cogent
social
sciences

POLITICS & INTERNATIONAL RELATIONS | RESEARCH ARTICLE

Implementing effective environmental policies for sustainable development: Insight into the implementation of the CBD in Ghana

Thomas Prehi Botchway[1]*

*Corresponding author: Thomas Prehi Botchway, Corresponding author, University of Education, Winneba, Ghana
E-mail: abeikuprehi@yahoo.com

Reviewing editor::
Richard Meissner, Department of Political Sciences, University of South Africa - Muckleneuk Campus: University of South Africa, South Africa

Additional information is available at the end of the article

Abstract: This article discusses the efforts made to ensure the implementation of the Convention on Biological Diversity (CBD) in Ghana. The discussion is based on analysis of primary data gathered through interviews and analysis of several official reports, policy documents, legislative instruments, and Acts of Parliament of Ghana that pertains to environmental protection, biodiversity conservation, and sustainable development. The findings have been presented in a way that portrays the various efforts that have been made over the years to enhance sustainable development as the country makes efforts to implement the CBD. They are also linked to the extant literature on the subject of biodiversity conservation, environmental management, and sustainable development. The themes for presentation thus include the passage of several legislations, rules and regulations, and the implementation of targeted sustainable development-oriented policies. The article presents the gains made in the implementation of the CBD and lessons that can be learnt.

Subjects: Environmental Management; Environment & Resources; Conservation - Environment Studies; Political Ecology; Biodiversity &Conservation; Environmental Policy;

ABOUT THE AUTHOR

Dr. Thomas Prehi Botchway is a Lecturer of Political Science and International Relations in the Department of Political Science Education, University of Education, Winneba. He obtained his PhD in International Law from the Law School, Chongqing University in the People's Republic of China. He also holds Bachelor of Arts (BA) and Master of Philosophy (MPhil) degrees in Political Science from the University of Ghana. Botchway is also an alumni of the University of Education, Winneba with a Postgraduate Diploma in Teaching and Learning in Higher Education (PGDTLHE). His teaching and research interest covers the interdisciplinary fields of Political Science, International Relations and International Law. He is particularly interested in issues of Global Environmental Governance and Sustainable Development, Terrorism, Conflict & Conflict Resolution, Post-Conflict Peacebuilding & Transitional Justice, International Law & Diplomacy, Foreign Policy, Civil Society Organizations, Elections & Democratic Consolidation.

PUBLIC INTEREST STATEMENT

The Convention on Biological Diversity (CBD) is an important multilateral environmental agreement that has three key objectives: the conservation of biodiversity; the sustainable use of biodiversity; and the sharing of benefits from biodiversity. This article discusses the efforts made to ensure the implementation this Convention in Ghana. It examines the laws, rules and regulations, as well as the policies that have been introduced over the years to ensure effective implementation of the CBD in a country that is endowed with so many natural resources. The findings of the study are linked to the extant literature on the subject of biodiversity conservation, environmental management, and sustainable development. The themes for presentation thus include the passage of several legislations, rules and regulations, and the implementation of targeted sustainable development-oriented policies. The article presents the gains made in the implementation of the CBD and lessons that can be learnt.

cogent ·· social sciences

1. Introduction

Ghana has over the years been making considerable progress in laying the foundations for sustainable growth and biodiversity conservation. For instance, a year after coming into force of the Convention on Biological Diversity (CBD), the Parliament of Ghana enacted the Act 490—Environmental Protection Agency Act, 1994. Five years later, the Environmental Assessment Regulations 1999 was also introduced. The country has also witnessed the enactment and amendment of several legislative instruments (LI) (including LI 1703 and LI 1652 amended) which all aim at promoting conservation of biodiversity and sustainable development, which are two of the three main objectives of the CBD (Republic of Ghana, 2002). In addition, in May 1999, the Government of Ghana (GoG) through the Ministry of Local Government and Rural Development introduced the Environmental Protection Policy which was reprinted in November 2001; all in an attempt to ensure compliance with the provisions of the CBD and also to ensure sustainable development (Ministry of Environment and Science (MoES), 2002). The question thus remains as to how effective some of these measures have been in addressing the issue of biodiversity conservation.

By the year 2006, the Environmentally and Socially Sustainable Development Department (AFTSD)-Africa Region of the World Bank indicated that Ghana's natural resources, upon which so much of the country's economic activity and the population's livelihood depend, are being depleted at an alarming rate. The report also stated that more than 50% of the original forest area has been converted to agricultural land by clearance for perennial or annual cropping and slash-and-burn cultivation practices notwithstanding the fact that crop yields had stagnated coupled with the decline in productivity as a result of widespread soil erosion. Moreover, fish, timber, and non-timber forest product stocks also decreased rapidly with coastal towns facing acute water shortages during the dry season (World Bank, 2006).

As a matter of fact, the country's wildlife populations and biodiversity were reported to be in a severe decline while health-related pollution (including air and water pollution) as well as sanitation issues threatened the majority of the population (World Bank, 2006). Consequently, in spite of the benefits from biodiversity, today's threats to species and ecosystems are the greatest recorded in recent history and virtually all of them are caused by human mismanagement of biological resources, which is often stimulated by misguided economic policies, pollution and defective institutions in-addition to climate change. Thus, to ensure intra and intergenerational equity, it is important to conserve biodiversity and ensure their sustainable use as well as adopt appropriate mechanism for accessing and equitably sharing the benefits that derives from biodiversity. These are the three core aims of the CBD and which all parties to the Convention are expected to pursue relentlessly. This study consequently seeks to identify some of the policies that have been put in place to deal with the loss of biodiversity and to ensure sustainable development in Ghana. The study also seeks to understand how these policies have been effective or otherwise in dealing with the problem of biodiversity loss in the country.

2. Research method

The overarching goal of the study was to examine the implementation of the provisions of the CBD and other related environmental regulations in Ghana amidst the hope of sustainable development. This goal is motivated by the idea that despite the existence of seemingly so many rules regarding conservation of biodiversity in Ghana, there are still evidence of destruction and pollution of the environment which in turn destroys biodiversity. Eventually, the attempt to describe,

analyze and explain Ghana's efforts at biodiversity conservation and sustainable development amidst the growing menace directed the researcher to situate the study in the qualitative research design. The reason is that the qualitative design is deemed appropriate for descriptive and explanatory studies (Babbie, 2004; Creswell, 2009; Yin, 1984). The qualitative design enabled the researcher to obtain relevant data in non-numerical form, which generated rich, in-depth insight into the research questions. Again, the choice of the qualitative design is informed by the need to explore the perspectives, thoughts and perceptions of some relevant stakeholders, such as specialist in the area of biodiversity conservation, public policy analysts, environmental protection, global environmental governance, and international law.

The research therefore makes use of both the primary and secondary sources of information. For the primary sources of information, the researcher engaged in interviews with some government officials and non-governmental organisations (NGOs)/civil society organisations (CSOs) and development experts, a public policy analyst, and an expert in the relevant field of international law. The secondary sources of information in this study included the use of the internet to gather relevant data on the subject matter, journal articles, official policy documents, and library sources as well as all other readily available important reading materials, such as the dailies, press releases, official reports and documents, and policy guides relating to the topic under consideration.

In all, while about 166 legislative documents and several official reports and policy documents relating to environmental and natural resources protection, as well as the implementation of the CBD in Ghana were carefully scrutinized for analysis. A sample size of three (3) experts were also chosen for a detailed interview. The respondents for the interviews were selected from some relevant NGOs, as well as experts in the field of practice. The selection of the interviewees was done with the Purposive Sampling technique.

The use of the Purposive Sampling (PS) technique to select interviewees is underpinned by the certainty that some subjects are fit for the research compared to other individuals. Thus, the interviewees selected for the study are not by accident or mere coincidence. Instead, such respondents were selected for the purpose of the relative knowledge and information they possess concerning the issue being studied. Thus, the wealth of knowledge and expertise they have was very useful to the study and this justifies the researcher's choice of such individuals and technique. Eventually, the three interviewees selected for the study are all key individuals and stakeholders who are enlightened enough to speak to the key questions raised by this research. To be precise, among the interviewees is a public policy analyst and academic whose research over the years have mainly focused on Ghana's mining sector and the extractive industry and the policies and regulations that have been pursued to regulate these sectors. There is also an international law expert who spoke about the merits and basis of implementing multilateral environmental agreements (MEAs) such as the CBD in a developing country like Ghana. In addition, the researcher also interviewed an International Relations and Global Environmental Governance expert. This particular expert also happens to be a former president of Friends of the Earth (University of Ghana Branch) and is currently actively conducting several studies and projects on environmental governance in Ghana. All these interviews helped the researcher to gather relevant firsthand information on the subject and such information was very enlightening due to the caliber of interviewees involved.

In recent times, purposive sampling has been used in a variety of studies. For instance, Smith et al. (2013) used a purposive sampling of Air Force Research Laboratory rapid development project managers and engineers to identify important systems engineering processes. The approach is one of the several methods of data collection that has been widely used in a variety of subject areas (Bakkalbasioglu, 2020; Barratt et al., 2015; Benoot et al., 2016; Michalos, 2014).

The researcher did an in-depth analysis of the available data and applied an interpretative content analysis where necessary. Krippendorff (2004) defines content analysis as a research

technique for making replicable and valid inferences from texts (or other meaningful matter) to the context of their use. He contends that as a research technique, content analysis involves specific procedures. He argues that it is learnable and divorceable from the personal authority of the researcher. In addition, it gives the researcher some added advantage to his or her research. The content analysis as a matter of fact provided new insights into the research. Moreover, the technique also increased the researcher's understanding of the phenomena of environmental protection, biodiversity conservation and sustainable development. In other words, the approach informs practical actions.

The interviews were guided through the use of set of three semi-structured interview guides. Accordingly, three sets of interview guides were used for collecting data. Each interview guide had peculiar questions that pertained to expertise of the interviewee. This notwithstanding, some key questions were repeated for all three sets. This approach was adopted so as to ensure that interviewees provided much vital information on the subject, which really related to their expertise and at the same time addressed the objectives of the study. The interview guides had some open-ended questions that ensured that the researcher was able to ask all the relevant follow-up questions that could not be captured in the interview guide.

With regards to the secondary sources of information, precisely 166 environmentally-related laws in Ghana were carefully analysed. Of these legislations, the researcher read through each of them to ascertain which of them directly addresses questions on environmental protection, biodiversity conservation, and sustainable development, and also those that address questions of biotechnology and biosafety—these issues are key targets for the implementation of the CBD. In the end, much attention was paid to such documents for most of the analysis. The documents include Acts of Parliament, Legislative Instruments, executive orders, military decrees, etc.

Aside these legislations, several reports on biodiversity conservation and sustainable development in Ghana, as well as development policy guidelines were carefully examined. These reports included those authored by the Republic of Ghana, independent international development agencies, in addition to those by the country's development partners. In order to track the progress or otherwise of the implementation of the CBD and sustainable development in the country, reports for previous and successive years were all examined and compared. Moreover, the details of these reports are compared with the responses of the various interviewees.

The researcher thus adopted content analysis technique since it is a scientific method and produces reliable, replicable (systematic and objective) and valid results. Accordingly, Krippendorff (2004, p. 24) asserts that "every content analysis requires a context within which the available texts are reexamined. In view of that, the analyst must, in effect, construct a world in which the texts make sense and can answer the analyst's research questions", and this is exactly what this study has done. Thus, the researcher analyzes relevant responses by generating various themes from the data gathered; especially through the interviews and review of the various legislations, reports, and policy documents to explain them in their right context.

3. Basis for the implementation of the CBD in Ghana

Since biodiversity conservation is inextricably interlaced with the environment and is virtually inseparable, the problem of biodiversity conservation and its management is necessarily an environmental problem and thus requires targeted environmental policies, rules and regulations to address these specific problems. The implication is that one cannot effectively address and implement the targets of the CBD and achieve the related goals without the implementation of the relevant domestic environmental laws, policies, and regulations. As a matter of fact, the CBD is an international environmental treaty and like any other multilateral environmental agreements, without the necessary domestic backing, it will be only a redundant document filled with good intensions and aspirations. As most multilateral environmental agreements, the CBD is not a self-executing treaty—it requires the key ingredient of domestic action, political will and the needed

support in order to achieve its aim—a situation that calls unto the scene the idea of a "balanced obligation" (Botchway, 2019). In this particular case, the CBD needed a signature and ratification—both of which the country (Ghana) has willfully offered.

The development and wellbeing of every Ghanaian is an issue that has been clearly spelt out as a must for every government to pursue in the 1992 Constitution of Ghana. Thus, Ghana's Fourth Republican Constitution makes long-term national development an imperative through the sixth chapter (the Directive Principles of State Policy). The original eight articles with their several subsections, paragraphs and clauses in this chapter requires the pursuance of policies and pro-grammes that would eventually lead to the "establishment of a just and free society", "where every Ghanaian would have the opportunity to live long, productive, and meaningful lives" (Government of Ghana, 2010, p. 1).

Article 36 (1) of the 1992 Constitution of Ghana stipulates that:

> The State shall take all necessary action to ensure that the national economy is managed in such a manner as to maximize the rate of economic development and to secure the maximum welfare, freedom and happiness of every person in Ghana and to provide ade-quate means of livelihood and suitable employment and public assistance to the needy.

Subsections (a) to (e) of Section (2) of the same Article gives further clarifications about the steps to be taken to ensure the realisation of sustainable and equitable development across the country. This is further given clarity by subsequent sections of the same Article, for instance, Section (5) asserts that:

> For the purposes of the foregoing clauses of this article, within two years after assuming office, the President shall present to Parliament a coordinated programme of economic and social development policies, including agricultural and industrial programmes at all levels and in all the regions of Ghana.

In addition, Article 36 (9) posits that "the State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for purposes of protecting the wider international environment for mankind." All these provisions and other related sections of the Ghanaian Constitution gives a clear indication of the need for sustainable development and the protection of the environment, which forms the nucleus for biodiversity conservation, hence the CBD. It must, however, be reiterated that the 1992 Constitution of Ghana predated the Rio Summit and the CBD, and that biodiversity is not directly mentioned by the Constitution though there are countless references to sustainable development as well as the need for international cooperation on environmental protection.

According a report by the National Development Planning Commission of Ghana (NDPC);

> The objective of Ghana's strategic plan on Biodiversity is to effectively halt the loss of biodiversity so as to secure the continuity of its beneficial uses through the conservation and sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources (National Development Planning Commission (n.d.PC), 2011, p. 99).

Consequently, the country through its several ministries, agencies and institutions have introduced and implemented several far-reaching policies with the aim of integrating biodiversity issues into the country's development planning as demanded by the Constitution.

It must be emphasised that no matter how scanty the practice may have been, biodiversity conservation in Ghana predates the country's independence and even the colonial era. The practice has also been in place irrespective of the system of governance at any given time.[1]

Indigenous practices, customs and taboos were all used for the preservation and sustainable use of various biological resources. This is contrary to the idea elsewhere that claims that "before the existence of a cohesive set of environmental laws … " we did not "keep the ravages of pollution from degrading the quality of our water, air, and land" (Kubasek & Silverman, 2008, p. 129). Maybe that might have been the case for the United States of America (as argued by the authors), but not so for most African countries where taboos and several indigenous practices have always been important avenues for environmental protection, particularly Ghana. Thus, the practice of protected areas is "not alien to the Ghanaian society." These areas have over the years been managed by "local mores and were linked with the ethical, mythical and spiritual beliefs of the people." However, in contrast to the modern State structure, "no specific institutions were established for enforcement but wildlife protection was the duty of all citizens" (Government of Ghana (GoG), 2016, p. 18).

Recent statistics indicate that Ghana's land cover profile has been changing at a rapid rate. Whereas forest, grassland, and crop cover comprise 38, 34 and 21%, respectively, wetlands and built-up settlements only cover about 4 and 2% of the total territory, respectively. For a country that once lost 80% of its forest cover (from 8 m ha—1.6 m ha) within less than a century (1900 and 1990) due mainly to anthropogenic factors, such as logging, slash and burn agriculture, etc., implementing stringent measures to curb the menace becomes a necessity (Government of Ghana (GoG), 2016).

At present, there are as many as 216 international conventions and agreements that are related to the conservation, management, and sustainable use of biodiversity and the environment. Ghana is, however, signatory to only 35 of them and these 35 are mainly the major conventions and multilateral environmental agreements of which the CBD is part. Ghana became a Party to the CBD by ratification on 27 November 1994. The country became a Party to the Cartagena Protocol on Biosafety on 11 October 2003 by accession. It is, however, not Party to the Nagoya Protocol on Access and Benefit-sharing, though the country's recent National Biodiversity Strategy and Action Plan (NBSAP) has indicated that the country would within the short-term phase (2016–2020) ensure that the Protocol is in force and operational, being consistent with domestic legislation. As an international treaty, and given the fact that the country has ratified it, there is therefore an obligation for the State to take all necessary measures to ensure its implementation—a situation that the government actually recognises fully as indicated in several official reports and policy documents (Government of Ghana (GoG), 2016; Ministry of Environment and Science (MoES), 2002; Republic of Ghana, n.d.).

Regarding Ghana's implementation of the CBD and other related multilateral environmental agreements, experts believe that it is a necessity. All interviewees shared similar views on this issue. Some are, however, of the view that, in situations where the implementation of an MEA will "harm" domestic or national interests, the government would have to prioritize domestic responsibility. To quote one interviewee, " … because national interest is paramount to every country … . Every country has got first; the primary responsibility to protect its citizens … . domestic laws should be paramount, even though international agreements are also kind of obligatory for the State" (Interview, International Law Expert, interview by Thomas Prehi Botchway, 2018). Governments are consequently advised to use available domestic laws to address environmental problems, especially when multilateral environmental agreements are considered to be having negative implications for citizens.

When the same question was posed to one interviewee, the response seems to vary a bit from the one above. For this expert, the country must show "the commitment" to meet its international obligation since the question of the environmental protection and biodiversity conservation are core to issues of human wellbeing. Moreover, for the purpose of portraying "a good face … within the global community" and avoidance of "deflecting on commitment" and likely implications,

Ghana must adhere to the tenets of the CBD and ensure its effective implementation (Interview, Public Policy Expert, interview by Thomas Prehi Botchway, 2018).

Another expert has argued that even in cases where there seems to be a contradiction between an MEA and domestic laws, the State, especially a developing country like Ghana that lacks the "political clout" to single-handedly manage its environmental and economic issues should not attempt to exit or abandon an MEA such as the CBD. This expert opines that "working in unison" with other States in the international community is always beneficial and that the cost for leaving will rather be more damaging to the State. He consequently advocates that staying and "fighting from within" to influence other like-minded countries will be more beneficial (Interview, International Relations and Global Environmental Governance Expert, interview by Thomas Prehi Botchway, 2018b).

4. Policy measures for achieving sustainable development

This section discusses the various policies that have been advanced in the country to achieve sustainable development and meeting the goals of the CBD. Most of these policies are captured under the country's National Biodiversity Strategy and Action Plan (NBSAP) while others are elaborated in subsequent subsections.

4.1. The National Biodiversity Strategy and Action Plan (NBSAP) and efforts at achieving the 2020 Aichi biodiversity targets in Ghana

Article 6 of the Convention on Biological Diversity demands each country must develop an NBSAP. These NBSAPs are to lay out the vivid strategies, goals, and objectives of the parties to the Convention and must be accompanied by clearly articulated plans for achieving these targets and goals.

Ghana signed the CBD on the 12th of June and was among the early 157 countries that signed the CBD during the Earth Summit in Rio 1992. The country ratified the Convention on 29 August 1994 and became a Party to the Convention on 27 November 1994, and has since introduced measures aimed at meeting the various targets as outlined in the document. The country, since its ratification of the CBD, has developed two national strategies as required by Article 6 of the Convention. These strategies are meant for outlining and mainstreaming policies, guidelines, and efforts geared towards conservation and sustainable use of biological diversity in the country. Ghana's two national biodiversity strategies (NBS) were unveiled in 2002 and 2016, respectively.

In the year 2002, in accordance with Article 6 of the CBD, Ghana prepared its first National Biodiversity Strategy (NBS). This NBS was, however, handicapped since it did not have a related Action Plan to guide its implementation. The 2016 NBSAP on the contrary addresses this shortcoming by adding an action plan to the NBS and by recognizing the need to pursue the advancement of technologies, the promulgation of legislative instruments, as well as enhancing the capacities of existing systems and structures and the introduction of new ones that would enhance the mainstreaming of biodiversity into the country's agenda for national development. Consequently, the 2016 NBSAP links the country's policies and goals to the Aichi Biodiversity Targets and other related issues aimed at enhancing sustainable development and biodiversity conservation as well as environmental protection on the whole. These initiatives include Ghana's 40-Year National Development Plan, the country's Forestry Development Master Plan, the Sustainable Development Goals (SDGs), etc. (Government of Ghana (GoG), 2016).

The 2016 NBSAP outlines four strategic objectives that are intended for addressing the underlying causes of biodiversity loss: improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity; enhancing the benefits of biodiversity to all sectors of the economy; and enhancing the implementation of the national biodiversity action plan through participatory planning, knowledge management and capacity-building. According to the NBSAP, these four

strategic objectives are to be achieved within a period of 25 years and are to be implemented through a three-phase programme (2016–2020, 2021–2030 and 2030–2040) (Government of Ghana (GoG), 2016).

In order to ensure effective implementation, Ghana's 2016 NBSAP has been designed in a way that makes effective use of the country's decentralisation system. Thus, implementation is to be done by ministries, departments and agencies outside of the Ministry of Environment, Science, Technology and Innovation (MESTI). Local institutions, traditional authorities, CSOs, as well as the private sector, are all involved in the implementation process.

Though Ghana's current NBSAP has been found to be inadequate (in terms of addressing the threats to biodiversity) by the CBD Secretariat, some progress has been made in implementing priority activities such as expansion of protected areas, the introduction of efficient fire management systems to curb wildfires, and the development of management plans for effective biodiversity conservation. In addition, according to the CBD Secretariat, over 80% of up-to-date information on Globally Significant Biodiversity Areas (GSBAs) has been generated in Ghana, though most of the biodiversity conservation-related policies are "not felt at the level where they are most needed" (CBD Secretariat, nd). The argument is that such policies do not usually insure the benefit of the rural communities adjacent to these biodiversity areas as there is mostly lack of consultation and participation of the local people. Thus, though there may be good-intended policies, they may not necessarily address the specific needs of these communities.

The Aichi Biodiversity targets outline five strategic goals that all Parties to the Convention are expected to achieve by the end of the year 2020. These targets include the need to "address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society"; reducing the direct pressures on biodiversity and promoting their sustainable use; improving the status of biodiversity by "safeguarding ecosystems, species and genetic diversity"; enhancing the benefits of biodiversity and ecosystem services to all; and enhancing the implementation of appropriate programmes to conserve biodiversity through "participatory planning, knowledge management and capacity building" (CBD Secretariat nd).

In an attempt to achieve the Aichi Targets, several efforts have been made by the government and related bodies in the country. This notwithstanding, the rate of degradation and loss of habitat seems to show no sign of lessening in some parts of the country. This can be attributed to the persistent increase in demand for social and economic activities that consequently puts pressure on biodiversity in these areas. Statistics show that whereas roughly 16% (over 38,000 km2) of the country's total land area is under some form of protection, another 20–30% is been cultivated for cash and food crops. In addition, evidence shows that protected areas in Ghana's forests, dry and sub-humid lands, as well as inland water, marine and coastal areas have been the country's most successful areas for the implementation of the CBD. Thus, protected areas in the country have expanded and the status of reserves has also been upgraded though some challenges still remain in this regard (Ministry of Environment and Science (MoES), 2002; CBD Secretariat nd).

There are currently 291 forest reserves and 15 wildlife protected areas in Ghana that constitute the permanent forest estate of Ghana and these are under the control and monitoring of the Forestry Commission of Ghana (Ministry of Lands & Natural Resources (MLNR), 2016; CBD Secretariat nd). The country also has six sites listed on the Ramsar Convention. These include the Densu Delta, Keta Lagoon Complex, Muni-Pomadze, Owabi Wildlife Sanctuary, Sakumo, and the Songor Ramsar Sites. Thus, legally speaking, Ghana currently has 21 wildlife conservation areas. Of these, there are six national parks and six resource reserves, six Ramsar Sites, and three wildlife sanctuaries. The country also has one strict nature reserve. In addition to these, there are proposals for the addition of two wildlife conservation areas in the form of a wildlife sanctuary and a National Park (Government of Ghana (GoG), 2016, pp. 12–13). As part of the country's efforts at achieving sustainable development, the country's development plans have incorporated

Table 1. Summary of Ghana's international/multilateral environmental agreements (MEAs)/treaties			
Multilateral Environmental Agreement/Treaty Name	Date of Country Signature	Date of Country Ratification	Country Status
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	14 November 1975	12 February 1976	Ratification
United Nations Convention on the Law of the Sea (UNCLOS)	10 December 1982	7 June 1983	Ratification
Montreal Protocol on Substances That Deplete the Ozone Layer	16 September 1987	14 July 1992	Ratification
Convention on Migratory Species (CMS)	1 April 1988	1 April 1988	Party
Agreement on the Conservation of African–Eurasian Migratory Waterbirds (AEWA)	1 April 1988	1 October 2005	Contracting Party
The Convention on Wetlands (Ramsar Convention)	22 June 1988	22 February 1988	Accession
Vienna Convention for the Protection of the Ozone Layer		24 July 1989	Accession
Convention on Biological Diversity (CBD)	12 June 1992	29 August 1994	Ratification
United Nations Framework Convention on Climate Change (UNFCCC)	12 June 1992	6 September 1995	Ratification
United Nations Convention to Combat Desertification	15 October 1994	27 December 1996	Ratification
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention)	11 September 1998	30 May 2003	Ratification
Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention)	23 May 2001	30 May 2003	Ratification
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal		30 May 2003	Accession
Cartagena Protocol on Biosafety		30 May 2003	Accession
Kyoto Protocol to the United Nations Framework Convention on Climate Change		30 May 2003	Accession
Basel Protocol on Liability and Compensation		9 June 2005	Accession

(*Continued*)

cogent · social sciences

Table1. *(Continued)*			
Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization	20 May 2011		Signatory
Minamata Convention on Mercury	24 September 2014	23 March 2017	Ratification
Paris Agreement	22 April 2016	21 September 2016	Ratification

Source: Author's Compilation, 2018

measures into international environmentally related policies, such as the CBD and Ramsar Convention. Thus, Ghana has signed and incorporated some of these MEAs through ratification. Table 1. summarizes some of the MEAs that Ghana has signed/ratified over the years.

The factors that inhibit biodiversity conservation in Ghana are numerous. As indicated earlier, these include both anthropogenic (human-induced) and natural factors. However, the major factors that threaten biodiversity conservation in Ghana include deforestation, desertification, mining and quarrying, bushfires, wildlife hunting, sedimentation, siltation, flooding, soil erosion, eutrophication, drought, over-exploitation, water pollution, urbanization, forest conversion, and the existence of weak legislation and institutional structures to check most of the human-induced factors. For instance, studies have revealed that about 35% of Ghana's standing crops and cereals, as well as roughly 50% of the country's vegetation cover were destroyed during the 1982–1983 harsh droughts and uncontrollable bushfires that were escorted by sturdy harmattan winds. This incidence seriously reduced faunal diversity and consequently caused habitat degradation and serious loss of biodiversity in the affected regions of the country (Ministry of Environment and Science (MoES), 2002).

It is, however, worthy to note that several attempts have been made to address the biodiversity conservation agenda; several legislations and policy guidelines have been promulgated and introduced to address the issue. Thus, contrary to the past when the country's socio-economic growth and development was realized nearly "exclusively at the expense of the physical and non-physical environment" (Ministry of Environment and Science (MoES), 2002, p. 24), recent efforts in the country has seen a concerted effort at balancing development with sustainability and conservation as advocated by the CBD. Thus, though environmental legislation in the country's earlier history was seen to be "fragmented", with "much of it" "been initiated in an ad hoc manner due to the lack of coherence in environmental planning and policy process" (Ministry of Environment and Science (MoES), 2002, p. 22), the trend has taken a new turn—one that is purposefully designed (though serious challenges still remain).

Though the concept of biodiversity may be relatively new, the phenomenon is an age-old one and thus, before even the introduction and eventual ratification of the CBD by Ghana, the country already had in place several legislations and policies that addressed environmental problem (of which biodiversity is a part). This notwithstanding, the ratification of the CBD and other MEAs have boosted the need to introduce more pragmatic, robust, and efficient measures to address biological diversity conservation in Ghana.

According to the country's first official document on the way forward for biodiversity conservation;

The rationale for a new policy direction in sound biodiversity management, development and conservation is indisputable: Ghana loses annually over 22,000 ha of its forests and as these are turned to 'wastelands', biodiversity declines and possibly gets lost. Economically, ecologically and even ethically the status quo cannot be upheld because generations yet unborn will hold the present one accountable for biodiversity loss or decline (Ministry of Environment and Science (MoES), 2002, p. 24).

Ghana has commissioned a National Biodiversity Committee (NBC) that has the responsibility of ensuring the effective implementation of the CBD and its linkage and coordination with the implementation of other biodiversity-related MEAs. This Committee comprises representatives of all stakeholders concerned with the conservation and management of the country's biological diversity. In addition, since the inception of the Fourth Republican Constitution in 1992, various governments have put in place several measures to tackle poverty alleviation and sustainable management practices (Institute of Statistical, Social & Economic Research (ISSER), 2013).

According to the former Minister of Environment, Science, Technology and Innovation, "[t]he era has come for Ghana to tread on the path of humanist ecology." He further reiterates the need for the country to integrate its "quest for economic and human progress, an awareness of our duties to nature and our responsibilities to future generations" (Government of Ghana (GoG), 2016, ix). Consequently, in accordance with this idea, the country's most recent NBSAP stipulates that as far as the conservation of biodiversity is concerned, and in order to meet the country's international obligation as regarding the CBD, Ghana's vision is to have in place by 2030 "effective systems" that would:

ensure that biodiversity in Ghana is valued, conserved, restored and wisely used to maintain ecosystem services, and sustain life support services for a healthy planet whiles ensuring continuous and equitable sharing of the costs and benefits arising therefrom, to the well-being, prosperity and security of all Ghanaians (Government of Ghana (GoG), 2016, x).

The strategic objectives of the country's current NBSAP have been designed in such a way that its targets and objectives are to be achieved over a period of 25 years that spans a three-phased programme. These include the 5-year and two 10-years short-, medium- and long-term programmes (2016–2020; 2021–2030; 2031–2040), respectively.

Whereas the short-term phase seeks to consolidate existing practices and introduce new ones that are in tandem with the CBD, the medium-term planning phase has been designed to take into consideration "future planned interventions, the carbon sequestration potentials and the changing scenes in the global economy" and consequently develop a "comprehensive programme" that takes into account "all subsectors" of the Ghanaian economy, and particularly those that relate to biodiversity and the environment as a whole (Government of Ghana (GoG), 2016, p. 42). For instance, the short-medium term phase has targeted effectively conserving at least 17 and 10% of terrestrial and inland water, and coastal and marine areas, respectively. A specific example of the medium phase target is the policy aimed at reducing and possibly eliminating the several anthropogenic stress exerted on coral reefs and related susceptible ecosystems. This particular policy also extends into the long-term phase of the planning. In a similar manner, the long-term phase of the NBSAP intends to merge all the gains that are expected to be realised under the two earlier phases. It also determines to promote the promulgation and legislation of relevant laws to govern all systems and technologies that have been established for mainstreaming biodiversity in the national development process.

Ghana's current NBSAP has four key components within which 20 action plans are clearly articulated. The first two of the four components that seek to "address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society" and "improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity" actually consist of 13 action plans that outline plans that directly address the first 13 Aichi Targets (Government of

Ghana (GoG), 2016, xi). The plans consequently include efforts aimed at creating public awareness about the need for the promotion of biodiversity conservation, restoration, sustainable use, as well as the integration, and mainstreaming of biodiversity values into all aspects the development agenda and poverty alleviation processes, which would in turn lead to the prevention of the extinction of threatened species. This is to be accompanied by efficient reporting systems that tracks achievements and challenges and proper monitoring that will enhance future efforts and strategies.

The third and fourth components of the country's current NBSAP focuses on enhancing the enjoyment of benefits of biodiversity and ecosystem services to the society and the introduction of strategic implementation policies, such as "participatory planning, knowledge management and capacity building" that enhances the overall biodiversity conservation process (Government of Ghana (GoG), 2016, xiii).

With regards to the training of experts and scientists for purposes of the conservation of biodiversity, the country has indicated plans to train and build the capacity of a minimum 30 young scientists by December 2020, specifically in the field of taxonomy. This is aimed at improving effective taxonomic information delivery. This policy is partly in line with Article 12 of the CBD which calls for the need for the establishment and encouraging research and training regarding biological diversity across the globe in multiple fields, particularly in the developing world.

In addition to this, plans have also been advanced for encouraging institutions of higher learning in collaboration with relevant corporate entities across the country to incorporate traditional and scientific knowledge in biodiversity management in their curricula by year 2020. This alongside the promotion of "targeted research in forest and wildlife issues" as well as the support for publications and timely dissemination of research findings are all positive signs of the efforts been made to promote the implementation of the CBD in the country (Government of Ghana (GoG), 2016; Ministry of Lands & Natural Resources (MLNR), 2016, p. 91).

The Government of Ghana has also established the Environmental and Natural Resources Advisory Council (ENRAC). This Council is headed by the Vice President of the Republic and is deemed as "the highest body for vetting and approval of all policies on environmental and natural resources" (Government of Ghana (GoG), 2016, p. 66). It is comprised of members from several stakeholders in the Ghanaian society including the academia, civil society, government, and traditional authorities. The input of this advisory council and their role in the overall policy formulation process is relevant for the implementation of the CBD in Ghana.

4.2. National and multilateral policy interventions for biodiversity conservation in Ghana

During the early and mid-1980s, the introduction of the Economic Recovery Programme (ERP)/ Structural Adjustment Programmes (SAPs) led to the gradual improvement of economic growth, but also drew the nation's leadership and the country's development partners' attention to the negative impacts of such a growth on the environment. Consequently, investors and development partners began paying attention to the environment and natural resources sector of the Ghanaian economy (Government of Ghana (GoG), 2016). Thus, the country's effort to address environmental concerns and biodiversity conservation to be specific predates the signing of the CBD in 1992 and its eventual ratification in 1994. For instance, the Forest Resource Management Project (FRMP), an environmental management programme that was multilaterally funded by groups and entities such as the Overseas Development Administration (ODA), the World Bank (International Development Association (IDA), and the Danish International Development Agency (DANIDA) existed in the country and was fully operational by November 1989—three years before the signing of the CBD. The programme, however, ended in June 1997.

Between 1990 and 1994, through the FRMP, IDA supported the Government of Ghana in undertaking a systematic appraisal of the country's Forest and Wildlife resources and also to effectively

evaluate the related sectors' departments' capacity to adequately handle challenges both at the time and those anticipated for the near future. This process eventually culminated in the formulation of the Forest and Wildlife Policy of 1994 which sturdily supported and promoted the role of local communities and indigenous knowledge in the conservation of Forest and Wildlife resources in the country (Government of Ghana (GoG), 2016).

Moreover, before the coming into place of the CBD, the Government of Ghana in March 1988 initiated a strategic policy to put environmental issues on the priority agenda through preparation of the National Environmental Action Plan (NEAP) to mitigate a host of environmental problems that had arisen from the exploitation of the country's profuse natural resources resulting from industrial activities, soil degradation, deforestation, and desertification, and so on. With its adoption in 1991, NEAP, through its set of policy actions and related investments, as well as the creation and enhancement of existing institutional mandates targeted the implementation of environmentally sustainable development approaches countrywide. It targeted areas such as land management; forestry and wildlife; water management; marine and coastal ecosystems; industrial pollution; mining; hazardous chemicals control; and human settlements, all of which are key elements that influence biodiversity conservation (Government of Ghana, 2005). The establishment of the EPA, and the Water Resources Commission (WRC), among others can all be traced to the objectives of the NEAP. The NEAP was actually approved for implementation in 1993 and ended in the year 2000. Through the NEAP, the country introduced the National Environmental Policy (NEP) which sought to "ensure reconciliation between economic development and natural resource conservation" and to "make a high quality environment a key element supporting the country's economic and social development" (World Bank, 2006; Hens & Boon, 1999, p. 22).

4.3. Biodiversity offset schemes

The Forestry Commission of Ghana and Newmont Golden Ridge Resources (a gold mining company) have been instrumental in implementing an offset project aimed at mitigating the residual impacts of a gold mine in their areas of operation across the country. There have also been policies targeted at the implementation of "Sustainable Land and Water Management" (funded by the Global Environment Facility (GEF)) to enhance the maintenance of biodiversity as well as the reduction of land degradation in several micro watersheds, especially in the country's Northern Savanna areas. Such programmes in connection with the EPA's Akoben Initiative which aims at enhancing compliance through effective monitoring of existing environmental standards, particularly in the extractive industry, have all been very useful avenues for ensuring effective compliance with the CBD and related MEAs though a lot remains to be done (Ministry of Environment, Science, Technology & Innovation (MESTI), 2015).

As part of meeting its global responsibility, the Ghanaian State has also been a key participant in the Reduced Emissions from Deforestation and Forest Degradation (REDD+) agenda. The country has introduced the REDD+ Readiness Proposal (2010) to help identify and mitigate the foremost causes of deforestation and degradation in the country. This Proposal and its related policies have over the years yielded positive results as they enhance meeting some of the targets and objectives of the CBD. In addition, projects such as the "trees on farms (ToF) intervention" and "Conservation Agriculture" which are intended for optimizing the "productivity and sustainability of small holder farming systems" through the development of suitable farming technologies have enriched biodiversity conservation (Ministry of Lands & Natural Resources (MLNR), 2016, p. 73).

4.4. The Global Environment Facility (GEF) and CBD implementation in Ghana

Since its inception in 1991, the GEF has assisted developing countries and countries with economies in transition in addressing the numerous challenges raised by dryland ecosystems under the CBD's guidance. This it does by promoting conservation and sustainable use of natural resources inside and outside-protected areas and also by assisting in the prevention/controlling land degradation, while at the same time addressing local needs of the people so as to enhance increased

productivity of agricultural lands and also ensure improved food security (Global Environment Facility (GEF), 2004).

With regards to alien species, the GEF as a practice supports scientifically based global strategy and action plans to develop best practices and the dissemination of lessons learned for dealing with alien species that threaten biological diversity. Thus, project activities have over the years provided useful information to both the Subsidiary Body on Scientific, Technical, and Technological Advice and the COP. The COP has eventually tasked the GEF "to identify key ecosystems vulnerable to alien species invasion" (Global Environment Facility (GEF), 2004, p. 23).

The early to late 1990s witnessed the implementation of the Coastal Wetlands Management Project (CWMP) (1993–1999) in five designated Ramsar sites along a section of the coast of Ghana. This project was implemented by the Ghana Wildlife Department and constituted part of the country's Environmental Resource Management Project (GERMP) which was funded by the GEF/World Bank. The broad aim of the programme was to ensure the effective management of five of the country's coastal wetland sites and to maintain their ecological integrity while enhancing the benefits derived from these wetlands by local communities where they are located.

In order to achieve this aim, the project outlined three objectives namely: the development of technical information based on the interactions between the biotic and abiotic elements of the selected sites, the description of the ecological character of the sites, and the development of a monitoring framework as part of a general management strategy for the long-term sustainable use of the sites. The aim and objectives of the project thus implied involving the local people in virtually every aspect of the project, particularly regarding the planning and implementation of management programmes. The project in sum sought to "preserve natural habitats, improve biodiversity conservation, and promote community participation … " (World Bank, 2002, p. 2). Official reports indicate that this project achieved a satisfactory result and that its sustainability is guaranteed through the provision of donor funding. Experts, however, disagree with official reports as there is evidence of mixed reactions and outcomes underpinned by the lack of consultation and community participation in the formulation and implementation of the programmes. For instance, one interviewee asked this rhetorical question "is it really the case that such so-called donor funding promotes the sustainability of government policies aimed at sustainable development or there is something else we do not know"? (Interview, Public Policy Expert, interview by Thomas Prehi Botchway, 2018).

4.5. CBD related matters and media coverage in Ghana

As part of the efforts to enhance media coverage and the effective dissemination of information related to biodiversity conservation and environmental protection, the country's current NBSAP outlined a policy that was aimed at training a minimum of 200 environmental journalists by the middle of 2018. These journalists are to be tasked with reporting and generating civic deliberations on biodiversity-related matters. However, as at the time of this study, not much information could be gathered about the whereabouts of the supposedly 200 environmental journalists. Experts believe that this particular target by the country's current NBSAP was not met. According one interviewee, most of the goals and targets in the NBSAP, particularly those regarding environmental journalists are "over ambitious" and that "they were set without clear understanding on how to get the resources to implement them" (Interview, International Relations and Global Environmental Governance Expert, interview by Thomas Prehi Botchway, 2018b).

The NBSAP also calls for the hosting of weekly radio discussions on biodiversity issues as well as featuring bi-weekly articles on biodiversity-related topics. In addition to these, there is also the weekly coverage on "environmental abuses" in both the electronic and print media (Government of Ghana (GoG), 2016, pp. 47–48). These initiatives are in direct correspondence with Article 13 of the CBD and Aichi Target 1 which calls for the creation of public awareness on the values of biodiversity. They are also in tandem with Article 9 of the CBD that encourages the development of a culture and the

cogent ·· social sciences

promotion of a society that is built around environmental values as the effective coverage, reportage, and deliberations to enhance civic participation on environmental issues, and biodiversity in specific.

5. Conclusion

Though there are several studies on environmental and natural resources protection and sanitation in Ghana, not much have focused on the implementation of the provisions of the CBD and how it relates to sustainable development and international law. Moreover, the existing studies on biodiversity conservation in Ghana usually focus on the scientific aspect (natural science) and conservation practices, as well as taxonomy, and have not attempted linking it to law or international law in that regard, neither have they focused on identifying existing policies that address the issue (Acheampong et al., 2021; Amoah & Korle, 2020; Bossart et al., 2006; Gordon et al., 2000; Hackman, 2014; Hackman & Gong, 2017; Hackman et al., 2017; Hens & Boon, 1999; Okley, 2004; Opuni-Frimpong et al., 2021; Osei-Tutu et al., 2014). Consequently, several gaps remain on the subject as far as the implementation of the CBD in Ghana is concerned and it is some of these gaps that this study sought to fill (see also Botchway & Hlovor, 2019).

In view of the seemingly lack of literature on the implementation of the CBD in Ghana (as indicated above), the study proposes that there is the need to know and understand the existing policies that the State has adopted and implemented in meeting the objectives of the CBD. This would enable researchers and policymakers alike to be familiar with such policies and know the strengths, weaknesses or loopholes that exist so as to formulate new policies or review existing ones to ensure effectiveness in the implementation process.

The study also reveals that the various policies and measures that have been introduced over the years to address biodiversity loss have at times been ineffective due to a number of policy formulation and implementation challenges. These include the lack of consultation of the indigenous people, the over-centralization of the policy formulation processes, the complexity of joint action, etc. Consequently, though the various policies exude the good intensions of duty-bearers and policy formulators, the above named challenges and others serve as hindrances to achieving the desired goals of such policies thereby affecting the attainment of the objectives of the CBD in Ghana.

It is thus recommended that CBD-related policies must be formulated and implemented by using divergent approaches as may be suitable for the given community that may be affected/impacted in the process. This implies that using either a top-down or bottom-up approach may be contingent on the particular circumstances, and that one-size-fits-all approaches must be avoided. It also implies decentralizing the policy implementation process, knowing the needs of the would-be affected community, and so on.

Author details
Thomas Prehi Botchway[1]
E-mail: abeikuprehi@yahoo.com
ORCID ID: http://orcid.org/0000-0002-5275-7537
[1] Department of Political Science Education, University of Education, Winneba, Ghana.

Note
1. See the Forests Ordinance (Gold *Coast, 1927); Forests* (Amendment) *Ordinance*, 1957; Forests (Amendment) Act, 1957; Wild Animals Preservation Act, I961 (Act 43); the Wildlife Reserves Regulations, 1971 (L.I. 710); the Forest Protection Decree l974 (N.R.C.D, 243); Wildlife Conservation (Amendment) Regulations, 1983 (L.I. 1284), etc.

References
Acheampong, E. B., Manu, G., Asante, W. A., & Kyere, B. (2021). The role of urban tropical botanic gardens in biodiversity conservation: An example from the KNUST botanic garden in Kumasi, Ghana. *Biotropica*, *53*(4), 1109–1120. https://doi.org/10.1111/btp.12950
Amoah, A., & Korle, K. (2020). Forest depletion in Ghana: The empirical evidence and associated driver intensities. *Forestry Economics Review*, *2*(1), 61–80. https://doi.org/10.1108/FER-12-2019-0020
Babbie, E. (2004). *The practice of social research*. Wads-Worth.
Bakkalbasioglu, E. (2020). How to access elites when textbook methods Fail? Challenges of purposive sampling and advantages of using interviewees as "Fixers". *The Qualitative Report, 25*(3), 688–699. DOI: 10.46743/2160-3715/2020.3976

Barratt, M. J., Ferris, J. A., & Lenton, S. (2015). Hidden populations, online purposive sampling, and external validity: Taking off the blindfold. *Field Methods, 27*(1), 3–21. https://doi.org/10.1177/1525822X14526838

Benoot, C., Hannes, K., & Bilsen, J. (2016). The use of purposeful sampling in a qualitative evidence synthesis: A worked example on sexual adjustment to a cancer trajectory. *BMC Medical Research Methodology, 16*(21), 1–12.

Bossart, J. L., Opuni-Frimpong, E., Kuudaar, S., & Nkrumah, E. (2006). Richness, abundance, and complementarity of fruit-feeding butterfly species in relict sacred forests and forest reserves of Ghana. *Biodiversity and Conservation, 15*(1), 333–359. https://doi.org/10.1007/s10531-005-2574-6

Botchway, T. P. (2019). The balanced obligation and the basis for compliance in international law: Reflections on the question of international obligation. *Journal of Politics and Law, 12*(2), 23–33. https://doi.org/10.5539/jpl.v12n2p23

Botchway, T. P., & Hlovor, I. K. (2019). Mitigating the challenges related to the implementation of the convention on biological diversity in Ghana. *Journal of Sustainable Development, 12*(3), 91–102. https://doi.org/10.5539/jsd.v12n3p91

CBD Secretariat. (n.d.) *Aichi biodiversity targets.* Retrieved December 12, 2018. https://www.cbd.int/sp/targets/#GoalA.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). SAGE Publications, Inc.

Global Environment Facility (GEF). (2004). *The Global Environment Facility (GEF) and the Convention on Biological Diversity: A strong partnership with solid results.*

Gordon, C., Ntiamoa-Baidu, Y., & Ryan, J. M. (2000). The muni-pomadze Ramsar site. *Biodiversity and Conservation, 9*(4), 447–464. https://doi.org/10.1023/A:1008954302319

Government of Ghana. (2005). Workshop on environmental statistics for the ECOWAS region. *Country Paper – GHANA, Dakar – Senegal.*

Government of Ghana. (2010). *Medium-term national development policy framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010-2013.* National Development Planning Commission (NDPC).

Government of Ghana (GoG). (2016). *National biodiversity strategy and action plan.* Official Report Ministry of Environment, Science, Technology and Innovation (MESTI).

Hackman, K. O., Gong, P., & Wang, J. (2017). New land cover maps of Ghana for 2015 using Landsat 8 and three popular classifiers for biodiversity assessment. *International Journal Remote Sensing, 38*(14), 4008–4021. https://doi.org/10.1080/01431161.2017.1312622

Hackman, K. O. (2014). The state of biodiversity in Ghana: Knowledge gaps and prioritization. *International Journal of Biodiversity and Conservation, 6*(9), 681–701. https://doi.org/10.5897/IJBC2014.0739

Hackman, K. O., & Gong, P. (2017). Biodiversity estimation of the western region of Ghana using arthropod mean morphospecies abundance. *Biodiversity and Conservation, 26*(9), 2083–2097. https://doi.org/10.1007/s10531-017-1346-4

Hens, L., & Boon, E. K. (1999). Institutional, legal and economic instruments in Ghana's environmental policy. In *Environmental Management* (pp. 337–351). Springer-Verlag New York Inc. https://link.springer.com/content/pdf/10.1007%2Fs002679900237.pdf

Institute of Statistical, Social & Economic Research (ISSER). (2013). *Policies and options for ghana's economic development* (K. Ewusi, Edited by., 3rd ed.). Institute of Statistical, Social & Economic Research (ISSER).

Interview, International Law Expert, interview by Thomas Prehi Botchway. (2018). *Interview with International Law Expert (9 December).*

Interview, International Relations and Global Environmental Governance Expert, interview by Thomas Prehi Botchway. (2018b). *Interview with International Relations and Global Environmental Governance Expert on the Implementation of CBD in Ghana (15 December).*

Interview, Public Policy Expert, interview by Thomas Prehi Botchway. (2018). *Interview with Public Policy Expert (16 December).*

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology.* Sage Publications.

Kubasek, N. K., & Silverman, G. S. (2008). *Environmental Law* (6th ed.). Pearson Education Asia Ltd. and Tsinghua University Press.

Michalos, A. C. (2014). *Encyclopedia of quality of life and well-being research.* Springer.

Ministry of Environment and Science (MoES). (2002). *National biodiversity strategy for Ghana.*

Ministry of Environment, Science, Technology & Innovation (MESTI). (2015). *CBD Fifth National Report - Ghana.*

Ministry of Lands & Natural Resources (MLNR). (2016). *Forestry development master plan (2016-2036).*

National Development Planning Commission (NDPC). (2011). *The Implementation of the Ghana Shared Growth and Development Agenda (GSGDA), 2010-2013: 2010 Annual Progress Report.*

Okley, B. L. (2004). *Legislation and implementation of international environmental law by African Countries: A case study of Ghana.* LLM Theses and Essays. Paper 38., School of Law, University of Georgia Student Works and Organizations at Digital Commons @ Georgia Law. http://digitalcommons.law.uga.edu/stu_llm/38.

Opuni-Frimpong, E., Gabienu, E., Adusu, D., Opuni-Frimpong, N. Y., & Damptey, F. G. (2021). Plant diversity, conservation significance, and community structure of two protected areas under different governance. *Trees, Forests and People, 4*, 1–9. https://doi.org/10.1016/j.tfp.2021.100082

Osei-Tutu, P., Pregernig, M., & Pokorny, B. (2014). Legitimacy of informal institutions in contemporary local forest management: Insights from Ghana. *Biodiversity and Conservation, 23*(14), 3587–3605. https://doi.org/10.1007/s10531-014-0801-8

Republic of Ghana. (n.d.) *Action plan for implementing the programme of work on protected areas. Convention on Biological Diversity.* Retrieved November 2, 2018. https://www.cbd.int/protected/implementation/actionplans/country/?country=gh.

Republic of Ghana. (2002). Environmental Assessment (Amendment) Regulations, 2002 (LI 1703). Accra: Republic of Ghana.

Smith, A. R., Colombi, J. M., & Wirthlin, J. R. (2013). Rapid development: A content analysis comparison of literature and purposive sampling of rapid reaction projects. *Procedia Computer Science, 16*, 475–482. https://doi.org/10.1016/j.procs.2013.01.050

World Bank. (2002). *A sourcebook for poverty reduction strategies; Core techniques and cross-cutting issues* (Vol. 1).

World Bank. (2006). *Ghana: Country environmental analysis.* Country Report

Yin, R. K. (1984). *Case study research: Design and methods.* Sage.

cogent ••• social sciences

Cogent Social Sciences (ISSN: 2331-1886) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com