

# An Assessment of the Laws and Policies on the Iture-Abakam Wetlands: Issues of Protection and Management

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## ABSTRACT

Wetlands have been protected from exploitation by legislation over the years due to the important role they play in the ecosystem. However, in Ghana, recent occurrences have led to their exploitation. The Iture-Abakam Wetland of the Cape Coast Metropolis which has been reported to be the only single location in Ghana where all five of the mangrove species can be found is facing exploitation by certain individuals and organizations which should be prevented at all costs. Thus, this study aimed to assess the role the law plays and the systems that have been put in place to manage and protect the Iture-Abakam Wetland. Interviews were conducted with key stakeholders such as the personnel from the Wildlife Division, Environmental Protection Agency, Land Use and Spatial Planning Department as well as the Chief and Fetish Priest to seek their views on the laws and policies on the Iture-Abakam wetland. Findings from the study revealed that no law exists for the protection and management of the wetland as is the case for most of the non-Ramsar site wetlands in Ghana. The local laws that are used to protect the area are not adhered to as a result of little regard given to traditional laws and policies today. It is recommended that the various non-Ramsar sites such as the Iture-Abakam wetland should be gazetted and protected by national laws. The traditional authorities should also be empowered by the central government to implement any local laws and policies they may formulate to protect wetlands in their locality.

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## INTRODUCTION

A landform is a feature of topography that exerts an influence on and is in turn shaped by surficial processes. A river valley, colluvial hollow, sand dunes and a hill slope are all examples of landforms. Among the several landforms that humans have left their imprint and continue to modify are wetlands.<sup>1</sup>

Until the Ramsar Convention of 1971, wetlands were practically regarded as “wastelands” or areas which only served as places for breeding mosquitoes.<sup>2</sup> Resources derived from wetlands such as mangroves, reeds, fish, and thatch were over-exploited. After the enactment of the 1971 Ramsar

<sup>1</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy* (Accra: Ministry of Lands and Forestry, 1999), 21.

<sup>2</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

Convention, wetlands have been consciously recognized as ecosystems of immense value, similar to forests, marine ecosystems, and rangelands.<sup>3</sup>

Wetlands today provide benefits such as fibre and food for human consumption and usage and also serve a vital role in groundwater recharge and also offer protection from natural phenomena such as storm surges.<sup>4</sup> Additionally, they also provide significant educational aesthetic, spiritual, and cultural values and also provide sustainable opportunities for recreation and tourism.<sup>5</sup> Wetlands have also been labelled as both “the kidneys of landscape”, due to their function in the chemical and hydrological cycles, and as “biological supermarkets” due to their wide-ranging food web and their support for the immense biodiversity they provide.<sup>6</sup>

Although human activities and their impacts are very much prevalent globally, the intensity with which they operate and severity tend to be much higher regarding ecosystems rich in biodiversity and natural resources such as tropical forests as well as wetlands.<sup>7</sup> Painstil reported that despite the enormous benefits wetlands provide to humans, they have been abused, encroached and degraded mainly as a result of direct or indirect socio-economic activities engaged in by humans.<sup>8</sup>

A report by the Millennium Ecosystem Assessment in 2015 suggested that the increase in the loss and degradation of wetlands and their vital species globally have been accelerated by infrastructure development (such as bridges, levees, dikes and dams), pollution, overharvesting, frequent water removal from groundwater systems, introduction of invasive alien species land and land conversion. Existing literature reveals that fuel wood gathering, sand mining, high population, salt mining, high population and urbanization are among the major factors threatening the wetland ecosystem in Ghana, especially along the coastal areas.<sup>9</sup> Most wetland areas have now been converted for housing development coupled with, land and soil degradation, sanitation, and water pollution.**Error! Bookmark not defined.**

The government of Ghana has made some interventions to address the issue of the destruction of wetlands in Ghana. The government in 1993 implemented what was known as the Coastal Wetlands Management Project from 1993 to 1999 and also carried out awareness creation and educating the public on the functions, values, and benefits of wetlands thus the need for their conservation and judicious use.<sup>10</sup> The government furthermore integrated issues concerning wetlands into the national land-use planning and decision-making in other sectors of the economy by formulating a Ministry of Lands and Forestry document through the Ministry together with key stakeholders to help bring on board the views of the local areas and other individual stakeholders for effective management and appropriate use of wetlands and their resources. With all these and other policies put in place to help protect and manage wetlands, it appears the situation has not changed much. The Ministry of Lands and Forestry reported that these policies which include the Water Resource Act, Decentralization Policy, the Fisheries Decree of 1972 and the Coastal Wetland Management Plan of 1991 could not adequately solve the problem of wetlands holistically.<sup>11</sup> The Ministry of Environment, Science, and Technology noted that there is ongoing encroachment of some wetlands, designated as Ramsar sites in the country.<sup>12</sup>

<sup>3</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>4</sup> E. Paintsil - Dadzie, “Effects of Urbanisation on Coastal Wetlands: The Case of the Sekondi Takoradi Metropolis” ( University of Cape Coast, 2014).

<sup>5</sup> Justice Camillus Mensah, “Remote Sensing Application for Mangrove Mapping in the Ellembelle District in Ghana,” *USAID Integrated Coastal and Fisheries Governance Program for the Western Region of Ghana. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island*, 2013.

<sup>6</sup> Ramsar Convention Secretariat, “Wetland Inventory: A Ramsar Framework for Wetland Inventory and Ecological Character Description,” *Ramsar Handbooks for the Wise Use of Wetlands*, 2010; William J Mitsch and James G Gosselink, “The Value of Wetlands: Importance of Scale and Landscape Setting,” *Ecological Economics* 35, no. 1 (2000): 25–33.

<sup>7</sup> Jude M Mathooko and Samuel T Kariuki, “Disturbances and Species Distribution of the Riparian Vegetation of a Rift Valley Stream,” *African Journal of Ecology* 38, no. 2 (2000): 123–29; Jude Mutuku Mathooko, “Disturbance of a Kenya Rift Valley Stream by the Daily Activities of Local People and Their Livestock,” *Hydrobiologia* 458 (2001): 131–39; George G Ndiritu, Nathan N Gichuki, and Ludwig Triest, “Distribution of Epilithic Diatoms in Response to Environmental Conditions in an Urban Tropical Stream, Central Kenya,” *Biodiversity & Conservation* 15 (2006): 3267–93.

<sup>8</sup> Paintsil - Dadzie, “Effects of Urbanisation on Coastal Wetlands: The Case of the Sekondi Takoradi Metropolis.”

<sup>9</sup> Samuel Kwame Anku, “Managing Wetlands in Accra, Ghana,” in *Presentation at the African Regional Workshop on Cities, Ecosystems and Biodiversity in Nairobi*, vol. 21, 2006.

<sup>10</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>11</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>12</sup> Joanitta Asabea Opoku, “Effects of Human Encroachment on Wetlands in Ghana: The Case of Sakumono Ramsar Site” (University of Cape Coast, 2013).

In the management of wetlands in Ghana, three zones are identified according to the Ministry of Lands and Forestry. The first is the critical zone which demarcates areas that are core to the survival of the wetland ecosystem. In this zone, all sort of physical activities is disallowed. The second zone known as the management zone is an area where any form of activity that goes on within it will be regulated and monitored by authorities to prevent such activities from spreading into the core area or zone. Finally, there is the support zone where activities may not fall directly into the wetland ecosystem. It appears however that human activities around wetlands in Ghana are now being carried out not only within support zones and management zones but also deep within the restricted zone as Turner et al. reported that recently, wetlands have become easy targets for human over-exploitation due to growing population and the desire for improvement in technology and science.<sup>13</sup>

A report by the FAO indicates an increase in wetland encroachment as a result of a rise in coastal urbanization leading to over-exploitation of mangrove ecosystems for firewood, salt production, agriculture and places of residence.<sup>14</sup> The Iture-Abakam wetland possesses a very rich diversity and contains all the five mangrove varieties that can be found in Ghana.<sup>15</sup> However, not much research has been carried out regarding the laws and policies aimed at protecting this wetland. Sackey et al. researched the Ecological studies on the Iture mangroves and rated the Iture wetland a poor site due to over-cutting of mangroves, garbage dumping, human defecation, as well as widespread seedling mortality accounted for the poor rating of the area.<sup>16</sup> He further stated that indiscriminate wood extraction has continued, and relatively recently, portions of the area formally occupied by mangroves have been dedicated to salt production. With all these challenges facing the Iture-Abakam wetland, it appears there is no existing official regulation on the proper management of this wetland.<sup>17</sup> Again, Adotey researched the Carbon Stock Assessment and reported that traditional laws forbid mangrove cutting only on Tuesdays.<sup>18</sup> This poses a great danger to this wetland considering the fact the Iture-Abakam wetland is regarded as a mangrove diversity hotspot hence the need to protect such a delicate and important ecosystem. Also, a field assignment by UCC master students in 2018 revealed that changes have in the land cover of the Iture-Abakam mangrove which goes to support the findings of Adotey on the fact that the Iture-Abakam mangroves are being depleted by human activities as portrayed in figure 1.



*Figure 1: Image of individuals returning from harvesting wetland resources (weeds) and portions of the wetland area degraded by human activities.*

*Source: Field survey (2019)*

<sup>13</sup> B. L. Turner II et al., *The Earth as Transformed by Human Action: Global and Regional Changes in the Biosphere over the Past 300 Years* (Cambridge: Cambridge University Press, 1993).

<sup>14</sup> Itto, Isme, Mab Unu-Inweh, and T.N.C London, "FAO (Food and Agricultural Organisation), 'Mangrove Forest Management Guidelines'", Forestry Paper, 117. Rome: FAO, 2007.,'" *South African Journal of Botany*, 2001, 394.

<sup>15</sup> K .A .A deGraft-Johnson et al., "Biodiversity Threats Assessment of the Western Region of Ghana," *The Integrated Coastal and Fisheries Governance (ICFG) Initiative Ghana*, 2010.

<sup>16</sup> I. Sackey, W. M. Kpikpi, and A. W. M. Imoro, "Ecological Studies in the Iture Estuary Mangrove Forest in Ghana," *J. Ghana Sci. Assoc* 13, no. 2 (2011): 37–44.

<sup>17</sup> deGraft-Johnson et al., "Biodiversity Threats Assessment of the Western Region of Ghana."

<sup>18</sup> Joshua Adotey, "Carbon Stock Assessment in the Kakum and Amanzule Estuary Mangrove Forests, Ghana," ( University of Cape Coast, 2015).

With all these problems confronting the Iture-Abakam Wetland, there was the need to conduct this study to assess the laws and policies put in place to manage and protect this landform. Thus, the objective of this study was to assess the laws and policies in relation to the protection and management of the Iture-Abakam wetland. The study is guided by this research question: What have been the laws and policies regarding the protection and management of the Iture-Abakam wetland?

The study considers the major concepts under the literature review and other empirical works so as to contextualise the objective of the study. The research methodology and the findings are duly discussed. Lastly, recommendations are made to the appropriate quarters with regard to the findings of the study.

## LITERATURE REVIEW

According to Agbemehia the term “Wetland” is a collective term applied to a broad range of inland, coastal and marine habitats that share some common characteristics.<sup>19</sup> Briney reported that after the ice age, the retreating glaciers left behind shallow depressions which were in-tron-filled with water. As time passed, there was the accumulation of sediments as well as organic debris within these depressions reducing the depth of these depressions.<sup>20</sup> The depressions later became a sort of shallow ponds surrounded by dry lands, termed wetlands. The International Ramsar Convention defines wetlands as an area of fern, marsh, water, or peat land which can either be artificial or natural, can be either permanent or temporary with moving water or stagnant water which can be brackish water, freshwater or salty water, and includes places of marine water that has the deepness of not exceeding six metres at low tide. They can either exist at the boundary between terrestrial and aquatic environments or constitute an important fish habitat and support enormous fish stock. Ronca further revealed that wetlands can form naturally (such as the West Siberian Lowland Wetlands and the Amazon River Basin) or through animal or human activity (farm ponds, irrigated agricultural land, reservoirs, fish and shrimp ponds, salt pans).<sup>21</sup> Natural causes of wetlands as mentioned by Ronca include floodwaters from lakes and rivers, saturation from rain and runoff, and coastal waters that often immerse nearby land.<sup>22</sup> In other cases, wetlands may be formed when the aquifer is close to the land surface and continually flows up. Additionally, Briney asserts that climate can influence wetland formation as a result of high amounts of rainfall in areas that are normally dry but associated with poor drainage, causing the ground to become saturated leading to the formation of wetlands.<sup>23</sup>

### The Role of Wetlands

Wetlands are made up of a mixture of water, soil, plants and animals that might be dead or living as well as nutrients. The interactions between these elements enable the wetlands to perform a specific ecological or natural role while also producing socio-economically valuable products. However, for wetlands to perform these functions, Atampugre reported that a wetland can only perform most of its functions if the level of degradation is at its barest minimum.<sup>24</sup> In their study, Turner et al, stated that water from wetlands has the potential to infiltrate through the surface and further percolate to replenish limited aquifers.<sup>25</sup> A study by Richard and Connell reported that wetlands usually improve the quality of groundwater.<sup>26</sup>

Wetlands also perform the function of removing sediments, toxic substances, and other pollutants in a surface run-off which improves the quality of water as well as preventing the siltation of downstream watercourses.<sup>27</sup> Painstil reported that wetlands remove toxic substances, sediments, other pollutants and

<sup>19</sup> Kenneth Agbemehia, “Effects of Industrial Waste Effluents Discharged Into Sakumo II Lagoon in Accra, Ghana” (2015).

<sup>20</sup> Ann Briney, “Wetlands: An Introduction to Wetlands,” 2012, <http://geography.about.com/od/physicalgeography/a/wetlands.html>.

<sup>21</sup> Debra Ronca, “How Wetlands Work,” 2012, <http://science.howstuffworks.com/environmental/green-science/wetland1.html>.

<sup>22</sup> Agbemehia, “Effects of Industrial Waste Effluents Discharged Into Sakumo II Lagoon in Accra, Ghana.”

<sup>23</sup> Adotey, “Carbon Stock Assessment in the Kakum and Amanzule Estuary Mangrove Forests, Ghana.”

<sup>24</sup> Gerald Atampugre, “Spatio-Temporal Information and Analysis of Land Use/Land Cover Changes in the Muni-Pomadze Wetland” (University of Cape Coast, 2010).

<sup>25</sup> R. Kerry Turner et al., “Towards an Integrated Environmental Assessment for Wetland and Catchment Management,” *Geographical Journal* 169, no. 2 (2003): 99–116.

<sup>26</sup> Don E Richard, Kevin P England, and Doug Connell, “Wetland Restoration Remediates Chlorinated Solvents in Groundwater and Protects Surface Water,” *Phytoremediation, Wetlands, and Sediments* (Battelle Press, Columbus, Ohio, 2001).

<sup>27</sup> Ministry of Lands and Forestry, *Managing Ghana’s Wetlands: A National Wetland Conservation Strategy*.

sediments in a surface run-off thus improving the quality of water and also preventing siltation at the lower course of the stream.<sup>28</sup> Nitrogen and phosphorus are two major nutrients that have an impact on water quality.<sup>29</sup> It has been further reported that wetlands have the ability to filter out excess nitrogen from water by three main processes.<sup>30</sup> These processes include storing it in organic sediments, capturing it in plant tissue, and lastly changing it back into the atmosphere as atmospheric nitrogen. The removal of these toxins helps to improve the quality of water as well as prevent the salutation of downstream watercourses. Thus, the unavailability of wetlands means that these toxins and sediments continue downstream to a surface water system which has the tendency to affect both public health and ecosystem health.

### Wetland Loss and Degradation

Although natural happenings such as erosion, droughts, sea-level rise, overgrazing by animals and hurricanes negatively impact wetlands, human activities substantially subject pressure on these ecosystems.<sup>31</sup> The effect of the global swelling population pressure at the start of the 21<sup>st</sup> century, which is interrelated to the increase in demand for food and also the poor knowledge of the ecological functions of wetlands results in a strong negative pressure on wetlands and their resources globally.<sup>32</sup> In effect, this pressure has resulted in the loss and degradation of wetlands globally. It has been reported that globally, more than fifty percent of wetlands have been lost due to anthropogenic activities.<sup>33</sup>

A loss in wetland is defined as a loss due to the conversion of wetlands to non-wetland areas resulting from anthropogenic activities. Loss and degradation of wetlands are some of the most worrying and yet poorly recognized ecological problems of the modern world.<sup>34</sup> These losses and degradation of wetlands lead to variations within wetlands which affects its functions.

### Policies and Laws Governing Wetland Usage

Protected areas and the right to their usage are defined within the Acts of law. Owing to the rapid loss of wetlands and their fragility, many countries have legislative Acts that protect wetlands and define their terms and rights of usage. In Ghana, numerous national policies and legislation affect wetlands.<sup>35</sup> These laws though outmoded and had largely failed to solve sufficiently the problem of wetlands, do however provide an initial point for the formulation of appropriate laws. Among such policies are the Land Policy, Water Resources Act, Decentralization Policy, Ghana Vision 2020, and the Fisheries Decree of 1972.<sup>36</sup>

However, as to what extent the policy is being implemented is yet to be known. This is because Ghana continues to lose wetlands to construction and other human activities every day. Yalley, Opintan-Baah, and Darko, through their research, established that more than 50% of developers had never obtained an environmental permit during their activities. They further revealed that the developer's inability to obtain the needed environmental permit was due to a lack of awareness by the developers of the necessary policies and legislation on land acquisition and development.<sup>37</sup> Ryan and Ntiamo-Baidu also provide evidence that indicates that significant sections of Ghana's wetland coverage have been lost to neglect and unsustainable human activities, such as farming, bushfire setting, fuelwood harvesting, and hunting and

<sup>28</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>29</sup> Christie Vandervlist Daigneault, Kaileigh Nichols, and Mitchell Hall, "The Importance of Wetlands in Ecosystem Services: With Special Attention on Flood Attenuation, Carbon Sequestration, Hydrogeology, Water Quality, Biodiversity, and Social and Local Values," *ERSC 3160H-Wetl. Final Rep.*, 2012, 1–55.

<sup>30</sup> Paul A Keady, *Wetland Ecology: Principles And Conservation* (Cambridge: Cambridge University Press, 2010).

<sup>31</sup> Thomas W Bjerstedt, "Impacting Factors and Cumulative Impacts by Midcentury on Wetlands in the Louisiana Coastal Area," *Journal of Coastal Research* 27, no. 6 (2011): 1029–51.

<sup>32</sup> UNEP/CBD, "Water Security Depends on Forests and Wetlands," *International Year United States* (Environmental Protection Agency., 2011); Mj O'connell, "Detecting, Measuring and Reversing Changes to Wetlands," *Wetlands Ecology and Management* 11 (2003): 397–401..

<sup>33</sup> Nick C Davidson, "How Much Wetland Has the World Lost? Long-Term and Recent Trends in Global Wetland Area," *Marine and Freshwater Research* 65, no. 10 (2014): 934–41; Jia Li et al., "Characterization, Source, and Retention of Microplastic in Sandy Beaches and Mangrove Wetlands of the Qinzhou Bay, China," *Marine Pollution Bulletin* 136 (2018): 401–6.

<sup>34</sup> Krzysztof J Wójcicki and Beata Woskiewicz-Ślęzak, "Anthropogenic Causes of Wetland Loss and Degradation in the Lower Kłodnica Valley (Southern Poland)," *Environmental & Socio-Economic Studies* 3, no. 4 (2015): 20–29.

<sup>35</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>36</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>37</sup> P. P. K. Yalley, E Opintan-Baah, and J O Darko, "Evaluating the Performance of Environmental Protection Agency (EPA) in the Ghanaian Building Constructional Industries (a Case Study Area Kumasi and Sekondi-Takoradi Metropolis)," *Refereed Journal of Engineering and Science (IRJES)*, 2 (1), 2013.

estate development.<sup>38</sup> In the Central region, research by Wuver and Attuquayefio found that farming, hunting, and fuelwood harvesting by the local populace is causing gradual losses in biodiversity in the Muni-Pomadze wetland area.<sup>39</sup>

Notwithstanding the challenges of formal laws and policies in protecting wetlands, Brooks, Waylen and Mulder reported that a new form of conservation paradigm known as the Integration of Traditional Ecological Knowledge (TEK) or customary beliefs and practices in conservation projects has emerged as an important determinant of conservation success and as studies globally have reported the need for the use of customary practices to manage and conserve resources.<sup>40</sup> The Baima Tibetans a tribe found in China are believed to have reconstructed their ruined tradition, customs and culture which had been buried under more powerful and more recent scientific knowledge through management practices considered vital in conserving biodiversity and livelihood preservation of the natural resources. Luo, Liu and Zhang reported that such a method preserved the ambitions and principles of the local inhabitants in the management processes.<sup>41</sup>

The situation is not entirely different in sub-Saharan Africa where livelihoods mostly rely on the resources provided by the land.<sup>42</sup> As such, to sustain these resources, there is the need to ensure their conservation not only for the present generation but also for posterity as well. Thus, the role of traditional beliefs in the conservation of natural resources is very important for their management. Research has reported the use of traditional principles in the preservation of a great number of elements of local biodiversity, regardless of their value of use dates back to creation.<sup>43</sup> In other to assess the role of traditional belief in the management of resources in Zambia, Mangetane and Asibey stated that tilling of land along the headwaters of rivers and streams is forbidden.<sup>44</sup> The study further stated that such management practices have guaranteed an all-year-round stream flow as well as protection of fish breeding grounds and also lagoons in the study area.

In Ghana, a study by Ntiamo-Baidu which assessed coastal zone management along the coast of Ghana brought to light that the traditional approach has been sufficient in maintaining the ecological integrity of the coastal lagoon's environment.<sup>45</sup> Sarfo-Mensah and Oduro also opined that the use of the traditional approach in managing biodiversity is sustainable, and environmentally friendly and also contributes very much to the conservation as well as sustainability of natural resources.<sup>46</sup> Adu-Boahen, Dadson and Atubiga in their research on customary practices and wetland management in Ghana concluded that traditional beliefs serve as the foundation by which the Muni lagoon is being managed and that modern conservation methods and techniques employed by the Wildlife Division were unsatisfactory in the management of the wetland.<sup>47</sup>

Regardless, sustaining traditional belief practices and principles are mostly endangered due to the fact that they are not gazetted in the management of natural resources in the country as compared to laws

<sup>38</sup> Yaa Ntiamo-Baidu, "Conservation of Coastal Lagoons in Ghana: The Traditional Approach," *Landscape and Urban Planning* 20, no. 1-3 (1991): 41-46.

<sup>39</sup> A M Wuver, "The Impact of Human Activities on Biodiversity Conservation in a Coastal Wetland in Ghana," *West African Journal of Applied Ecology* 9, no. 1 (2006).

<sup>40</sup> Jeremy S Brooks, Kerry A Waylen, and Monique Borgerhoff Mulder, "How National Context, Project Design, and Local Community Characteristics Influence Success in Community-Based Conservation Projects," *Proceedings of the National Academy of Sciences* 109, no. 52 (2012): 21265-70; Michael Cox, Sergio Villamayor-Tomas, and Yasha Hartberg, "The Role of Religion in Community-Based Natural Resource Management," *World Development* 54 (2014): 46-55.

<sup>41</sup> Yaofeng Luo, Jinlong Liu, and Dahong Zhang, "Role of Traditional Beliefs of Baima Tibetans in Biodiversity Conservation in China," *Forest Ecology and Management* 257, no. 10 (2009): 1995-2001.

<sup>42</sup> George Abalu and Rashid Hassan, "Agricultural Productivity and Natural Resource Use in Southern Africa," *Food Policy* 23, no. 6 (1998): 477-90.

<sup>43</sup> Berkes, Fikret, Johan Colding, and Carl Folke. "Rediscovery of traditional ecological knowledge as adaptive management." *Ecological applications* 10, no. 5 (2000): 1251-1262; Turner, R. Kerry, Jeroen CJM Van Den Bergh, Tore Söderqvist, Aat Barendregt, Jan Van Der Straaten, Edward Maltby, and Ekko C. Van Ierland. "Ecological-economic analysis of wetlands: scientific integration for management and policy." *Ecological economics* 35, no. 1 (2000): 7-23.

<sup>44</sup> Mangetane, G. K., and E. A. O. Asibey. "An Overview of African Indigenous Knowledge for sustainable Development." In *Scandinavian Seminar College: African Perspectives of Policies Supporting Sustainable Development*. 2001.

<sup>45</sup> Ntiamo-Baidu, "Conservation of Coastal Lagoons in Ghana: The Traditional Approach."

<sup>46</sup> Paul Sarfo-Mensah and William Oduro, "Changes in Beliefs and Perceptions about the Natural Environment in the Forest-Savanna Transitional Zone of Ghana: The Influence of Religion," 2010.

<sup>47</sup> Adu-Boahen, K., I. Y. Dadson, and J. A. Atubiga. "Customary practices and wetland management in Ghana: A case of Muni Lagoon Ramsar site in the Central Region." *KNUST Journal of Geography and Rural Development* 2, no. 1 (2018): 27-45.

made by bodies such as the Forestry Commission.<sup>48</sup> Shahabuddin and Rao reported that such beliefs, principles and opinions are generally inculcated into the daily activities of the local people and thus can easily be integrated into the management and conservation of natural resources.<sup>49</sup> Jehu-Appiah et al. in investigating folklore in Edo State Nigeria reported a decline in traditional practices of conservation despite the significance of traditional beliefs in resource conservation.<sup>50</sup> Similarly, Maconachie, Binns and Tengbe who worked on a comparative study between Ethiopia and Sierra Leone, reported that even though traditional beliefs portrayed skill in the management of wetlands, its practicality has been influenced by external forces.<sup>51</sup>

In Ghana, Ntiamoah-Badu and Gordon reported the existence of a solid traditional base aimed at protecting wetlands by the use of an indigenous management system in Ghana. This has aided in the protection and regulation of most wetlands in the past.<sup>52</sup> However, this is mostly dependent on the beliefs of the traditional areas such as taboos, and customary laws which influence the right to land use and resources. However, the major challenge to traditional management of wetlands as reported is that many community members tend to have little understanding and regard for traditional authority as compared to authority from the central or local government.<sup>53</sup> Most often traditional management does not have the requisite influence and monitoring team to control encroachment and greatly relies on the beliefs of the people, but once the belief system breaks down community members get a free ride and cause rapid deterioration of the protected wetlands.

### **Institutions Responsible for Wetland Management**

Documents by the Ministry of Lands and Forestry reveal that the management of wetlands resources encompasses several activities.<sup>54</sup> These include data collection and monitoring, execution of projects and programmes as well as standard-setting. These activities are carried out by various government and non-government institutions namely the Ministry of Environment, Science and Technology, Wildlife Department of the Forestry Commission, District and Metropolitan Assemblies, the Environmental Protection Agency (EPA), Council for Scientific and Industrial Research (CSIR), Ministry of Lands and Forestry, as well as NGOs. It is, however, important to state that most of these policies are biased towards areas regarded as Ramsar sites to the detriment of other vital ecological places which needs protection from anthropogenic as well as other factors within the country.<sup>55</sup>

Again, the inability of the agricultural sector to come up with any form of policy to systematically distinguish between projects which affect wetlands and those that affect other water resources and drainage has compounded the issue. Today wetlands-management plans do not contain guidelines for designing wetland policies, providing well-integrated environmental programmes, and improving the production base of the communities. Moreover, emphasis is placed more on wildlife resources with little attention given to wetlands in general by the Wildlife and Protected Areas Policy.

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<sup>48</sup> Ghazala Shahabuddin and Madhu Rao, "Do Community-Conserved Areas Effectively Conserve Biological Diversity? Global Insights and the Indian Context," *Biological Conservation* 143, no. 12 (2010): 2926–36.

<sup>49</sup> K. Adu-Boahen, I Y Dadson, and J A Atubiga, "Customary Practices and Wetland Management in Ghana: A Case of Muni Lagoon Ramsar Site in the Central Region," *KNUST Journal of Geography and Rural Development* 2, no. 1 (2018): 27–45.

<sup>50</sup> Caroline Jehu-Appiah et al., "Household Perceptions and Their Implications for Enrolment in the National Health Insurance Scheme in Ghana," *Health Policy and Planning* 27, no. 3 (2012): 222–33.

<sup>51</sup> Roy Maconachie, Tony Binns, and Paul Tengbe, "Urban Farming Associations, Youth and Food Security in Post-War Freetown, Sierra Leone," *Cities* 29, no. 3 (2012): 192–200.

<sup>52</sup> Jennifer Segbefia, Francis K. E. Nunoo, and D. R. Hedericke, "Species Composition, Abundance, and Growth of Three Common Fish Species of the Volta Estuary, Ghana," *International Journal of Fisheries and Aquaculture* 3, no. 1 (2013): 79–97.

<sup>53</sup> Opoku, "Effects of Human Encroachment on Wetlands in Ghana: The Case of Sakumono Ramsar Site."

<sup>54</sup> Ministry of Lands and Forestry, *Managing Ghana's Wetlands: A National Wetland Conservation Strategy*.

<sup>55</sup> Joanitta Asabea Opoku, "Effects of Human Encroachment on Wetlands in Ghana: The Case of Sakumono Ramsar Site" (University of Cape Coast, 2013).

## Conceptual Frameworks

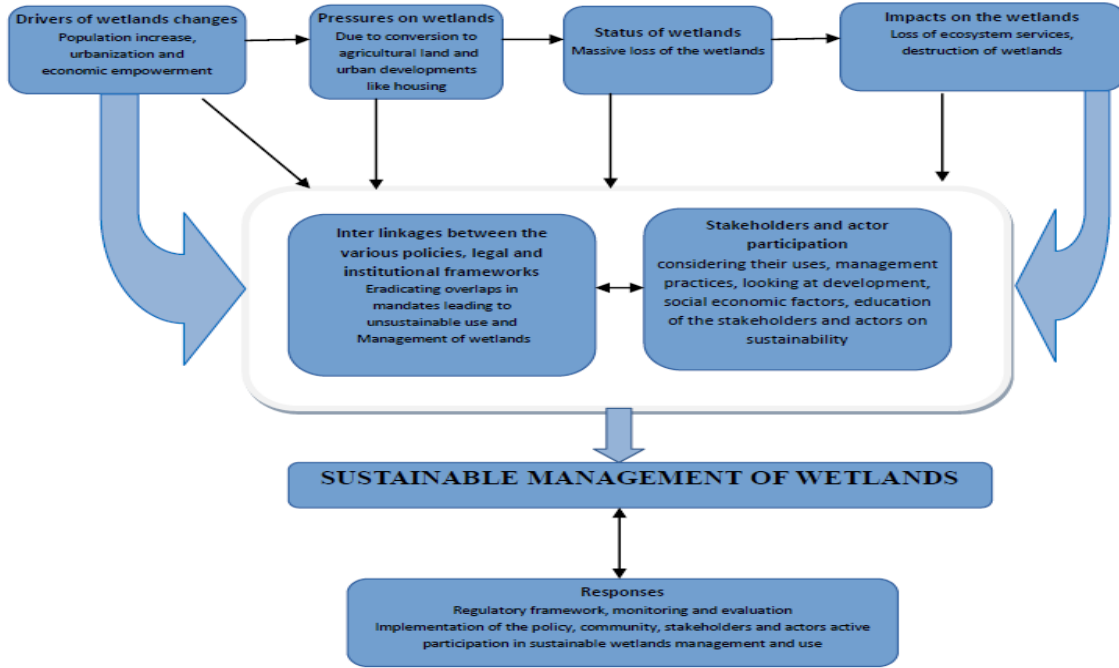


Figure 2: Conceptual framework on linkages in sustainable management of wetlands<sup>56</sup>

Figure 2 depicts the conceptual framework by Njagi which was modified for the conceptual framework for this study.<sup>57</sup> Among the various variables which were not introduced from that of Njagi included ‘Status of the wetland’, ‘suitable management of wetlands’ as well as ‘responses’.<sup>58</sup> These variables were not included in the modified framework because they had no direct link with the objectives set by this study – that is to assess the laws and policies in relation to the protection and management of the Iture-Abakam wetland.

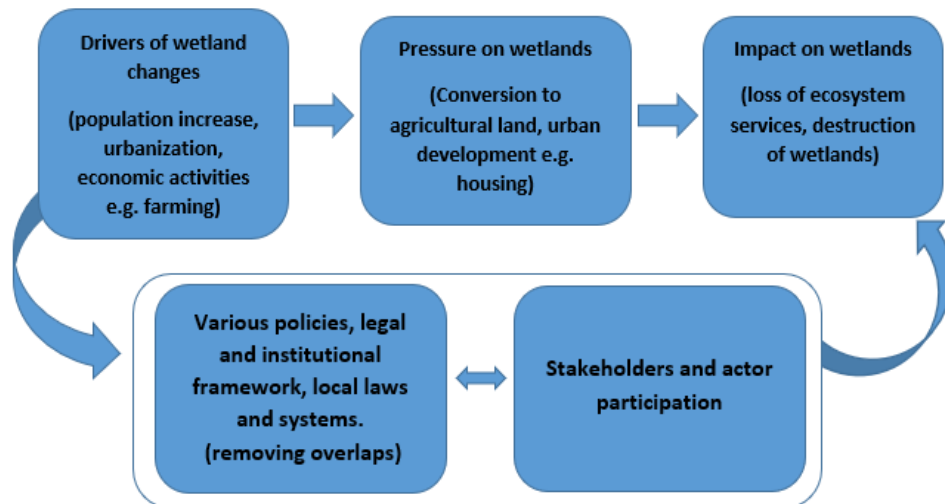


Figure 3: Conceptual framework adapted after Njagi<sup>59</sup>

<sup>56</sup> Christine M. Njagi, “Policy Review on Sustainable Use and Management of Wetlands in Kenya: A Case Study of the Kimana Wetland, Kajiado County, Kenya” (University of Nairobi, 2016).

<sup>57</sup> Njagi, “Policy Review on Sustainable Use and Management of Wetlands in Kenya: A Case Study of the Kimana Wetland, Kajiado County, Kenya.”

<sup>58</sup> Cox, Villamayor-Tomas, and Hartberg, “The Role of Religion in Community-Based Natural Resource Management.”

<sup>59</sup> Njagi, “Policy Review on Sustainable Use and Management of Wetlands in Kenya: A Case Study of the Kimana Wetland, Kajiado County, Kenya.”

Research has shown that urbanization which comes with its associated increase in population is a key driving force of wetland degradation.<sup>60</sup> The increase in population thus will result in a rise in the demand for food leading to a surge in agricultural activities such as farming. With an increase in agriculture comes a demand for land and thus more often wetlands are seen as the perfect source. The conversion of wetlands, especially due to anthropogenic activities leads to dire consequences.<sup>61</sup> Even though various policies and legal institutions are mostly put in charge to help curtail the increasing anthropogenic influence on wetlands, the lack of coordination and clear-cut role of each of these institutions makes their task of managing such precious ecosystems difficult. There is sometimes conflict between the national laws and the traditional laws in the protection of such a delicate resource. A collaborative effort between individual stakeholders together with the right enforcement of laws and policies by these stakeholders is very key to the proper management and protection of our wetlands.

Linking the modified conceptual framework to the study and more specifically to the objectives, the variable 'Drivers of wetland changes' would help find answers to the second objective of the study which aims at accounting for the various anthropogenic factors that have contributed to the changes within the Iture-Abakam wetland and thus the various pressure on them and the impact such pressure poses to the wetland. The various changes that occurred within the wetland from 1991 to 2020 will also be captured under the first objective of the study. Again, the linkages that exist between the various policies, legal and institutional frameworks and local laws, as well as the stockholders, would help address the third objective which sought to examine the various laws and policies regarding the management of the wetland.

## METHODOLOGY

The study used a case study research design but adopted the qualitative research approach due to the nature of the research issue and the intent of the study, which necessitates comprehensive data collection, and analysis to meet the study's objective.

The study made use of primary data. The primary data were solicited using interview guides. Non-probability sampling technique that is the purposive sampling procedure was used to select key informants such as chiefs, elderly, heads of family, or households within the confines of the Iture-Abakam wetland. Again, key informants from various stakeholder institutions such as the Wildlife Department and the EPA and the Land Use and Spatial Planning Department in the Cape Coast Metropolitan area were interviewed. The purposive sampling technique was employed because the researcher believed the various individuals selected had the requisite knowledge needed.

The Kakum estuary mangrove forest which houses the Iture-Abakam mangrove is situated along the Cape Coast – Takoradi highway road near the Cape Coast Metropolis in the Central Region of Ghana. It has longitudinal location of 1° 18' 48.3" W and 1° 19' 19.9" W and a latitudinal location of 5° 05' 01.4" N and 5° 03' 56.3" N and longitudes 1° 18' 48.3" W and 1° 19' 19.9" W. Three communities namely Duakor, Apewosika and Amamoma border the Northern and Eastern zones of the wetland, with the Western section surrounded by mangroves which extends from the Kakum River estuary.

The study adopted the interpretivist and the positivist research philosophies. Positivism or Positivists are of the view that reality is stable and thus the ability to observe and describe it objectively.<sup>62</sup> Positivists argue that phenomena should be secluded and observations repeated. According to the positivist approach, predictions can be made based on the earlier realities which had been observed and explained as well as their interrelationship. Interpretivists believe that in order to fully understand reality, there is a need for a subjective interpretation of happenings in reality. To them, studying phenomena in their natural setting is vital will be difficult for scientists not to affect phenomena under study.

In this study, an ethical clearance to carry out the study was obtained from the Institutional Review Board (IRB) of the University of Cape Coast, Ghana. The code of ethics requires that the researcher secures informed and voluntary consent and permissions from respondents. Participants were offered with consent form clarifying issues on confidentiality, and a statement of purpose of the study with details of how and where data were to be presented. Participants who consented by signing the consent form were those used for the study. This was an expression of my respect for the participants in this study. They were

<sup>60</sup> Sanneke van Asselen et al., "Drivers of Wetland Conversion: A Global Meta-Analysis," *PLoS One* 8, no. 11 (2013): e81292.

<sup>61</sup> Colin F J O'Donnell, "Breeding of the Australasian Bittern (*Botaurus Poiciloptilus*) in New Zealand," *Emu* 111, no. 3 (2011): 197–201.

<sup>62</sup> David Michael Levin, *The Opening of Vision: Nihilism and the Postmodern Situation* (London: Routledge, 2008).

assured that they could withdraw from taking part in the study at any time they deemed fit. Pseudonyms where necessary were used in all transcripts to ensure confidentiality. All data were stored securely during the research process.

## PRESENTATION OF RESULTS /FINDINGS

### Policies and Laws Governing the Iture-Abakam Wetland

Considering the huge benefits of the wetland ecosystem to a community and the country as a whole, one will expect that much is done to protect such a delicate and important resource. Sadly, it seems the situation is different as much of the country's wetlands are not protected as they should be. From the various interviews conducted, one thing was clear, it seems the country does not have a well-established law and policy regarding wetlands, especially those not classified as Ramsar sites as all the participants agreed that no clear law or policy exists for protecting wetlands. The personnel from the Wildlife Division stated that:

*“The Wildlife Division is in charge of wetlands in Ghana, but not all the wetlands in Ghana have been gazetted, just a few called Ramsar sites. So the Division is now working with the District Assemblies so that they manage the wetlands under their jurisdictions. Even the Ramsar sites are managed in collaboration with the District Assemblies because wetland management is a multistakeholder system.”*

Probing further to find out if there is any single policy or law that protects the Iture-Abakam wetland, the personnel from the EPA responded by saying:

*“For the Iture-Abakam area, I am not aware of any specific intervention but there is the EPA policy. The Wildlife Division Wetland Management Regulation aspect of such policies can be used to manage that area e.g. Wildlife Management Policy prevents people from dumping refuse or mining sand within the wetlands, EPA.”*

However, finding out more from the EPA about such policy regarding wetland management, the EPA personnel revealed that as it stands now there is no well-organized management team in terms of wetland management in Ghana. However, the EPA tries to protect the environmental functions of the wetland even though no law has been established and entrusted it to any organization to protect and manage the wetland. He further stated that depending on the location of the wetland, traditional authorities in that area assume ownership of the wetland and sell it out as and when they want to. His view was corroborated by the Chief of the community who in response to whether any form of law or policy exists for the protection of the wetland stated that;

*“Currently there are no laws or regulations protecting the wetland. Formerly individuals were not allowed to cut the mangroves or the thatch.”*

He, however, emphasized that previously there was a traditional ban on entering into the wetland on Tuesdays as well as washing cooking utensils in the water. Such laws, however, are not adhered to today. The Fetish Priest on why the traditional laws were not being adhered to, laid the blame on the Chief. He stated that:

*“The Chief is in charge of the laws of the land and punishes individuals who break the law, but if individuals are not punished for violating the law then it does not serve as a deterrent to others. Also, because of Christianity, the chief is not able to uphold the traditional laws that protect the place.”*

In his response, the Chief stated that he is mostly handicapped when it comes to entry into the mangroves because the owners of the land (the Afedzi family at Apewosika) give people the go-ahead to cut down the mangroves because of financial gains. The Chief further revealed that even though he had gone for training on wetland protection, he had not been able to put that knowledge into practice because, at the end of the day, it is the landowners who have the final say.

## DISCUSSION

From the various interviews conducted, one thing was clear, that currently no formal laws or policies are protecting the Iture-Abakam wetland. This situation is however not surprising as various research reports that any existing law or policy that protects wetlands is biased towards those recognised as Ramsar sites to the neglect of the other equally important wetlands in the country.<sup>63</sup> Gordon et al., for example, reported that a number of non-Ramsar wetlands are polluted and no longer supporting birdlife, including the Kpeshie, Teshie, Korle, Chemu, and Benya and Fosu lagoons. Attuquayefio and Gbogbo identified indiscriminate water bird hunting, mangrove cutting, sewage disposal, farming, and fishing as major human activities contributing to the alteration of these non-Ramsar sites.<sup>64</sup>

The lack of protection for these non-Ramsar sites may be due to the fact that the vast majority of non-Ramsar sites in coastal Ghana are publicly owned, unmanaged, and unregulated. Commenting on this situation, the Director at EPA blamed the issue on the development gap existing in the country when he mentioned that,

*“The government will establish the institutions to manage development on land but these lands more often do not belong to the government. The landowners and the traditional authorities have their different plans for the lands.”*

It will be therefore ideal for the government to acquire such lands and further protect and develop it a view which was supported by the E.P.A. In his words, the Director opined that,

*“Lands are mostly managed by the traditional authorities, my belief is that as a district or the municipality, if you see any open space that plays an ecological role that benefits the masses, the best thing to do is to acquire it and then you can plan and use it for that purpose.”*

To be able to achieve this purpose successfully, Campion and Owusu-Boateng proposed that the distribution of benefits and costs of maintaining wetlands among stakeholders as advocated by Magnani may be a better option for the management of such spaces.<sup>65</sup> They made this proposal on the basis that the government mostly finds it expensive to pay for compensation to enable the designation of these wetlands as public resources and also due to the fact that the government is not regarded as the manager of public lands.

The Land Use and Spatial Planning Department on their part admitted that the unit does not allow the putting up of buildings both commercial and residential in and around the wetland. However, the lack of political will has affected the implementation of such a policy, a finding which corroborates the view of Campion and Owusu-Boateng who reported that there is a lack of political will by stakeholders when it comes to the protection of wetlands in Kumasi. **Error! Bookmark not defined.** This allows various individuals to put up structures which the department deems illegal in and around the wetland. The lack of political will could also be attributed to the fact that each stakeholder aside from the Wildlife Division is looking up to the other institutions to initiate the processes in protecting the wetland as they do not want to mingle in the functions of the other stakeholders.

Regarding the traditional laws and policies that had existed for the protection of the Iture-Abakam wetland. The research revealed that such laws are not adhered to. This could be a result of the fact that many community members tend to have little understanding and regard for traditional authority as compared to authority from the central or local government in this modern era, a view which contradicts the finding of Adu-Boahen et al. regarding customary practices and management of wetlands within the Muni Lagoon Ramsar Site.<sup>66</sup> Their research revealed that residents within the study area were more interested in observing customs, norms, regulations and rules which are set up by their traditional rulers

<sup>63</sup> C Gordon et al., “Wetland Typology: Contribution to the Ghana National Wetland Strategy,” *Ghana Wildlife Department, Coastal Wetlands Management Project, Accra*, 1998; D K Attuquayefio and F Gbogbo, “Prospects of Conserving Wetlands along the Mukwe Lagoon at Nungua in the Greater Accra Region of Ghana,” *West African Journal of Applied Ecology* 2, no. 1 (2001).

<sup>64</sup> Gordon et al., “Wetland Typology: Contribution to the Ghana National Wetland Strategy.”

<sup>65</sup> Elisabetta Magnani, “The Environmental Kuznets Curve: Development Path or Policy Result?,” *Environmental Modelling & Software* 16, no. 2 (2001): 157–65; Benjamin Betey Campion and Godfred Owusu-Boateng, “The Political Ecology of Wetlands in Kumasi, Ghana,” 2013.

<sup>66</sup> Adu-Boahen, Dadson, and Atubiga, “Customary Practices and Wetland Management in Ghana: A Case of Muni Lagoon Ramsar Site in the Central Region.”

and transferred to them from their ancestors than, formal laws which are most often difficult to read and apply.

However, as reported earlier, it is not the same with residences within the Iture-Abakam wetland, a situation the Fetish Priest blames on the Chief of Abakam. He stated that because the Chief of the community is a Christian by religion, he fails to adhere to the traditional laws of the area, thus individuals who also break such laws go free. One could therefore presume that there is a form of breakdown in the belief of the traditional systems within the Iture-Abakam wetland area. A situation that corroborated with that of Opoku which reported that most often, traditional management does not have the requisite influence and monitoring team to control encroachment and thus greatly rely on the beliefs of the people, but once the belief system breaks down community members may free-ride and cause rapid deterioration of the protected wetlands.<sup>67</sup>

A study by Adu-Boahen et al. at the Muni Pumadzi lagoon, however, paints a different picture when it comes to traditional authorities' laws used in maintaining the wetland.<sup>68</sup> Their research revealed that the chiefs within the communities are in control when it comes to the management of the lagoon despite a few challenges. As reported by their study, a chief stated that,

*“Even though they are those in charge of the management of the lagoon, some individuals make their work difficult by not adhering to the laid down traditional beliefs and values due to their faith in other religions.”*

The situation in the Iture-Abakam wetland is made worse because the chief of Abakam, as well as those communities along the wetlands, are merely ‘caretakers’ when it comes to managing the wetland area and its resources. As such the owners of the land dictate to them regarding the entry and use of the wetland area. Also, the chief being a Christian is not able to uphold some of the traditional laws put in place to manage the wetland.

## RECOMMENDATIONS

Based on the key findings from the study, the following recommendations were made.

- There should be a national law by the Central government to protect the non-Ramsar from loss and degradation due to the growing demand from the human population for urban lands for physical infrastructural development and for residential and commercial drives.
- The various stakeholders such as the Chiefs, EPA, Land Use, Spatial Planning Department and the Wild Life Division of the Forestry Commission should take steps to effectively coordinate, implement and enforce laws and regulations to protect the wetland.
- The various stakeholders such as the EPA, the Wildlife Division as well as the District Assembly should embark on environmental education through direct and indirect approaches into the fringe communities around the Iture-Abakam wetlands and also by mass media for the general public to help educate the community members as well as the general public on the need to conserve and protect wetlands.
- The traditional authorities should be supported by the MMDAS to help them implement the local laws that exist within the area to help curb the increasing influence of anthropogenic activities on the wetland and also prosecute individuals who break such laws and regulations.

## CONCLUSION

This study has assessed the role the law plays and the systems that have been put in place to manage and protect the Iture-Abakam Wetland in Cape Coast, Ghana. The findings have revealed that there exists no law or policy that protects and manages the Iture-Abakam wetlands as is peculiar to other non-Ramsar wetlands in Ghana. The local law that seems to protect the area is now not adhered to due to the disregard for local authorities. Thus, once the belief system breaks down community members have a free ride and cause rapid deterioration of the protected wetlands. Recommendations have been provided and if adhered

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<sup>67</sup> Opoku, “Effects of Human Encroachment on Wetlands in Ghana: The Case of Sakumono Ramsar Site.”

<sup>68</sup> Adu-Boahen, Dadson, and Atubiga, “Customary Practices and Wetland Management in Ghana: A Case of Muni Lagoon Ramsar Site in the Central Region.”

to, these precious aspects of the ecosystem will be protected from degradation for the sake of posterity. Steps need to be taken to ensure that the ecosystem is protected for the sake of posterity.

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