wastes from source, sorting and selective collection of wastes. In 2010 the government harmonized a national regulatory framework addressing waste management. This effort has increased the coordination, technical, and financial capacities of the public and private sector actors involved in waste management.

The 2006-2007 National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants (updated in 2016) represents a willingness on the part of the government of Rwanda to adhere to its international obligations and outlines specific measures to meet those commitments. The plan is organized around a waste management hierarchy approach, consisting of "options for

Training for Kigali Independent University (ULK) Rubavu students on persistent organic pollutants and polychlorinated biphenyls /13 June 2016 (c) Rwandan Environmental Management Authority

waste management during the lifecycle of waste, arranged in descending order of priority: waste avoidance and reduction, re-use and recycling, recovery, and treatment and disposal as the last resort."[22]

According to the most recently submitted questionnaire for parties to the Stockholm Convention, the government of Rwanda reported that while it does have a regulatory and assessment scheme for new pesticides and industrial chemicals in place (Ministerial order N° 26/03 of October 23, 2008 determining the list of chemicals and other prohibited pollutants) the scheme does not address chemicals that exhibit the characteristics of persistent organic pollutants as defined in Paragraph 1 of Annex D of the Stockholm Convention. Since the submission of the Annex II questionnaire, Rwanda has added several new chemicals to the phase out list including endosulfan, hexabromocyclododecane, hexachlorobutadiene, pentachlorophenol and its salts and esters and polychlorinated naphthalene. Success in the **management of persistent organic pollutants (POPs)** includes institutional and regulatory measures to identify contaminated sites and augment monitoring and research capacities, efforts to address the emissions release from the unintended production of PCBs, and schema for governing the production, use, stockpile, and waste of POPs.

While the government of Rwanda has demonstrated a clear willingness to meet its international commitments under the Basel and Stockholm Conventions, **challenges** persist. Policy-makers, academics, non-governmental organizations and private sector actors consistently identify deficits that must be addressed to effectively govern the spectrum of issues around hazardous chemicals and waste including **information gaps and absence of adequate recycling infrastructure**. According to the 2014-2021 National Implementation Plan for the Basel Convention, challenges related to waste include the increased volumes of waste generated due to a growing population and economy, increased waste stream complexity due to industrialization and urbanization, information gaps related to national flows of waste, absence of recycling infrastructure including too few landfills and hazardous waste management facilities and a policy environment that does not incentivize or promote the waste management hierarchy.[23] In cases where infrastructure is in place, lack of trained personnel or insufficient training result in the unsound waste management. In addition, the National Implementation Plan identifies areas that still must be addressed including:

- conduct yearly national pesticides inventories, particularly in the agricultural sector;

- stockpile, evaluate and eliminate obsolete pesticides;
- improve institutional arrangements and inter-sectoral collaboration to enhance monitoring and evaluation capacity;
- establish a data acquisition system to address information gaps;
- update guidelines for new POPs wastes management;
- identify and monitor contaminated sites and associated health impacts;
- use findings to raise awareness among the public.

As for the Stockholm Convention, one of the challenges is **low public awareness and stakeholder engagement**. According to the updated National Implementation Plan, involvement of NGOs, local communities and industries is crucial to the implementation of the Stockholm Convention and "there is an urgent need of educating the key stakeholders of new POPs on their existence, consequences as well as management for both environmental and health protection."[24] Additionally, both the Plan and 2018 National Report identified a **challenge of managing old POPs and remediation of contaminated sites**. Specifically, Rwanda lacks information about the status of stockpiles of obsolete pesticides and has poor practices for managing pesticides currently used in agriculture. Addressing this issue should include clarification of roles and responsibilities at the ministerial level and inter-sectoral collaboration for better monitoring of pesticides management. Rwanda is also in the process of developing regulations and establishing procedures for the assessment of new pesticides.[25]

Rwanda's Performance in the Biodiversity Cluster

Rwanda's performance on the three biodiversity conventions, Ramsar, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the World Heritage Convention, shows different trends. Rwanda is a top performer in the Ramsar Convention, in the top 20% globally. It has, however, not submitted the implementation reports for CITES and its performance cannot be assessed. It has not inscribed any World Heritage sites and the performance on the convention is rather low based on the only national report submitted. Active focal points, a drive for international leadership, and an ecosystem of cooperating environmental organizations help explain Rwanda's success story in the Ramsar Convention. Rwanda's sustained strengths include a robust environmental legal framework. One area for improvement is media outreach. In essence, Rwanda has many lessons to offer both developed and developing countries in the implementation of the Ramsar Convention and holds the potential to be a leader on the world stage.

A Ramsar member since April 1st, 2006, Rwanda has demonstrated improved performance in wetlands governance both on the international and regional level. As of 2018, Rwanda ranked 29th out of 169 contracting parties globally. This places Rwanda in the top 20% internationally on implementation of the Ramsar convention as measured by the ECI and among the top ten countries in Africa.

This gives authority to Rwanda's consistent calls to neighboring countries to take the governance of wetlands seriously. Rwanda's Environmental Conventions Index score in 2015 was 4.24, 25% higher than the international average (3.24). As evident in the Index trend (see Figure 5), Rwanda's scores have improved over time. However, the latest report, in 2018, included an expanded questionnaire asking for evidence of the contribution of wetlands to the implementation of the SDGs. As shown below, Rwanda's implementation score decreased 8% from the 2015 to the 2018 reporting cycle. This is primarily due to a decrease in two categories – financial and technical (see Figure 6). In 2018, the Ramsar secretariat noted that Rwanda had not submitted its financial contribution to the conventions. In the technical category, the 2018 report evidences slow or lack of progress and information in the areas related to wastewater management, the assessment of water sources, and the establishment of restoration and rehabilitation programs.

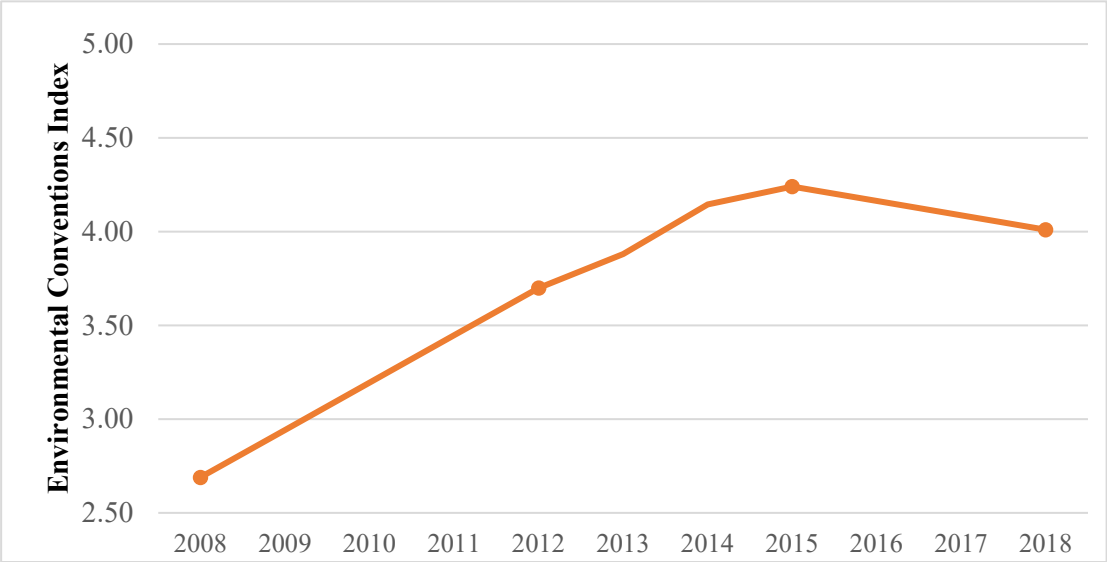

Figure 5 Evolution of the Level of Implementation of the Ramsar Convention

Since joining the Ramsar Convention, Rwanda has demonstrated commitment to sustainable and healthy wetlands and robust international environmental governance. A **comprehensive legislative system** was established for the implementation of the Ramsar Convention and wetlands protection. For example, Rwanda's Organic Law Nº. 4/2005 puts a strong emphasis on protecting people, habitats, the environment, social welfare, sustainable development, and future generations. It also reemphasizes the commitment to the Ramsar Convention and hence stresses the importance of its effectiveness. With support from the Ramsar Secretariat and FAO, Rwanda has developed a specific law related to wetlands – a Marshlands Bill that came into force at the end of 2009. This law provides norms for compliance and enforcement and is the second of a kind adopted in Africa (the first one was adopted by Mauritania).[26] In addition, the 2013 Law on Management of Land frames the environment as a part of a common natural heritage thereby entrusting every person with the duty of environmental protection.

According to this law all wetlands legally belong to the state and the government can lease them to individuals and companies for 20, 49 or 99 years. However, the activities that lessees can perform are strictly regulated by the state – construction is prohibited, and acts related to the exploitation of a wetland (like fishing or hunting) are subject to additional permitting or licensing. Projects have to undergo environmental impact assessment, and those aimed at ecosystem restoration, sustainable energy, afforestation, prevention of soil degradation, etc. can receive support from the National Fund for Environment (FONERWA). Additionally, Ministerial Order N° 008/16.0 of 13/10/2010 establishes the list of wetlands and their limits thus regulating their management and use.[27] This list was updated by Ministerial Order N° 006/03 of 30/01/2017 which proposed 62 wetlands as Ramsar sites. Importantly, Rwanda approaches wetlands management in a cross-cutting manner as it has incorporated wetland protection and restoration into other policies – the Poverty Eradication Strategy, the Water Recourses Management Plan, water efficiency plans, and coastal and marine resources management plans.

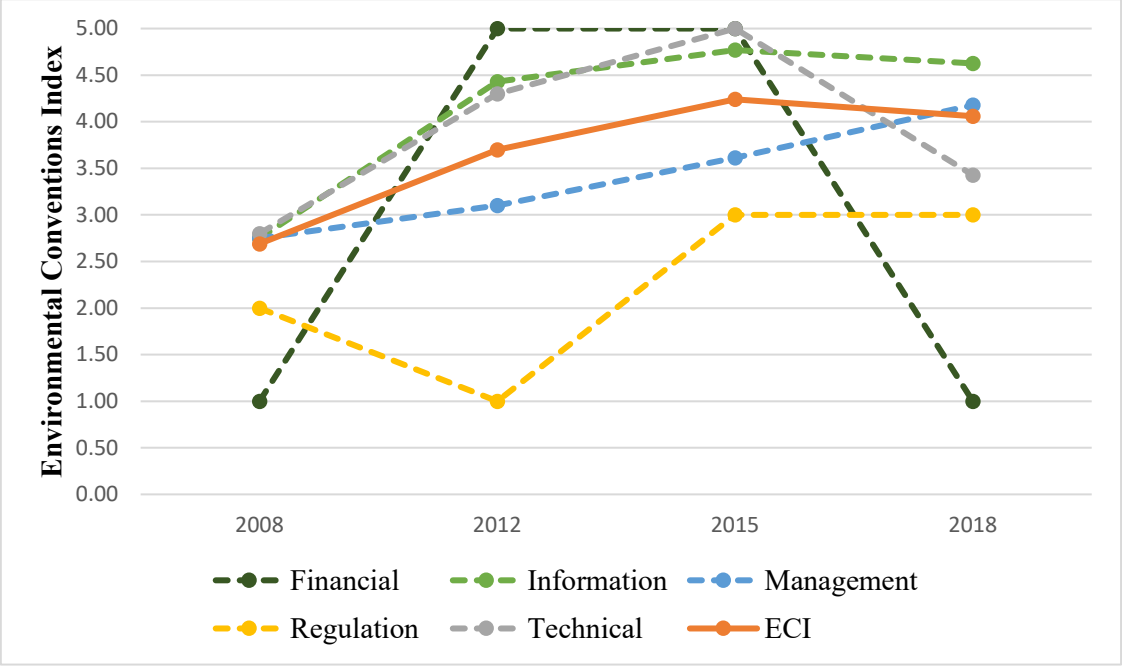

Figure 6 Historic Evolution of Ramsar Convention Implementation (by Category)

Historically, Rwanda has valued **wetlands for their ecosystem services and cultural importance**. Before officially ratifying the Ramsar Convention Rwanda had already completed: "i) the preparation of a draft national wetlands policy, ii) a series of studies on the biodiversity of the wetlands in Rwanda and the role of wetlands in food production and security in the country, and iii) the collection of data and indicators on wetlands."[28] The pressure for expansion of farmland, however, is putting significant stress on wetlands.

Out of 860 marshlands in the country, Rwanda designated **the Rugezi-Burera-Ruhondo wetland (Rugezi),** which spans 6,736 hectares, as a Ramsar site of international importance. This vast area brings both ecological benefits and management challenges such as monitoring of the vast space.

Wetlands hold high value for biodiversity conservation, climate regulation, and human welfare and Rugezi is no exception.[29] It shelters endangered bird species, stores carbon, feeds hydroelectric power downstream and supports surrounding agricultural crops.

Rwanda's strategic restoration of the Rugezi wetland has earned **international recognition** as the country received the Green Globe Award from the World Wetland Network (WWN) in 2010. Rwandan Ramsar focal points have also successfully led projects such as community-based planning workshops and a radio documentary series about wetlands and food security, developed in partnership with the Food and Agricultural Organization (FAO).

Additionally, Rwanda engages in **cooperation with international organizations** including IMCE (Integrated Management of Critical Ecosystems), the GEF (Global Environment Facility) and the World Bank. Together these organizations have mapped wetlands, managed catchments through committees, and developed sustainable guidelines for the conservation of these ecosystems. Viewed as a whole, environmental cooperation across organizations has led to an ecosystem of active research and wetland management and created a culture that is welcoming to scientific research.

In terms of **beneficial regulatory processes**, the government of Rwanda has developed many strategic documents that shape the intelligent management of natural resources. For example, there are registration forms for water users (requiring verification of identity, purpose of planned use, location, and scientific rate of flows). These documents are available in multiple languages, including Kinyarwanda, thereby increasing accessibility. Other documents include those of Marais (where individuals can input vegetation, water source, biodiversity, and surface area information), Gazetted Water Decrees (which cover the conservation, safeguard, and rational use of Rugezi as a headwater and entrusts local leadership to mainstream the importance of water conversation and protection in wetlands), and finally Rwanda's Comprehensive Water Resource Management Plan (2011-2015) which focuses on watersheds, rainwater and storm water management, and some

Theogene Ngaboyamahina showing Rugezi Wetland to UMass Boston students and faculty, March 2018

climate change mitigation. Through efficient and accessible bureaucratic processes and regulations, Rwanda gains valuable data on wetland sites and can coordinate efforts internally.

While implementation of Ramsar has improved, the **challenges** for managing Rwanda's Rugezi wetland have changed over time. In 2008, at COP 10, Rwanda identified **funding for engaging wetland communities** as the primary challenge for implementing the Convention. Later, during COP 11 in 2012, the **relocation of infrastructure in wetlands** and preserving the 20m buffer zone were the biggest challenges. This correlates with the increase in population density and the sheer size of the Rugezi wetland. While asked to name top five challenges for Ramsar implementation at COP 12 in 2015, Rwanda listed:

1) Relocation of infrastructures located in wetlands
2) Respect of the 20 m buffer zone from the boundaries of wetlands
3) Wetlands management against the impacts of climate change
4) Wetlands management vs. shortage of land due to high population density (415 inhabitants per square kilometer with over 80% of the population depending on agriculture)
5) Wetland restoration exercise and costing

This list remained the same in the national report for COP13 in 2018 with the additional challenge of limited funds for wetlands management.[30] Therefore, relocating infrastructures on wetlands and preserving the 20 m buffer zone in the context of growing population have been the most consistent challenges for Rugezi over time. These challenges are present in many other countries around the world, as it takes great effort to maintain a balance between protecting wetlands and utilizing their socioeconomic and ecological potential amidst reclamations from agriculture. Rwanda has been successful in striving to delineate and protect critical wetlands and has even discussed expanding the number of Ramsar sites, which shows encouraging commitment. However, local communities could be better involved in the decision-making processes to ensure full compliance with adopted policies.[31]

Implementation of CITES is more difficult to assess but there are clearly a number of challenges. The country has serious **compliance issues with reporting** and due to absence of data, which comes from implementation reports (formerly biennial reports), Rwanda's implementation score is 0. While there have been multiple programmatic initiatives, failure to submit biennial reports and significant delays in the submission of annual reports on trade in endangered species seem to be a challenge for Rwanda, as identified by historical patterns in reporting to the Convention. Even though Rwanda is currently up to date with submissions of annual reports, in many cases submissions followed **trade suspensions** recommended by the Secretariat for species under the Convention.[32] Recommendations to suspend trade have been issued on several occasions (years 2002, 2004, 2006, 2008, 2013) – due to the country's failure to report. The notification to suspend trade in 2002 was for failing to provide annual reports for the prior three consecutive years. This was also the case for a recommendation to suspend trade in 2004 and its reissuance in 2006, which was lifted in 2010 after Rwanda provided the Secretariat with copies of a draft law with CITES-related provisions that included drafts of the "Wildlife Conservation and Management Act."

Grey crowned cranes in Rugezi Wetland (c) Rwanda Wildlife Conservation Association

While this was movement in the right direction, the draft law - comprised of the Determination of Compensation for Damages Caused by Wildlife, the draft National Wildlife Policy, and the draft National Wildlife Policy – was never enacted. In 2008, trade was suspended for failure to submit to the Secretariat a questionnaire regarding CITES' Action Plan for controlling the trade of elephant ivory in elephant range states, which was withdrawn later that year. Lastly, the most recent suspension was in 2013 for significant trade in *Balearica regulorum* (Grey Crowned Crane), with trade resuming in 2018. The Rwanda Wildlife Conservation Association led by Olivier Nsengimana was a key contributor in helping to restore the population of this bird species. Importantly, the Grey Crowned Crane's habitat is wetlands and the positive performance on Ramsar has contributed to the improvement of wetlands and thus to the health of the crane population.

Additionally, Rwanda faces a serious **challenge with adopting legislation** for CITES implementation. According to the CITES Secretariat, "repeated noncompliance" with the obligations to submit reports and the absence of legislation criminalizing the illegal wildlife trade would result in another trade suspension. The CITES National Legislation project that assists and encourages countries' legislative efforts consistently ranks Rwanda as a category 3 country (the lowest ranking), meaning that "legislation is not considered to meet any of the requirements for effective implementation as determined by CITES."[33] The latest update states that the draft legislation submitted in April 2016 was deemed insufficient and further revision and finalization of the act as well as submission for enactment is required.

Even though Rwanda clearly struggles with implementation of CITES, it has a wide range of **national conservation programs**. For example, Rwanda's Akagera National Park became a site of the Monitoring the Illegal Killing of Elephants (MIKE) program and has been influential in protecting a number of endangered species. Akagera National Park, a potential future Ramsar site, is Central Africa's largest protected wetland and is home to more than 8000 large mammals and 500 bird species.[34] Since the establishment of Akagera Management Company which now manages Akagera National Park by the Rwanda Development Board and the African Parks Network in 2009, seven South African lions and more than 20 Eastern black rhinos were introduced.[35] Not only has the park been instrumental in protecting the species from poachers, it also adds to Rwanda's ecotourism sector as part of the Economic Development and Poverty Reduction Strategy (EDPRS).

More recently, management of Akagera National Park at African Parks partnered with the Smart Parks Foundation to implement a network system that connects and collects information through remote sensing throughout the park.[36] This high-tech system allows rangers to have eyes throughout the park, with remote sensors that monitor gates and track wildlife, vehicles, rangers and any persons entering the park's perimeter. Additionally, the park uses 'situational awareness' by putting location trackers on endangered species in the park and synthesizing and presenting data in an easy to use web application. The data provided is up to the minute and gives rangers faster response time to threats. When a threat is detected, the rangers use helicopters and/or foot patrol to arrest poachers and turn them over to police. Poachers are then held in prison and tried in court for environmental crime. The system also has a heat map feature, providing a long-term view of the roaming patterns of animals, tourists and park personnel.

Rwanda engages in **regional cooperation** aimed to protect the largest section of the Greater Virunga landscape, the Virunga National Park that is located in Democratic Republic of Congo (DRC) on the border with Uganda and Rwanda and is contiguous with Rwanda's Volcanoes National Park in the northwestern region of the country. Using illegal wildlife trade to fund their operations, armed militant groups have posed the greatest obstacle in the region with rangers risking their lives to curb poaching especially in DRC. These groups pose a threat to national and international security and are a serious challenge for the transboundary management and conservation efforts in the Greater Virunga Landscape, one of the world's most biodiverse areas.

More encouragingly, Rwanda, Uganda, and DRC established the Greater Virunga Transboundary Collaboration (GVTC) in 2015, which comprises a council of ministers with representatives from each country to promote cooperation and reduce illegal trade in the landscape.[37] In April 2018, Rwanda's Minister of Trade and Industry, Vincent Munyeshyaka was elected to preside over the collaboration as the first president of the Council of Ministers of the GVTC, and the council set a deadline of September 2018 to complete the national processes required for ratification of the treaty. The treaty places the responsibility of preventing poaching and illegal wildlife trade with the three partner states, including "increased punishment for lawbreakers." The collaboration faces significant funding and governance challenges as it relies primarily on outside funding.

Increased collaboration in the region has been a catalyst in improved conservation efforts, with Minister Munyeshyaka stating that over the past decade, "the number of mountain gorillas and elephants in the Greater Virunga Landscape has grown." As shown by the most recent census, population of mountain gorillas continues to grow, which shows the importance for the countries to invest in such initiatives.[38] The GTVC has also been utilized as a mechanism for broader collaboration and strategic management between the Rwandan Development Board, the Ugandan Wildlife Authority, and the Congolese Institute for the Conservation of Nature.

Collective law enforcement efforts in the Greater Virunga landscape are instrumental in combating wildlife crime. **Poaching for ivory** had dropped by 50 percent since 2013, according to the GVTC's Executive Secretary at the time Dr. Georges Tshibasu Muamba.[39] However, continuous conflict between the DRC government and various militant groups, as well as the absence of the

rule of law, particularly in eastern DRC, continues to be one of the most serious threats to wildlife preservation with more than 130 Virunga Park rangers killed in the line of duty since 1996.[40] The persistent violence has also caused the Greater Virunga landscape to lose visitors and Congo's Virunga National Park to close for the year in 2018 after the kidnapping of British tourists and the murder of a national park ranger.[41]

While increased violence in the Greater Virunga landscape has significantly affected the income brought in by tourists at Virunga National Park within DRC and Uganda, Westerners' perception of Rwanda as a safe tourist destination has significantly increased ecotourism in the country. Rwanda's policy implementation, zero tolerance for corruption, adherence to the rule of law, and political stability in the region are keys to its greater success in conservation efforts within its borders, the protection from the spillover of violence, and the promotion of ecotourism. Furthermore, conservation events, like the Kwita Izina—the traditional name for the gorilla naming ceremonies designed to help monitor each individual gorilla and to raise attention to their conservation and protection—have also **increased awareness** and attracted global attention, bringing in visitors and tourism and philanthropist dollars from all over the world, including from celebrities like Sean Penn and Ellen DeGeneres.

One of the threats to endangered wildlife is the country's increasing population coupled with persistent poverty in some areas. This has been a significant threat to endangered species, pushing inhabitants to compete with wildlife for land and move deeper into the park for cattle grazing, timber and bamboo for building, or hunting bushmeat for food.[42] Therefore, **poverty reduction and stakeholders' engagement** are two of the core components of Rwanda's strategy to combat illegal wildlife trade, as outlined in EDPRS and Rwanda Vision 2020. Acknowledging these linkages between poverty and illegal wildlife trade, the Rwandan government has created programs to prevent poaching, hunting and habitat loss by rehabilitating and employing ex-poachers. The program arose out of an encounter in 2005 between Volcanoes National Park staff member Edwin Sabuhoro and ex-poacher, Leonidas Barora.[43] After Sabuhoro rescued a young baby gorilla from a poacher, he began a conversation with poachers, uncovering the link between poverty and poaching and creating employment in the park protecting instead of poaching endangered wildlife, particularly the mountain gorillas.[44] Within six months of starting the program, 500 poachers joined the effort, trading poaching for guiding tourists, demonstrating indigenous medicine, beekeeping,

Silverback mountain gorilla. Volcanoes National Park, Rwanda (c) Maciej, license CC BY-SA 2.0, available at https://bit.ly/30UyVmC

and basket-weaving, among other trades. Others have joined the anti-poaching ranks at the park, which has been extremely beneficial in providing rangers insights on the methods and tactical strategies used in trapping and killing animals. Because of the initial success of Sabuhoro's effort, the Rwandan government now allocates five percent of annual park revenues to supporting projects to increase the quality of life in the local communities, including building schools and medical facilities.[45]

The increase in the number of park rangers through this program has also been significant for **wildlife conservation efforts** in Rwanda. The IUCN also states that the park rangers in Rwanda, DRC, and Uganda are directly responsible for the increase in the mountain gorilla population.[46] One of the main threats to gorilla population are hunting snares and staff from both Volcanoes National Park management and the Dian Fossey Fund's Karioske Research Center located at Volcano National Park search for snares and destroy them on a daily basis.[47] Most interestingly, the gorillas have also joined the fight and are now sometimes able to spot and destroy snares on their own. Researchers speculate this behavior was learned by watching the trackers from the Center.[48]

Additionally, recent research analyzed ten years of "ranger-based monitoring data and dynamic multi-season occupancy models to quantify poaching-related threats, to examine factors influencing the spatial-temporal dynamics of these threats and to test the efficiency of management actions to combat poaching in Nyungwe National Park (NNP), Rwanda."[49] The researchers found that threats from poaching-related activities were highest at lower elevations between 1,801 to 2,200 m, particularly in areas closest to roadways or tourist trails. Threats decreased in higher elevation sites between 2,601 and 3,000 m, near ranger posts and the park's boundaries. Furthermore, the study directly correlates the probability of extinction to the number of ranger patrols at a given site and suggested that sites in Rwanda could be more effective "by adding ranger posts in areas where they do not currently exist, and by increasing the number of patrols to sites where the probability of poaching activities is high."[50]

Rwanda became a party to the World Heritage Convention in 2000. However, to this date, the country does not have any sites on the World Heritage List. In 2012, Rwanda listed a potential site - the "Sites mémoriaux du génocide: Nyamata, Murambi, Bisesero et Gisozi" - on their national Tentative List. This is an ensemble of places designated as a cultural heritage site in relation to the genocide in 1994. The lack of inscriptions and the long period for even one site to be on the national Tentative List is explained by Rwanda's challenging history. As the country is improving its implementation of many international conventions and gaining a solid reputation in the field of global environmental governance understanding the reasons that might hold back the full implementation and use of the World Heritage Convention in Rwanda is important.

Rwanda has a total score of 2.78 for World Heritage Convention implementation and ranks 133rd out of 177 countries. The main issue identifiable through the report is the **lack of structures to enable implementation of the Convention**. This includes the absence of adequate lists and inventories for processing or even suggesting sites within Rwanda as well as inadequate legal framework within the country that would allow for proper implementation of the Convention.

Throughout the report Rwanda shows that there is a **recognition and interest in heritage sites and their protection**, but there are no institutions or regulatory structures and no legislative basis for the work required for inscribing a World Heritage Site on the World Heritage List and for maintaining such a site.

The World Heritage List represents a wide range of cultural and natural sites recognized as being of outstanding universal value to humanity. Inscribing a site on the World Heritage List is a lengthy process that starts by identifying a potential future nomination and creating basic assessments. A site is then put on the national tentative list, which essentially is a waiting list for any future nomination. The most challenging part in this process is the creation of the so-called nomination file that has to be submitted to the World Heritage Center and evaluated by the Advisory Bodies and the World Heritage Committee, which has the final decision of whether to inscribe a site on the World Heritage List or not. **Rwanda has the potential to inscribe the Volcanoes National Park as a natural heritage site**.

Volcanoes National Park meets several of the criteria for inscribing a natural heritage site:

- Criterion (vii): “to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance”
- Criterion (viii) “to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features”Criterion (ix) “to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals”
- Criterion (x) “to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation”

Volcanoes National Park in Rwanda (c) Volcanoes National Park

The nomination file is a detailed description of the site and its values and showcases the strategies and structures in place for the site's protection. It must contain thorough comparisons with other sites on the World Heritage List that are similar to the values represented by the nominated site. Within the file, the respective authorities must make a case for inscription and argue how the site fulfills a certain set of criteria and the stipulations to have authenticity and integrity. Given the significant experience and excellence in developing institutions and legal regulatory frameworks, Rwanda can certainly develop necessary conditions for successful inscription of world heritage sites and their preservation.

Should the site be inscribed on the World Heritage List, the heightened attention could put more pressure on the site due to increase in potential tourism. Furthermore, by inscribing a site on the World Heritage List, the respective authorities accept that an additional level of protective measures and designated protected areas might be necessary. This means that national and local laws have to comply with the framework of the World Heritage Convention and that certain areas have to be designated to be completely off limits for future human developments.

International Leadership Potential

The Republic of Rwanda is undergoing a period of transformation. This process entails rapid development, urbanization as well as population and economic growth. These trends coincide with dramatic growth in the volume and magnitude in the generation of hazardous wastes, chemical pollution and a host of other externalities that impose costs on the Rwandan environment and people. Rwanda has positive results regarding the implementation of the Basel Convention, present challenges notwithstanding. And while there was lack of reporting for the Stockholm Convention, Rwanda submitted the national report for the 4th reporting cycle in 2018 mentioning in the comment section that "the reporting format sometimes is complicated."[51]

In the biodiversity cluster reporting trends also differ across conventions – Rwanda has 100% reporting rate for the Ramsar Convention and a high level of implementation but has not submitted a single biennial report for CITES and submitted missing annual reports retroactively in 2016 and 2017. Importantly, all MEAs that Rwanda has ratified are coordinated through the same institution – REMA, which is part of the Ministry of Environment. This allows for greater collaboration and effectiveness.

As identified in Rwanda's National Implementation Plan for the Stockholm Convention, effective, environmentally sound management of hazardous chemicals and wastes and the implementation of related management policies depend on the institutional capacity of national and subnational agencies. Since 1999, Rwanda has established a series of robust legislative, institutional, and strategic frameworks to bolster its institutional capacity for managing its environment and promoting the sustainable use of its resources. Building the institutional capacity of the state has been a key priority in the era of post-war reconstruction, and strong institutional, legal and policy framework bolsters implementation of both the Basel and Stockholm Conventions. Additionally,

being a party to the Bamako Convention, Rwanda engages in regional cooperation on transboundary movement of waste. On the international level, Rwanda is one of the pioneers in addressing plastic pollution. It has been more than 10 years since the ban on polyethylene bags was introduced in the country which reduced significantly the presence of plastic in Rwanda's waste stream.

While Rwanda has achieved some success in managing POPs under the Stockholm Convention, it still faces a set of technical challenges. The country developed capacity to identify contaminated sites, increased monitoring and research, implemented some efforts to address the emissions release from the unintended production of PCBs and introduced schema for governing the production, use, stockpile, and waste of POPs pesticides. At the same time, lack of training to operate facilities and insufficient recycling facilities results in unsound hazardous waste management. Additionally, Rwanda struggles with managing obsolete pesticides and in raising general public awareness about the danger of persistent organic pollutants. Information gaps both related to hazardous waste and persistent organic pollutants also slow down the process of implementation of Basel and Stockholm Conventions.

Other key challenge that Rwanda is facing while implementing chemicals and waste conventions is reducing hazardous waste. One obstacle to tackling this problem is land scarcity as it "drives environmental degradation while environmental degradation exacerbates the effects of land scarcity."[52] Rwanda has the highest population density in any country throughout the African continent. Additionally, lack of technical capacity and training poses a challenge for both Basel and Stockholm implementation. Engaging universities in research, testing, information, and education of farmers and the public could be a valuable tool that would also help increase the capacity within the country.

Environmental protection and the promotion of sustainable management of resources is a top priority for the government of Rwanda and a main pillar of its development platform. Environmental stewardship is recognized as an essential dimension of the country's economic development and long-term security, which translates into tremendous success in implementing Ramsar Convention. Relative success in the implementation of CITES is attributable to improved national enforcement capacities but Rwanda is still not complying with the reporting obligations under CITES. It also has yet to develop the necessary legislative framework for effective implementation. At same time, Rwanda has introduced a variety of conservation efforts in collaboration with neighboring Uganda and the DRC, which has resulted in the increase of the mountain gorilla population and global awareness. Additionally, joint efforts of these countries reduced ivory poaching in the Greater Virunga landscape by 50% since 2013.[53] Acknowledging the links between poaching and poverty, Rwanda has introduced effective programs to prevent poaching, hunting and habitat loss by rehabilitating and employing ex-poachers.

Rwanda's leadership in implementation of the Ramsar Convention on Wetlands was acknowledged by international community given that in 2010 the country was awarded the Green Globe Award by the World Wetland Network. Having long history and cultural foundation for environmentally sound management of wetlands, Rwanda manages to sustain its only Ramsar site

– the Rugezi wetland - through a comprehensive legislative and policy framework. A variety of bureaucratic processes, like submission of forms for water use and getting respective permits, have elements incorporated for sound wetlands management and data collection at the same time. However, Rwanda faces a persistent challenge of relocating infrastructures and keeping 20m buffer zone in the context of its growing population and pressure it created on land resources.

One way to address Rwanda's challenges in wetlands management is to continue raising international awareness and using the momentum for extending partnerships and building new ones. While REMA has extensive community building and media campaigns at the local and national levels, the number of popular news stories about the Rugezi wetland are limited. Between September 2016 and April 2018 media in different languages – including an article in Spanish – recognized the importance of this ecosystem. One option for future engagement would be to characterize wetlands as complex systems with an emphasis on health (human and environmental), food (agriculture on or near wetlands), energy (hydro, peat trapped energy, carbon capture), water (flood prevention, water supplies in drought, and the physical, biological, and chemical histories of the watershed) and climate change (adaptation and resilience). Ideally the already robust communication programs of REMA could team up with local, national, and international publications to continue celebrating success stories from Rugezi. These efforts could generate more local, regional, national, and international support for wetland management and conservation.

Looking to the future, new environmental conditions may shape Rwanda's implementation of the Ramsar Convention. As a prime example, Rwanda has a new opportunity to jumpstart dialogue on the link between wetlands and climate change especially given that climate change is one of the persistent challenges for the country in Ramsar implementation listed in the national reports for both COP12 and COP13. Scholars believe that "climate change will make future efforts to restore and manage wetlands more complex"[54] given decreases in quantity and quality of water. Other changes include "base flows, altered hydrology, increase heat stress on wildlife, increased range of pest and disease vectors, increased flooding, landslide...and mudslide damage, and soil erosion..."[55] These point to significant and sometimes severe changes for both the wetland and the people who live around it. On a legal level, future research could investigate the connection between Ramsar and the UN Framework Convention on Climate Change and "the role of wetlands in reducing greenhouse gas emissions."[56] This research could facilitate organization cooperation and align local, national, international parties in a common mission. On a scientific level, each wetland has its own unique "regional and mega-watershed level" habitats requiring special monitoring and cooperative planning. Providing sufficient time, energy, and resources to these efforts will increase the quality of planning and adaptation to any cascading effects. Wetlands, like Rugezi, scholars note, are "extremely sensitive to changes in the hydrological cycle, which in turn respond to variations in climate and carbon cycle."[57] Therefore, Rwanda has a chance to be an example for the world of an invested early mover in the creation of wetland and climate change strategies. In sum, Ramsar focal points in Rwanda have demonstrated capability and excellence in the past and will be presented with many opportunities for international environmental leadership in the future.

Rwanda has the potential to add a new natural heritage site to the World Heritage List. Natural heritage sites are underrepresented on the list and hold a higher chance for acceptance than cultural sites. In addition, Africa is an underrepresented region on the World Heritage List and if the application is successful, this would be Rwanda's first World Heritage Site. Volcanoes National Park is similar to three adjacent World Heritage Sites – the Kahuzi-Biega National Park and Virunga National Park in DRC and Bwindi Impenetrable National Park in Uganda. Adding a similar site in Rwanda would recognize the exceptional value of the natural heritage in this part of the world and its global importance.

Conclusion

Rwanda's decision makers are aware of the economic costs of different forms of environmental degradation, for example, water and energy inefficient technologies, poor soil and water management, water pollution etc. The evolution of Rwanda's environmental protection measures can be characterized as an attempt to align international, national, and subnational policies and align economic development with environmental sustainability. This integrated approach to resource management can be seen across environmental and development strategies in Rwanda and reflects an awareness of the need for holistic approach to environmental management.

The framing of environmental issues in Rwanda has been an important factor of success for the government of Rwanda's environmental policies. Rwanda has put the environment and climate change at the center of its national development program. Because the relationship between the state of the environment, conflict, and poverty are intertwined, Rwanda has recognized this interconnectivity in its legislation and strategic planning documents, implementing directives that simultaneously address environmental conservation, economic progress, and poverty alleviation. For the government of Rwanda, environmental protection is the pathway to sustainable development. In addition, because Rwanda is considered to be highly vulnerable to climate change (e.g. precipitation and temperature changes), the government has long-since realized the importance of climate mitigation and adaptation strategies.

Rwanda's positive performance on the global environmental conventions and the resultant improvements in the quality of wetlands, the protection of species, and the improvement of human welfare, demonstrates the value of the country's deep commitment to the environment as the foundation for the economy and society. Rwanda's actions and accomplishments offer an important example for many countries in Africa and beyond.

[1] Corresponds to GDP measured under Purchasing Power Parity (PPP), meaning that it is adjusted to equate the purchasing power of two currencies. Both the total GDP and per capita GDP appear as Purchasing Power Parity values.
[2] CIA Factbook
[3] World Bank Green Data 2017
[4] The indicator measures the percentage of population with access to this category of sanitation as defined by the Joint Monitoring Program (JMP) for Water Supply and Sanitation of UNICEF and the World Health Organization. An improved sanitation facility is defined as one that hygienically separates human waste from human contact.
[5] The indicator measures the percentage of population with access to this category of water supply sources as defined by the Joint Monitoring Program (JMP) for Water Supply and Sanitation of UNICEF and the World Health Organization. An improved water supply source is that one that, because of its construction or management, is protected from outside contamination.
[6] In addition, Rwanda has not submitted any national reports to CMS-AEWA and it is therefore impossible to analyze its performance.
[7] According to the Vienna Convention on the Law of the Treaties, international agreements are open for ratification, accession, approval or acceptance. Acceptance and approval are used instead of ratification when national law does not require the treaty to go through the process of ratification by the head of state.
[8] Currently our research team is updating the data for the conventions for which new national reports have been submitted.
[9] COP 4 and COP 5 added a number of chemicals to Annexes A, B and C: tetrabromodiphenyl ether and pentabromodiphenyl ether; technical endosulfan and its isomers; perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride; pentachlorbenzene; lindane; hexabromodiphenyl ether and heptabromodiphenyl ether; hexabromobiphenyl; chlordecone; alpha and beta hexachlorocyclohexane.
[10] COP 6 added hexabromocyclododecane to Annex A.
[11] COP 7 added hexachlorobutadiene and pentachlorophenol and its salts to Annex A and polychlorinated naphtalenes to Annexes A and C.
[12] UNEP. Global Chemicals Outlook II. (Nairobi: United Nations, 2019)
[13] Several countries share the same score for the Basel Convention. Rwanda shares this ranking with Algeria, Burundi and Egypt. The only country in Africa that performed better in 2015 was Madagascar with a score of 4.67. Other countries that received a higher score include Austria (4.67), Czech Republic (4.67), Germany (4.67), Bulgaria (4.73), Malaysia (4.73), Mexico (4.73), Slovakia (4.73) and Portugal (4.93).
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Appendix 1: Methodology for the Environmental Conventions Index

Global environmental conventions – also known as treaties or agreements – are an integral part of the international environmental governance system. Multiple studies have attempted to evaluate their implementation, but none offer a systematic empirical assessment. The Center for Governance and Sustainability has developed a new empirical tool – the Environmental Conventions Index – which measures the level of national implementation of global environmental agreements.[58]

To date the Index provides a quantitative assessment of implementation in six conventions within two thematic clusters – chemicals & waste and biodiversity – and includes the Basel Convention on Hazardous Waste, the Stockholm Convention on Persistent Organic Pollutants, the Ramsar Convention on Wetlands, the Convention on International Trade in Endangered Species (CITES), the African-Eurasian Waterbirds Agreement of the Convention on Migratory Species (CMS/AEWA), and the World Heritage Convention (WHC). The Index is a measurement instrument for national implementation that evaluates implementation using the same parameters for all countries as is based on the national reports that signatory countries submit to the convention secretariats. The Index allows for analysis and comparison across and within conventions and across and within countries. It also identifies trends over time for individual countries, groups of countries, or the conventions.

To create the Index, the research team collected reports submitted by member states to the six conventions over a 15-year period (2001-2015); identified implementation indicators for each convention; and created and applied scoring scales for each indicator. The implementation indicators across all conventions fall within five categories: information, regulation, management, technical, and financial obligations (See Box 1). In total, 2,989 national reports were analyzed (Table 1).

Box 1 Definition of categories of indicators

- *Information*: Obligations to conduct scientific assessment, measurement, and evaluations associated to the activities connected to each convention. It also includes the submission of reports to the conventions' executive bodies, and the establishment and maintenance of databases and records required for the operation of each convention and their implementation.
- *Management*: Designation or creation of administrative bodies and focal points to manage the implementation and general functioning of each convention, the linkages with the conventions' executive bodies, and the definition of strategic frameworks for the operation of each convention at the national level.
- *Regulation*: Legislative and policy measures that each state party has to implement according to the framework of each convention.
- *Technical:* Technical issues to address or manage the environmental problems associated to each environmental convention.
- *Financial:* Financial contributions, including payment of dues and assistance, and other financial responsibilities by state parties.

Table 2 presents the number of questions in each of the reporting cycles and their distribution among the different indicators. Examples of indicators from the various categories are presented

in Table 3 and the coding scheme is presented in Table 4. Countries are ranked on progress toward the aims of the conventions using an ordinal scale from 0 to 5 with 5 being the highest level of implementation. The research team has double-coded over 100,000 data points to build a reliable dataset that includes the reported data submitted by each country to each convention for all selected indicators over 15 years.

Table 1 Number of national reports analyzed by convention

	Basel Convention	Stockholm Convention	Ramsar Convention	CITES	CMS/AEWA	WHC
National reports available	1,355	226	768	405	44	191

Table 2 Number of questions and indicators by reporting cycle

			By category (Number and percentage)				
	Questions	Indicators for ECI	Information	Management	Regulation	Technical	Financial
Basel Convention							
2001-2011	30	15	-	2 (13%)	2 (13%)	11 (74%)	-
2012-2015	30	15	-	2 (13%)	2 (13%)	11 (74%)	-
Stockholm Convention							
2002-2006	67	48	4 (8%)	15 (31%)	14 (29%)	12 (25%)	3 (6%)
2006-2010	65	59	4 (7%)	26 (44%)	8 (14%)	18 (31%)	3 (5%)
2010-2014	72	56	4 (7%)	20 (20%)	9 (16%)	20 (20%)	3 (5%)
Ramsar Convention							
2005	581	45	8 (18%)	24 (53%)	1 (2%)	11 (24%)	1 (2%)
2008	69	36	8 (22%)	16 (44%)	1 (3%)	10 (28%)	1 (3%)
2012	83	48	14 (29%)	20 (42%)	2 (4%)	11 (23%)	1 (2%)
2015	67	45	13 (29%)	20 (44%)	2 (4%)	9 (20%)	1 (2%)
CITES							
2003-2014	120	46	11 (24%)	14 (30%)	10 (22%)	10 (22%)	1 (2%)
CMS/AEWA							
2012	65	44	14 (32%)	10 (23%)	7 (16%)	12 (27%)	1 (2%)
WHC							
2009-2015	66	26	1 (4%)	14 (54%)	3 (12%)	7 (27%)	1 (4%)

A seven-step protocol ensures analytical rigor:

1. Identify obligations and commitments by member states.
2. Collect reports submitted by member states to the conventions as the main formal source of information to evaluate implementation and construct the Index.
3. Use national reports to identify implementation indicators for each convention.
4. Create and apply scoring scales for each indicator. To this end, each answer to each question under a specific convention is evaluated using an ordinal scale from 0 to 5 with 5 being the highest level of implementation. A score of 0 is given when no information is provided.
5. Code data from national reports to build a dataset that includes the reported data submitted by each country to each convention for all selected indicators. Two researchers conduct the coding process to ensure inter-coder reliability.
6. Score reported data and rank countries both on whether they have submitted reports according to their obligations and whether their reports demonstrate progress toward the aims of the conventions.
7. Construct the Index using the scores for each indicator. The indicators are not weighted. A weighting could take place at a later stage or users can do it once the database is available online in an interactive format.

In developing the Index, the Center for Governance and Sustainability collaborated with top leadership in the secretariats of the Basel, Rotterdam, Stockholm, Ramsar, CITES, CMS-AEWA, and World Heritage conventions, as well as officials from UN Environment. This included both site visits to several convention secretariats and attending conferences of the parties (COPs) for some of the conventions.

Table 3 Sample Indicators across Conventions

Category	Indicator	Convention
Information[4]	Provision of information on CITES relevant legislation	CITES
	Maintenance of wetland inventory data and accessibility for stakeholders	Ramsar Convention
	Transmission of the National Implementation Plan to the COP	Stockholm Convention
	Existence of a waterbirds monitoring scheme	CMS/AEWA
	Existence of a research programme or project for the benefit of World Heritage properties	WHC
Regulation	Existence of a national definition of waste and of hazardous waste	Basel Convention
	Trade/taking species/possession/transport conditions included by domestic measures adopted by countries for CITES-listed species	CITES
	Existence of a National Wetland Policy	Ramsar Convention
	Existence of measures to manage stockpiles in a safe, efficient and environmentally sound manner	Stockholm Convention
	Measures for prohibition of illegal taking (of waterbirds)	CMS/AEWA

[4] The Basel Convention does not include information obligations.

Category	Indicator	Convention
	Existence of legislation for the protection, conservation and presentation of cultural and natural heritage	WHC
Management	Existence of border control for transboundary movement of waste	Basel Convention
	Review of legislation regarding access to or ownership of natural resources / regarding harvesting / regarding transport of live specimens	CITES
	National arrangements established for the custodianship, storage and maintenance of wetland inventory data and information, including metadata	Ramsar Convention
	Development of strategies to identify products and articles in use and wastes consisting of, containing or contaminated with chemicals listed in Annex A, B or C	Stockholm Convention
	Development of international cooperation projects for the implementation of the Convention	CMS/AEWA
	Use of inventories/lists/registries to protect cultural heritage / natural heritage	WHC
Technical	Existence of measures for Reduction and/or elimination of the generation of hazardous wastes and other wastes	Basel Convention
	Development of written permit procedures for permit issuance/acceptance, registration of traders, registration of producers	CITES
	Implementation of measures to protect wetlands of special importance	Ramsar Convention
	Inventory of PCDD/PCDF / PCB / pentachlorobenzene / hexachlorobenzene	Stockholm Convention
	Status of an eradication programme for non-native waterbird species	CMS/AEWA
	Existence and status of an inventory/list/registry of national / regional, provincial / local cultural heritage	WHC
Financial[59]	Use of the revenues of CITES fees for wildlife conservation	CITES
	Payment of Ramsar dues	Ramsar Convention
	Existence of measures to provide financial support and incentives to achieve the objectives of the Convention	Stockholm Convention
	Provision of funds for the AEWA Small Grants Fund	CMS/AEWA
	Establishment of national policies for the allocation of site revenues	WHC

Most of the questions in the national report questionnaires provide for multiple choice answers and open text for explanation. The options for responses include a range that the team codes from 0 to 5. Table 4 provides a sample of response options and the coding scheme.

Table 4 Sample response options and coding scheme

Response options	**Coding for Index**
A - Not applicable	
B - Yes	5
C - No	1
D - Partly / In some cases	3
E - In progress	3
F - Being planned	2
G - Being updated	5
H - Other	
I - No answer	1
No Response	0

Ultimately, the Environmental Conventions Index is an empirical measurement tool that assesses implementation progress by country and by convention and ensures comparability of results. By evaluating implementation under the same parameters, using a set of indicators based on the national reports signatory countries submit to the convention secretariats, the Index allows for multifaceted analysis and comparison. It also identifies trends over time for individual countries, groups of countries, and the conventions. It can contribute to the understanding of how countries are translating their international obligations into national environmental policies, offering policy inputs to improve the performance of countries and conventions.

[58] The Environmental Conventions Index was developed with the financial support of the Federal Office for the Environment of Switzerland, the University of Massachusetts Boston, UN Environment, and the Carnegie Corporation through an Andrew Carnegie Fellowship for Prof. Maria Ivanova, Director of the Center for Governance and Sustainability.

[59] Only some of the conventions include financial obligations.

Appendix 2: Rwanda Progress Report

BASEL CONVENTION
COMPLETED
o National definition of waste o National definition of hazardous waste o Article 1 (1) b definition of waste o Wastes requiring special consideration o Export restrictions for final disposal o Export restrictions for recovery o Import restrictions for final disposal o Import restrictions for recovery o Transit restrictions o Use of documentations and movement forms o Border control for transboundary movement of waste o Measures for Reduction and/or elimination of the generation of hazardous wastes and other wastes o Measures for reduction of the amount of hazardous wastes and other wastes subject to the transboundary movements
IN PROCESS
o Implementation of the Ban Amendment
TO COMPLETE
o Definition of waste for special consideration o Additional requirements for waste transboundary movement

STOCKHOLM CONVENTION

COMPLETED

- Development of the National Implementation Plan
- Transmission of the National Implementation Plan
- Review and update of the National Implementation Plan
- Existence of measures to prohibit the production and use of chemicals listed in Annex A
- Existence of measures to prohibit the production and use of chemicals listed in Annex B
- Development of an action plan to identify, characterize and address the release of chemicals in Annex C
- Development of source inventories and release estimates of the chemicals listed in Annex C
- Inventory of PCDD/PCDF
- Inventory of PCB
- Inventory of pentachlorobenzene
- Inventory of hexachlorobenzene
- Development of an evaluation of the efficiency of the laws and policies to manage releases of unintentionally produced POPs
- Existence of requirements for use of Best Available Techniques (BAT) /and/or Best Environmental Practices (BEP) for new and existing sources
- Development of strategies for identifying stockpiles consisting of or containing chemicals listed in either Annex A or Annex B
- Identification of stockpiles consisting of or containing chemicals listed in Annex A or Annex B
- Existence of measures to manage stockpiles in a safe, efficient and environmentally sound manner
- Development of strategies to identify products and articles in use and wastes consisting of, containing or contaminated with chemicals listed in Annex A, B or C
- Existence of measures pursuant to paragraph (d) of Article 6
- Development of strategies for identifying sites contaminated by chemicals listed in the convention
- Identification of contaminated sites
- No production of any chemicals listed in Annex A and B of the Convention
- No exports of any of the chemicals listed in Annexes A and B of the Convention
- No Imports of any of the chemicals listed in Annexes A and B of the Convention
- Establishment of an information exchange mechanism
- Definition of measures to implement Article 10 of the Convention
- Development of a strategy for identifying stockpiles consisting of or containing greater than 50 ppm PCBs
- Development of a strategy for identifying products and articles in use and wastes consisting of, containing or contaminated with greater than 50 ppm PCBs
- Development of strategy for identifying products and articles contaminated with open application of PCBs
- Activities included in measures to manage PCBs or articles containing greater than 50 ppm PCBs
- Development of appropriate strategies for identifying sites contaminated by greater than 50 ppm PCBs
- Identification of sites contaminated by greater than 50 ppm of PCBs
- Existence of measures to identify and label, where appropriate, all equipment in use containing greater than 50 ppm PCBs
- Existence of measures to identify and/or label, where appropriate, all wastes liable to contain greater than 50 ppm PCBs
- Existence of measures, in accordance with Annex A, Part II subparagraph (b) of the Stockholm Convention, to promote the following measures to reduce exposures and risk to control the use of PCBs
- Destruction of PCB oil and equipment or articles containing greater than 50 ppm PCBs identified in the country
- No imports of any equipment or articles containing greater than 50 ppm PCBs for disposal as listed in Annex A under Article 3 paragraph 2 (a) (i) of the Convention
- No exports of any equipment or articles containing greater then 50 ppm for disposal as listed in Annex A of the Convention

- Development and implementation of an action plan with the goal of reducing and ultimately eliminating the production and / or use of PFOS
- No production of PFOS
- No use of PFOS for the various acceptable purposes and specific exemptions listed in Annex B
- Actions taken to phase out the use of PFOS
- Actions to promote research and development of safe alternative chemicals and non-chemical products and processes methods and strategies to the use of PFOS

IN PROCESS

- Existence of measures to regulate new pesticides or new industrial chemicals
- Inclusion of Annex D when conducting assessments of pesticides or industrial chemicals currently in use
- Disposal of wastes consisting or containing chemicals listed in Annex A or Annex B
- Partial environmentally sound management of waste containing greater than 50 ppm PCB
- Partial development of a specific plan for the management, phase-out and disposal of PCBs according to Article 7 of the Convention

TO COMPLETE

- Notification to the Secretariat to register specific exemptions listed in Annex A or Annex B or for acceptable purposes listed in Annex B
- Participation in regional or sub-regional action plan
- Inventory of PCN
- Development of necessary steps to remediate POPs contaminated sites
- Submission of a report pursuant to paragraph 4 of Part II of Annex B
- Definition of measures to implement Article 11 of the Convention
- Existence of measures to provide technical assistance to other Contracting Party to the Convention
- No measures to provide financial support and incentives to achieve the objectives of the Convention
- Existence of measures to identify articles and materials contaminated through open application of PCBs
- Registration for any specific exemptions related to PFOS listed in Annex B to the convention
- Registration for any of the acceptable purposes related to PFOS listed in Annex B to the convention
- Review of the continued need for the specific exemption and / or acceptable purposes
- No action taken to build the capacity of countries to transfer safely to reliance on alternatives to PFOS

RAMSAR CONVENTION
COMPLETED
○ Incorporation of wetlands benefits into other strategies and planning processes (National Policy or strategy for wetland management) ○ Incorporation of wetlands benefits into other strategies and planning processes (Poverty eradication strategies) ○ Incorporation of wetlands benefits into other strategies and planning processes (Water resource management and water efficiency plans) ○ National forest programs ○ National policies or measures on agriculture ○ National biodiversity strategy and action plans drawn under the CBD ○ National policies on energy and mining ○ National policies on tourism ○ National policies on urban development ○ National policies on infrastructure ○ National policies on industry ○ National policies on aquaculture and fisheries ○ National plans of actions (NPAs) for pollution control and management ○ National policies on wastewater management and water quality ○ Improvement of the sustainability of water by the Ramsar Sites ○ Use and application of the Guidelines for allocation and management of water for maintaining ecological functions of wetlands in decision-making processes ○ Development of projects that promote and demonstrate good practice in water allocation and management for maintaining the ecological functions of wetlands ○ Encouragement to the private sector to apply the Ramsar wise use principle and guidance in its activities and investments concerning wetlands ○ Private sector is undertaking activities or actions for the conservation, wise use and management of Ramsar sites and wetlands in general ○ Actions have been taken to implement measures which encourage the conservation and wise use of wetlands ○ Actions have been taken to remove perverse incentive measures which discourage conservation and wise use of wetlands ○ National strategies and priorities have been established for further designation of Ramsar sites using the Strategic Framework for the Ramsar List ○ Use of the Ramsar sites information service and its tools for national identification of further Ramsar sites to designate ○ Mechanisms are in place for the Administrative Authority to be informed of negative human-induced changes or likely changes in the ecological character of Ramsar sites ○ No negative human-induced change or likely change in the ecological character of the Ramsar Sites ○ Complete National Wetland Inventory and updated it in the last decade ○ Maintaining of the wetland inventory data ○ Wetland data inventory accessible to all stakeholders ○ Country has made amendments to existing legislation to reflect Ramsar commitments ○ Undertaking of research to inform wetland policies on climate change and valuation of ecosystem services ○ The effective management of sites guiding principles are taking into account the cultural value of wetlands including traditional knowledge ○ Documenting and encouraging of the application of traditional knowledge and management practices relevant for the wise use of wetlands ○ Assessment of the ecosystem benefit / services provided by Ramsar sites and other wetlands ○ Implementation of wetland programmes and projects that contribute to poverty alleviation objectives or food and water security plans

- Inclusion of socio-economic values of wetlands in the management planning for Ramsar sites and other wetlands
- Inclusion of cultural values of wetlands in the management planning for Ramsar sites and other wetlands
- Identification of priority sites for wetland restoration
- Actions have been taken to enhance sustainability of key sectors such as water, energy, mining, agriculture, tourism, urban development, infrastructure, industry, forestry, aquaculture and fisheries when they affect wetlands
- Application of strategic environmental assessment practices when reviewing policies programmes and plans that may impact upon wetlands
- Promotion of stakeholder participation in decision-making on wetland planning and management
- Specific involvement of local stakeholders in the selection of new Ramsar sites and in Ramsar site management
- Existence of an operational cross-sectoral National Ramsar / Wetlands Committee
- Communication mechanisms in place to share Ramsar implementation guidelines and other information between the Administrative Authority and Ramsar Site Managers
- Communication mechanisms in place to share Ramsar implementation guidelines and other information between the Administrative Authority and other MEA national focal points
- Communication mechanisms in place to share Ramsar implementation guidelines and other information between the Administrative Authority and other ministries, departments and agencies
- Carry out of Ramsar-branded World Wetlands Day activities by either government, NGOs or both
- Carry out of campaigns, programmes and projects to raise awareness of the importance of wetlands to people and wildlife and the ecosystem benefits / services provided by wetlands
- Invitation of national focal points of other MEAs to participate in the National Ramsar / Wetlands Committee
- Make public information about wetlands and / or Ramsar sites and their status
- Transmission of wetlands and / or Ramsar sites information to the Ramsar Secretariat for dissemination
- Identification of transboundary wetland systems
- Participation in regional networks or initiatives for wetland-dependent migratory species
- Inclusion of wetlands conservation and wise-use in formal education programmes
- Use of previous Ramsar National Reports in monitoring implementation for the Convention

IN PROCESS

- Planning of research to inform wetland policies on agriculture wetland interactions
- Planning for the compilation of case studies, participation in projects or successful experiences on cultural aspects of wetlands
- Partial effective implementation of wetland restoration / rehabilitation programmes, plans or projects
- Involvement in the development and implementation of a Regional Initiative under the framework of the convention
- Support or participation in the development of other regional wetland training and research centres
- National Action Plan for CEPA
- Subnational action plan for CEPA
- Catchment / basin level action plan for CEPA
- Local / site level action plan for CEPA
- Existence of an operational cross-sectoral body equivalent to a National Ramsar / Wetlands committee
- Partial establishment of mechanisms in place at the national level for collaboration between the Ramsar Administrative Authority and the focal points of UN and other global and regional bodies and agencies
- Partial establishment of effective cooperative management for shared wetlands systems
- Partial assessment of national and local training needs for the implementation of the Convention

TO COMPLETE
○ Assessment of the quantity and quality of water to support the implementation of the guidelines for the allocation and management of water for maintaining the ecological functions of wetlands ○ Assessment of environmental flow in relation to mitigation of impacts on the ecological character of wetlands ○ Use of constructed wetlands / ponds as wastewater treatment technology ○ No knowledge about the functional status of wastewater treatment plans ○ Existence of a wastewater reuse system ○ Assessment of the Ramsar Sites regarding the effectiveness of their management (through formal management plans where they exist or otherwise through existing actions for appropriate wetland management) ○ Assessment of the effectiveness of Ramsar site management ○ There is no wetland policy in place to promote the wise use of wetlands ○ Use or Application of the guidelines for establishing and strengthening local communities and indigenous people's participation in the management of wetlands ○ Payment of Ramsar contributions

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