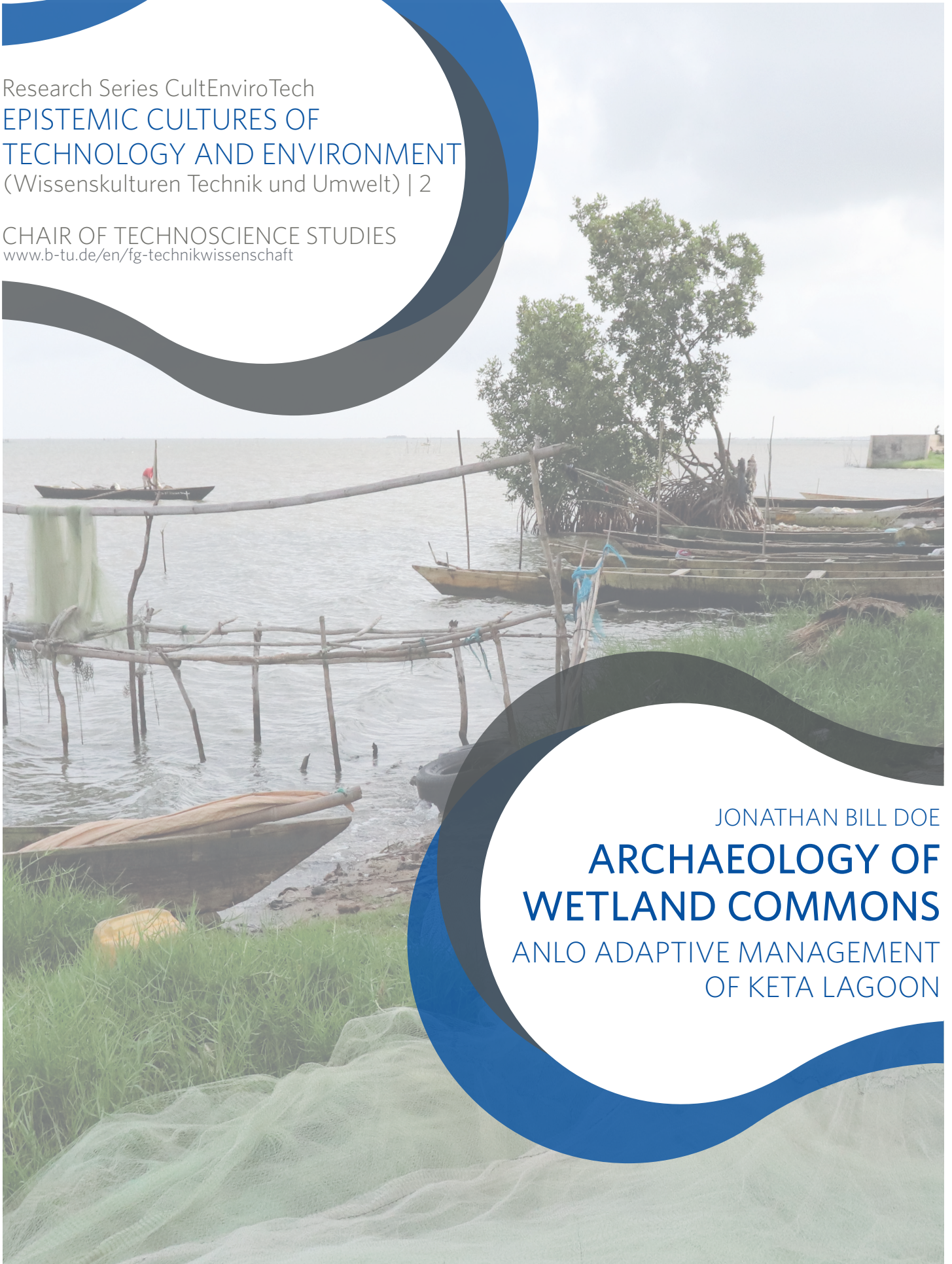


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JONATHAN BILL DOE
**ARCHAEOLOGY OF
WETLAND COMMONS**
AN LO ADAPTIVE MANAGEMENT
OF KETA LAGOON



Jonathan Bill Doe

Archaeology of Wetland Commons: Anlo
Adaptive Management of Keta Lagoon

**Research Series CultEnviroTech - Epistemic Cultures of Technology and Environment
(Wissenskulturen Technik und Umwelt)**

Volume 2

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Anlo Adaptive Management of Keta
Lagoon

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and Environment (Wissenskulturen Technik und Umwelt)
BTU Cottbus-Senftenberg

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To Mary Eye Abotsi

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Foreword

The first impression the term ‘archaeology of wetland’ presents is of formal academic disciplinary practices using pickaxes, shovels, and measuring instruments to physically dig out a long-forgotten historical material of wetland, exposing the stratigraphical picture and chronologically spelling out a history of the water body. Though geological properties, such as wetland, have been featured in archaeological discourse, they have always been in relation to humans. The aim of this study is not to use archaeological discipline to construct a history of wetland for its own sake, but to carry out a survey of the discourse on the shared body of Anlo local knowledge, the role of Anlo people in relation to the wetland and how Ramsar’s Keta Lagoon management plan selects or ignores Anlo local knowledge. On another level, to trace how local knowledge deals with the onslaught of rejection and subjugation and yet struggles to emerge in colonial and postcolonial contexts. Decorse (1998) has pointed out the enduring traces of local knowledge in religion and archaeology for example. The wetland itself rose through many layers of discourse into contemporary Anthropocene environmental exigencies. The term ‘archaeology’ somewhat then falls into a Foucauldian metaphorical sense of discourse analysis (Foucault 1972). The use of archaeology in the Foucauldian sense is first, a recognition of several layers of notions, assumptions, and different modes of disciplines engaged in wetland management and, second, related environmental discourses. In Foucauldian terms, archaeology does not mean recovery of the primordial, but what is found in situ.

The formation of words is not always strictly bound to philological procedures; archaeology is, therefore, free to take on a broad descriptive discussion, explored from the level of what is ‘already said’ and that which sits in situ in the archive the moment the researcher encounters it (ibid). The conversation in that moment of encounter does not operate as a ‘statement’ which is a symbol of something that is said but operates as a ‘monument’ which is a self-representation (ibid). The ‘already said’, is self-present in the archive history. The ‘already said’ is also recorded through disciplinary modes such as anthropology and ethnography. A critical inquiry is therefore launched into the above different modes of knowledge forms to uncover the enunciative function and the discursive form. The enunciative function helps to reveal what is said, who said it, and what situation gave rise to what was said. It reveals the power asymmetry of the discourse in the colonial and postcolonial discourses of the local people and what roles were assigned to the locals. A picture of a difference to the other begins to emerge in the discussion, raising fundamental questions as to what should be done with that difference now that the power asymmetry appears to be removed (Mbembe 2017; Wallerstein 1974) and what roles should be given to local knowledge in the Anthropocene environmental problems. It is a question to which Anlo wetland connects in the colonial/postcolonial, local knowledge and the current search for environmental sustainability. The urgent search for sustainability is argued to begin from the local to the global through examination of Ramsar convention on the wetland. Yet, that global realization should also lead to an erection of a vigilant memory that would not seek to destroy the difference

from the 'other' but keep in constant view the inactive 'past' power asymmetries for the avoidance of their reoccurrence. The vigilant memory has an active tectonic force in phases of postcolonial resistance. In this regard, the use of archaeology in this research departs slightly from the Foucauldian attempt to treat statements as 'monuments' to Paul Hempel's deductive-nomological explanation which ventures to set out 'covering laws' of situations or phenomenon and their 'initial condition' (Hempel 1966). The deductive reasoning in Hempel's approach is also applied in the analysis. In that sense, archaeology searches for relevant discourses in relation to the adaptive management of the physical phenomenon – wetland. It searches for the precolonial primordial, examines the primordial's normative claims, and links it to the current environmental discourse in environmental philosophy. The next paragraphs of the chapter explain the conceptual framework, statement of the problem, a brief history of the study area, and the outline of chapters.

Introduction

1. Conceptual framework

A conceptual framework furnishes the thinking categories metalinguistic identity makers to seek out similarities within units of thought or outside the units of thought. The units of thought may make claims about the material world that would require an investigation or would give rise to distinct *a priori* claims that are universal in character (Kant 2007; Ostrom 2011). The keywords that form the conceptual framework are archaeology, wetland, local knowledge, adaptive management, and commons (see figure 1 below). They undergo conceptual evolutions across different fields and geographical locations but directly interface with the phenomenon under study. Archaeology provides the metaphor to search the discourses around wetlands on both the theoretical and empirical levels such that a determination can be made on sustainable approaches. A viable approach is an adaptive management that relies on the concept of the commons and local knowledge for implementation, experimentation, and possible universalization. The wetland, commons, and local knowledge are studied in-depth in chapter two. The ideas of sustainability and adaptive management resume a theoretical discussion in chapter four below.

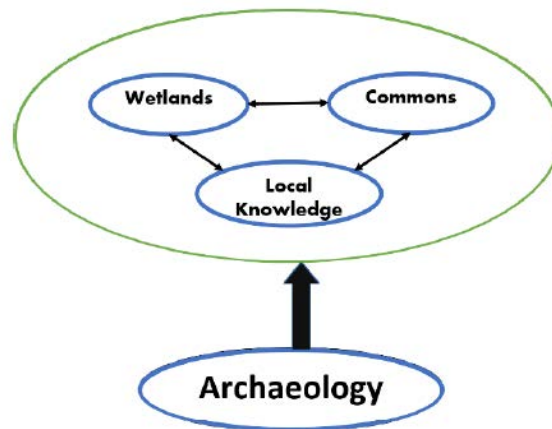


Figure 1: Linkages among the conceptual framework

1.2 Location of Keta Lagoon and Anlo people

Keta Lagoon was designated as Keta Lagoon Complex Ramsar Site on August 14th, 1992 on the Ramsar convention list. (The site shall be referred to in this study as Keta Lagoon. For clarity's sake, the wetland will refer to other sites that are outside Anlo). The site's serial number on the Ramsar list is 567 and is located in Ghana on the 05°55'N, 00°50'E geographical coordinates. Though Ghana as a state party to the Ramsar Convention has five wetlands listed, the focus is on Keta Lagoon and the Anlo people who live on the banks of the Lagoon (Ghana Forestry Commission n.d; Ramsar 2015). Keta Lagoon is

the largest, most complex wetland and an important destination for migratory birds. This makes Keta Lagoon an exciting area for this research.

Ghana was formerly known as the Gold Coast under British colonial rule beginning in 1874 (Boahen 1975; Amenumey 2008). Ghana, as a modern state, gained independence from Great Britain in 1957. Postcolonial Ghana went through rapidly shifting political history until a stable multi-party constitutional democracy was formed in 1992. The country is administered by an executive president through ten administrative regional blocks. Based on the 2018 referendum, the regions have been reorganized into 16 (Government of Ghana 2019). The region in which Keta Lagoon is located in the Volta Region. Furthermore, the lowest administrative unit in a region is the District Assembly, or a Municipal Assembly, depending on population size (GSS 2010). The Anlo people and the Keta Lagoon fall within the Keta Municipal Assembly (Anlo district was carved out of Keta municipal in November 2018).

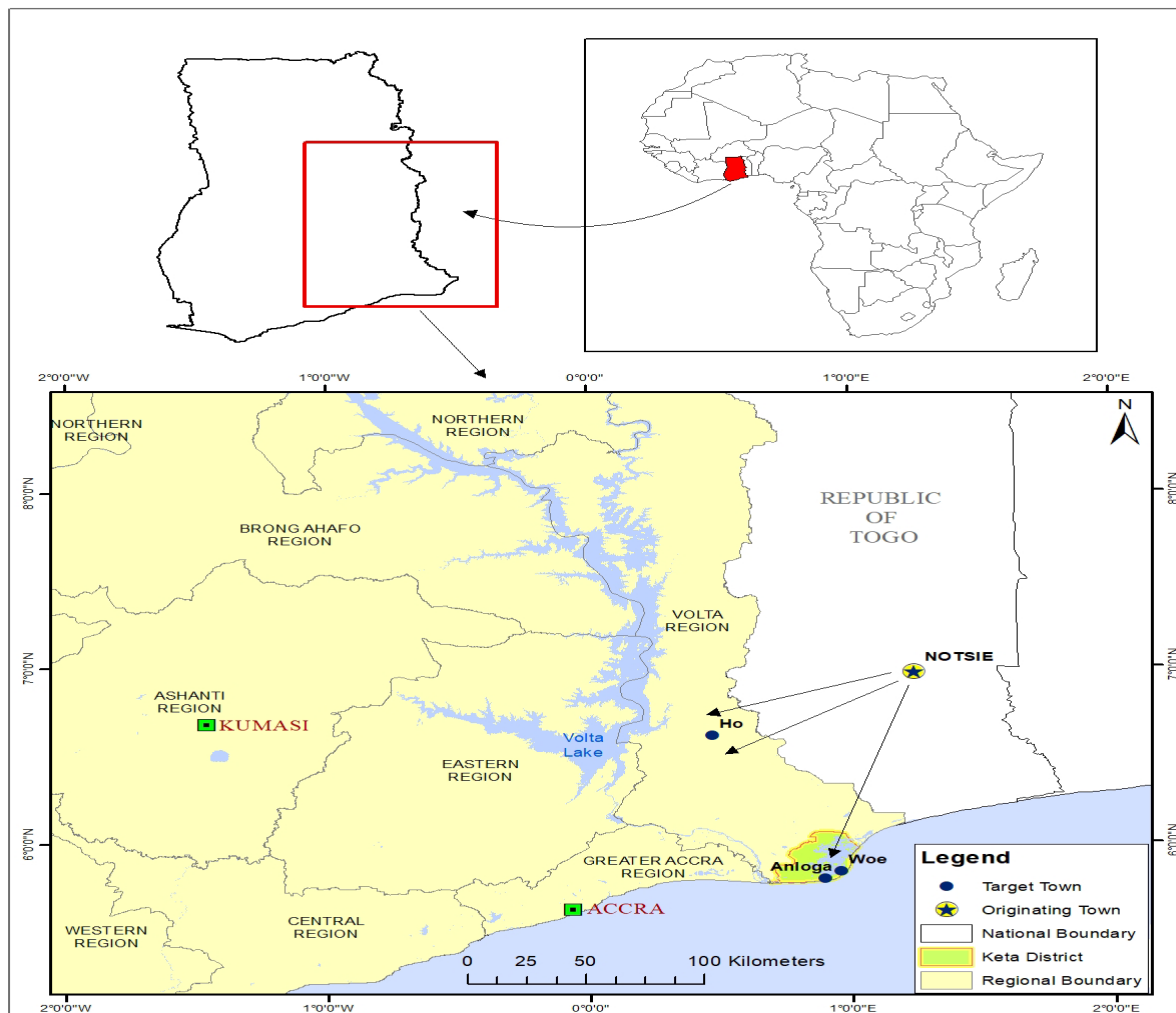


Figure 2: Maps of Africa, Republic of Ghana, Anlo-Ewe migratory roots from Notsie in Republic of Togo and present location of Anlo (Anloga, the capital of Anlo traditional area) community in between the Keta Lagoon and the Atlantic Ocean.

The total physical space of the Keta Municipality is 753.1 km², of which Keta Lagoon covers a total land area of 300 km² (GSS 2010; Ramsar 2015). That makes Keta Lagoon the largest among the five Ramsar sites in Ghana. It appears the rationale behind the framing of the name Keta Lagoon Complex has to do with the merging of several lagoons, the multiform nature of the Lagoon, uneven water depth, irregular hydrology, and inconsistent salinity. Keta Lagoon has many dotted islands. Both the islands and the banks of the Lagoon host swamps, scrublands, and mangrove forests (Ramsar 2015) (see Figures 3 and 5 below). The vastness and the complex nature of the Lagoon make it an important destination for migratory birds and resident birds, a reason for which Ramsar authority takes a keen interest in the Lagoon's 'wise use'.

Over 72 migratory and resident bird species find safe havens on the banks of the Lagoon. Approximately 100,000 birds either visit or stay at the Keta Lagoon site. The eastern end of the Lagoon enters the Atlantic Ocean and serves as a bedding sanctuary for endangered olive ridley sea turtles (*Lepidochelys olivacea*), leatherback turtles (*Dermochelys coriacea*), and green turtles (*Chelonia mydas*). In addition, it is significant for the Nile monitor (*Varanus niloticus*) and the defenseless West African Manatee (*Trichechus senegalensis*) (ibid).



Figure 3: Part of Keta Lagoon in Anloga, Shallot farm at the bank of the lagoon and Atsidza. Picture was taken by researcher during fieldwork.

1.3 Anlo History and Linguistic group

The word 'Anlo' is a Ewe word with a double associative meaning. First, the word refers to the local people in the Keta Municipality and then, their language, which is a dialect of the Ewe language. There is a third meaning which treats 'Anlo' like a verb or an

adjective depending on the context. A linguistic inspection of the third meaning necessarily diverged into the two storylines of Anlo's migratory origin (Spieth 1906; Green 2002; Akyeampong 2001; Amenumey 2008). Since that is beyond the scope of this research, Anlo will be used to refer to the local group identity. A historical attribution will, however, be made in so far as such historical events speak to the people's adaptive management of the wetland and their cognitive categories concealed in the Anlo language for the purpose of extracting their local knowledge relevant to the research objectives. Nevertheless, to set a clear background for the Anlo people and to prepare the stage to introduce the statement of the problem and research objectives, it is pertinent to establish the difference between Anlo political structure and Ghanaian modern state political structure.

All the major historical and oral sources are unanimous on the fact that Anlo migrated through historical roots stretching from their present location to the present-day Republic of Nigeria (Spieth 1906; Green 2002; Akyeampong 2001; Amenumey 2008). Besides the academic literature, literate Anlo locals, some of whom have a close association with Anlo chieftain and Yew cults, have produced literature on Anlo history (Morny 1989; Kumasa 2016; Ameenor 2012). Their findings are collaborative with academic literature. However, they trace Anlo migratory origin much further to the Nile Valley. Indeed, the Ewe language is spoken along the routes from present-day Ghana, Togo, and Benin. Beyond that, there seems to be no clear linguistic trace of the Ewe language. The distinctive point is, the Anlo as a subgroup of the broader linguistic Ewe group, got to their present location in the early sixteenth century. There are thirty-six Anlo towns around the Lagoon. All thirty-six towns come under a paramount head that resides at the traditional capital, called Anloga (big Anlo). The other towns are administered by respective sub-chiefs. Each chief forms a council of elders, consisting of local clan heads, family heads, local priests, and diviners. The Anlo traditional state has a paramount head and a three-prong military wing divided into left, middle, and right wings. The political structure maintained relative stability for fishing and trading among Anlo neighbors and distant trade in pre-colonial Ghana and the early colonial period (Songsore 2011).

Anlo political and local knowledge systems were dragged into the modern European mercantile, industrial and cultural setup when European trading ships impinged the shores of what the Europeans called Slave Coast - from the Volta River in the west to Niger river in the east (Ellis 1890). The presence of the 'other' marked the beginning of two 'publics' - 'primordial' and 'civil' (Ekeh 1975). (The relevance of the two publics will be discussed in chapter four). The present-day coast of Anlo was part of the Slave Coast. Anlo coast was a trading center for Danes, Germans, and later, a colonial territory for the British in 1874. The British carried out two military wars in 1874 and 1889 to conscript Anlo into the British colonial administration of the Gold Coast (Akyeampong 2001).

The presence of the British colonial administration effectively meant the existence of two political structures - local and foreign. Nineteenth-century European intellectual climates had a low opinion of African local knowledge and institutions. A major in First Battalion

of the West India Regiment, A.B. Ellis, who lived and worked in Anlo, published for the reading pleasure of Europeans, a book entitled *The Ewe-Speaking People of the Slave Coast of West Africa, their Religion, Manners, Customs, Laws, and Language*. Ellis (1890:9) claims the Anlo showed “ordinary characteristics of the uncivilized negro”. In addition, A.B. Ellis clung to physiological features to explain why the intelligence of the negro stops after puberty when the “sutures of the cranium” visible in the middle portion of a negro baby would have closed (Ellis 1890:10). And “like most inhabitants of the tropics, whether black or white, the negroes of the Slave Coast have more spontaneity and less application, more intuition and less reasoning power, than the inhabitants of temperate climates” (Ellis 1890:10). This therefore means, Anlo as an identity group would not have developed local knowledge and no demonstrable adaptive application of their knowledge system to the environment. Also, Anlo as a language cannot be a repository of cognitive categories of the people. However, another European, a German missionary, wrote a book entitled *Die Ewe-Stämme: Material zur Kunde des Ewe-Volkes in Deutsch-Togo*. Spieth (1906) records the ingenuity of Anlo in agriculture, art, fishing, and state organization. Obviously, it would have taken more than intuition for negro adults to apply their intelligence to agriculture. On Anlo language, Spieth (1906) asserts that the language has material perceptual words, and words for non-material entities. Spieth advocated the use of Anlo as a medium of instruction.

The views of Spieth went against the ethos of Auguste Comte’s historical determinism. As a result, European political power rejected Anlo’s local knowledge forms and culture. In its place, a section of the Anlo adopted nineteenth-century Christian viewpoints. European knowledge forms received a political endorsement as a means to ‘civilize’ the negro. The postcolonial experience left in its wake Africans who had to hang on to local knowledge systems for survival and another set of Africans who devolved the European way of life to legitimize their political power, making the ‘primordial public’ and ‘civil public’. Those adopting European ways of life were not recognized as fully European either and were powerless against latent neo-colonial power that underpinned the postcolonial experience (Nkrumah 1963). Due to the tension that arose in the colonial and postcolonial experiences, Anlo’s political structure and local knowledge are far removed from the current multiparty constitutional democracy in Ghana and state management of natural resources. On the global stage, the Ramsar convention makes anecdotal references to local knowledge and is not seen as a strong alternative management option for the state parties (National Report 2012; Ramsar 2014).

1.4 Statement of Problem

In 1988, the government of Ghana listed wetlands at the bank of the Lagoon under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention). In addition, Ghana as a state party ratified the Bonn Convention on Migratory Species. The Ramsar Convention’s mission is conservation and *wise use* of wetlands through local, national, and international agencies for the purpose of reaching sustainable development in the world (Ramsar Convention, preamble, Art. 2 para. 6, Art.

3 para.1 and Art. 5 para. 3). The objective of the Convention is to “stem the progressive encroachment on the loss of wetlands now and in the future” (Ramsar Convention, Preamble). The Convention has imposed a series of obligations, in terms of actions, that the state parties must take:

1. Designate at least one national wetland for inclusion in a List of Wetlands of International Importance (Art. 2 para. 1).
2. Take measures for conservation, management, and wise use of migratory stocks of waterfowl (Art. 2 para. 6).
3. Establish nature reserves on wetlands and provide adequately for their wardening as well as promote the training of personnel competent in the fields of wetland research, management, and gardening (Art. 4. para. 1 and 5).

The Ramsar Convention was framed in the context of the Western world’s response to the degradation of habitats for waterfowls and the rapid turning of naturally occurring wetlands into a built environment. One of the inherent problems of the Ramsar convention is over-reliance on wildlife species and the construction of wildlife-specific epistemic tools to determine the sustainability of wetlands. That is an overflow of Western underpinnings of environment, science, ecology, economy, and society in framing the convention. Ramsar Convention has become a global institution that enforces the tenets of the convention on wetlands management among the state parties.

The possible implications of Western framing would be that the local people of Anlo who have interacted with the wetlands would be sidelined. Besides, Anlo’s interactions with the natural heritage, which have formed a body of local knowledge on wetlands management, could also be ignored. The first impression from Ramsar’s mission statement, objective, and list of obligations imposed on state parties is that terms such as environmental management, ecological use, *wise use*, conservation, and sustainability have been referred to in various ways. Such terms may not have the same epistemic validity to the Anlo people. In addition, the impact of Western science and capitalist regime poses a huge problem in the Anthropocene discourse. The scope of adaptive management creates an opportunity to examine alternative wetlands management in a local setting and the use of local knowledge for sustainable wetlands.

1.5 Research Questions and Main Argument

In the face of the rife problems of African local knowledge and the problem stated above, this study shall provide answers to the following questions:

1. How sustainable is the link between Anlo’s local knowledge and Ramsar management?
2. What role has been assigned to local knowledge?

3. How can adaptive management bridge local knowledge and Ramsar management?

The time frame for question one starts from the 1980s when the state took steps to formulate policies and regulations in Ghana in preparation to be a Ramsar contracting party. However, the remaining two questions go beyond the 1980s.

The key argument is the following: Ramsar convention appears to conceive wetlands from the Western point of view. The Ramsar approach was possibly misconceived but promoted as a generic standard among the state parties. That approach, possibly lost sight of the intricate dynamics of the commons in postcolonial local areas. Those who implement Ramsar management plans in Ghana are from the 'civic' public. This creates a possibility to dismiss local ideas of management, in another instance, an aspect of local knowledge and local people are involved but seem adversely engaged. Adaptive management of Keta Lagoon could achieve tenets of sustainability when local knowledge on the environment becomes the basis upon which scientists in the 'civic' public and 'primordial' public, approach wetland management. Also, adaptive management could be a worthwhile approach to construct universal from the local levels.

1.6 Limitations

Due to the limited duration of the thesis and financial constraints, there were some aspects that were not covered. First, the publications of Ghanaian ecologists and scientists who worked towards the formulations of the Keta Lagoon management plan were not adequately reviewed. Second, present Ramsar management and staff were not available for interviews to discover reasons behind engaging NGOs in Ramsar's management plan instead of local institutions.

1.7 Thesis Structure

The thesis is organized into five chapters. The current chapter is the first chapter. Chapter two is titled The Flow of Wetlands Concepts, Theory of Commons into Anlo Local Knowledge Space. The chapter is subdivided into four concepts: wetland, Ramsar convention, commons, and local knowledge. Each of the subdivisions traces the discourse on the evolution of the concepts and tie it to Anlo Keta Lagoon. Chapter three deals with the strategies of data collection and how the data is analyzed. The metaphorical image of archaeology gives a direction to archive and how it is used in historical methodology. The shortfall in historical methodology with respect to non-literate postcolonial societies is complemented with elements of ethnography. It is followed by a discussion on the analytical approach. Chapter four is under the heading, Postcoloniality of Local People, Local Knowledge and Western Science. A review of the postcolonial discourse is carried out from the views of Mbembe (2017) and Mazrui, to what Mazrui (1990) calls 'philosophizing-leaders' at the turn of African independence. The chapter establishes the socio-economic and political context of postcolonial local knowledge. That is followed by juxtaposing local knowledge to Western science from the perspective of an African

philosopher of science, Horton (1967). Subsequently, sustainability and adaptive management principles are extracted from Norton (2005) and situated in Anlo local knowledge. The last chapter is Discussion and Conclusion. The discussion points out the power asymmetry between postcolonial states, Western and local knowledge. The imbalance of local knowledge to Western science makes Ramsar Keta Lagoon's management plan unsustainable. The adaptive management is then adjusted to suit local knowledge, Ramsar convention, and Western science. The conclusion highlights the salient point in the thesis and potential research questions out of this thesis.

2. The Flow of Wetlands Concept, Theory of Commons into Anlo Local Knowledge Space

The aim of this chapter is first, to trace the history of wetlands conceptualization and how concerns of conservationists after World War II influenced the formation of the Ramsar Convention. Second, indicate key provisions in the Ramsar Convention on the wetland. Third, show how the Ramsar convention shaped the crafting of the Keta Lagoon management plan by the contracting party, Ghana. It will be revealed partly in this chapter and in chapter four that the colonial experience and postcolonial experience of Ghana have occasioned two types of publics (Ekeh 1975). They are the primordial public and civic public. The civic public members seem to favor Western knowledge and primordial public members favor local knowledge. It will be demonstrated that it is members of the civic public who designed the Keta Lagoon management plan and assigned roles to local knowledge. On the other hand, members of the primordial public practice their local knowledge with respect to the Keta Lagoon at the same time. Four, the theory of commons will be examined about Anlo's primordial public to unearth Anlo's communal ownership of Keta Lagoon and epistemic tools that are not assigned any role in the Keta Lagoon's management plan. In this chapter, information was derived through ethnography and written sources. The information is analyzed deductively the normative and practical possibilities. However, the analysis of primordial local knowledge shifts into Anlo metaphysical thought. Some Anlo metaphysical words are translated into English based on the researcher's understanding of the Anlo language. Tables are also used to analyze categories of the Keta Lagoon management plan.

2.1 Wetlands: A Concept and its History

Wetlands have always been a meeting place of humans, animals, and all forms of biospecies and non-biospecies. Paleoenvironmental reconstruction at the Olduvai gorge found remains of *Australopithecus boisei*, *Homo habilis*, bones of large mammals, and stone tools in association with earthy clays as a wetland environment that hosted biological and non-biological life forms (Leakey 1971; Liutcus & Gail 2003). The earthy clay represents an area of freshwater wetland. The Biblical creation story has humans who are also said to have lived in the garden with a stream flowing through it. Egyptian civilization thrived on the wetlands (see figure 4 below). Another early example is recorded in Homer's *Iliad* (Homer 1899:63). Homer narrates how the Greek army gathered at the flowery side of river Scamander.

Classical scholars have noted how the banks of the river were marshy and hosted fresh waterfowls. It is also believed Homer's Troy was erected in the vicinity of Scamander and Simois. The name Scamander was given to the river by humans but the gods called it Xanthus. It is clear from human history that wetlands are connected to the origin of human life, human activity and human contemplation has also connected the divine to wetlands or water bodies in most cases. The divine link to wetland was as true in the classical period as it is true for the Anlo people. However, this form of water body called wetland was not always called so.



Figure 4: Picture from the tomb of Thebes, XVIII Dynasty, about BC 1580-1350; in the British Museum
Source: Boere et al 2006.

Up until the 1960s wetlands were called swamps, marshes, or bogs (Norton 2005). In tropical Africa, they were also called groves or fetish groves. The seventeenth-century traveler, naturalist, botanist, and artist William Bartram used the word swamp for wetlands he encountered in North and South Carolina, Georgia, East and West Florida (Bartram 1739-1823). Bartram's ornamented language to describe nature in his famous travel book suggests the meaning of swamp in a glorious Romantic vision of nature. His book excited the minds of poets like William Wordsworth that swamp could be understood in a Romantic concept of nature as beautiful and reverential spots strapped with the qualities of living things. Wordsworth was unmistakable with his words that "Nature breathes among the hills and groves" (Wordsworth 1805:8). The German poet Hölderlin (1779-1843) had defined the role of the Romantic artists, that they should use their artistry to arbitrate human understanding between nature and god. Humans would realize "The gravitation and the filial bond of nature that connect him with the world" (Wordsworth 1805:25). So, there was more to a Romantic understanding of groves, swamps, and wetlands than just considering it as a physical phenomenon.

In the nineteenth century, wetlands in the USA were construed as wastelands devoid of Romantic mystification unbefitting of modern scientific progress of society (Warring 1867; Tinner 2013). The societies had largely moved away from subsistence living to

settled agriculture and industries, changing human views on wetlands. The literal meaning of wastelands also reflected the human attitudes towards, and the use of, some wetlands as refuse dumps. The societal aims of agriculture, economy, industry, and estate constructions which could broadly be described in Comte's language of development became the overriding factors. Scientists and engineers took the lead role in advocating the busting of wetlands. However, a minority of botanists, waterfowl hunters, fisherfolks, and wildlife agencies took notice of the ecological importance of wetlands but their assessment was not persuasive to change what the society considered as advancement and that wetlands impeded development (Flyways 1984). Waring advocated a rule to drain all lands in which "the spaces between the particles of the soil" were filled with either rain or spring water below 1.2 meters depth. Especially lands that hold a lot of agricultural prospects, should be drained to produce more yields. The certainty of the yields was not in any belief system that a farmer held but in the engineering science of which "...the advancements in science has so simplified the industrial processes of the world, has thrown its light into so many corners that the word 'mystery' is hard to be applied to any operations of nature..." (ibid:19). Wetlands were, therefore, to be disassociated from 'mystery', perhaps with its equivalent similes, belief systems, and religion because they had no economic, scientific, or engineering values for society.

The central factors arising from a change in Western attitudes about wetlands are landfilling, reclamations, weed clearing, and gravel winning. A rise in pollution and flooding intensified studies on wetlands and their relevance other than what Waring had thought (Tiner 2013). Some USA city and industrial waste were channeled to wetlands. Besides, Waring's engineering assumptions upon which some wetlands were converted to drylands were being tested by natural phenomena. Key among them was sea-level rise occasioned by the Anthropocene age, coupled with unpredictable rainfall patterns (US-EPA 1993; Colenutt 2001). By 1948, USA political consensus was to halt wetland pollution and the Clean Water Act was designed to protect wetlands (US-EPA). The studies came from various backgrounds and agencies. In the USA, studies were conducted by the USA army and environmental protection agency (EPA). However, land reclamation entered Anglo practices in 1929 when Keta was faced with sea erosion (Petition by Togbi Sri 1943). Keta was then serving as a seaport for European trading companies. The banks of the Lagoon at Keta were reclaimed.

In the 1980s, political parties, research agencies, and ordinary members of the public endorsed the slogan 'No net loss to wetlands'. The US Army Corps of Engineers (ACE) and US-EPA are federal-state agencies that have the responsibility to enforce wetlands regulations. Norton (2005) argues that the slogan turned policy became ecologically vague. ACE devised a mitigation mechanism that allowed estate developers to create new wetlands if they had to convert a wetland into dry land. Landowners took advantage of ACE to create wetland credit. The ACE did not consider the environmental factors of wetlands that an artificially created wetland might not have the same ecological qualities as the wetland that was converted to dry land. However, the ecologists' verdict was, wetlands provide important functions for society and water habitats - flood control,

nutrient removal, a haven for birds, and recreation. In 1930, European ornithologists were informed of land reclamation and droughts affecting a decline in bird population (Boere et al 2006). After the Second World War, scientists found support from governments to collaborate in securing the future of wildlife. One hundred and three wildlife experts from Mexico, Canada, and the USA conducted a study on waterfowls published in a book called *Waterfowl for Tomorrow* (Flyways 1984). The book revealed diverse species of waterfowls, nesting habitats, and sanctuaries for the birds. In addition, it narrated how weather, climate, and environment affect their migration. A sequel was published in 1984 stating the efforts of conservationists' management of waterfowls. The essential message in the two books is: wetland conservation should have proceeded based on preserving habitats for waterfowls.

2.1.1 Involvement of Key Global Conservation Institutions

The tensions between Romanticism and the industrial period sparked interest in nature 'preservation' in the 1800s. But these preservationists' interests were elitist and attracted what appealed to a select group of people. National and international organizations were formed to give meaning to preservation ideas. International Union for the Protection of Nature (IUPN) formed in 1948, International Council for Birds Preservation (ICBP) and International Wildfowl Research Bureau (IWRB) were formed as instruments to protect some natural species. The emphasis was on laws and the physical prevention of people from hunting waterfowl and their eggs. Some of the founding members of the above global institutions were themselves hunters, but noticed the fall in wildlife species after World War II and embraced conservation (Adam 1962). Physical prevention of people from damaging wildlife and wetlands became paramount internationally. This concern prompted changes in concepts from 'preservation' to 'conservation'. IUPN, for example, became known as the International Union for Conservation of Nature (IUCN) (Boere 2006).

IUCN assumed a prominent position on the global stage to produce ideas on how nature should be conserved. Auguste Comte's hierarchy of science and development gave IUCN legitimacy to produce conservation knowledge. Therefore, when the wetlands conservation concept was suggested, the civic public in colonial and postcolonial Africa joined in and became agents who instituted conservation measures at the local levels. In 1960, IUCN accepted a proposal to institute a program for the management of wetlands in the world (Mathew 1993). IUCN convened a conference in 1962 to examine legal, management, economic, and conservation frameworks on wetlands. It was resolved that the Union would circulate information on the values of wetlands. The target audience in postcolonial Africa were civic public members - politicians, administrators, agriculturalists, and engineers who had to deal with drainage. The participants also called for an international convention on wetland conservation. Before the Ramsar convention came into being, attention had shifted from wetlands conservation to the conservation of waterfowls. In 1963, a group of European waterfowl experts reviewed movements of birds, the ecology of habitats, and the legal administration that protected birds. This

marked the latest position that shaped the framing of wetland conservation. The final text of the convention was agreed upon in 1971. The agreement is discussed below based on the objectives, duties, and responsibilities of contracting parties and implementation.

2.2 Ramsar Convention and Keta Lagoon Management by Civic Public

The preamble of the Ramsar convention acknowledges that humans depend on the environment, so does the environment depend on humans; it is a dual relationship. The use of the environment seems to be broad, for Ramsar, wetlands, waterfowl, flora, and fauna are mentioned as components of the environment. The four components also have a functional and dual dependency. On the part of humans, wetlands provide economic, scientific, and recreational functions. However, the type of relationship that exists between humans and wetlands is not equal; humans are increasingly overpowering the wetlands. Ramsar highlights waterfowl among the four components and treats waterfowl as an international resource. In contrast, wetlands are local, they are scattered in specific places around the globe, different local people have a different relationship with these wetlands. Indeed, waterfowls had been migrating seasonally to these wetlands before the Ramsar convention was thought of. It would stand to reason that these waterfowls can also be considered local as well. The ecological functional relationship between the four components has been ongoing. For Ramsar to talk about conservation, the meaning would not be how waterfowl can conserve wetlands but how to limit economic, scientific, and recreational functions humans derive from wetlands. That objective could be achieved through the postcolonial state by first defining what wetlands are and through the policies, the respective states have designed.

2.2.1 Definition of Wetlands According to Ramsar Convention

The origin of the term wetland is not clear, but Waring (1867) used terms such as ‘wet soil’ and ‘wetttest land’ as a portion of land that spaces between soil particles hold water. There could be circumstances where the water would rise above the topsoil about 1.2 meters. Ramsar convention takes onboard the history of human interaction in the processes of nature and defines wetlands as:

“Article 1. ...areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters. It further joined waterfowl wetlands by saying they are birds which are ecologically dependent on wetlands.”

2.2.2 The Responsibility of Contracting Parties

In light of the above, contracting state parties have the following responsibilities:

Article 2. Designate suitable wetlands within its territory, and shall also devise mechanisms for conservation management bearing in mind wise use of migratory stocks of waterfowl.

Article 3. A contracting party shall implement management plans to promote the conservation of designated wetlands. IUCN shall inform the contracting party if the 'ecological character' of the designated wetland is about to change or has changed (Article 8).

Article 4. A contracting party shall establish nature reserves on wetlands or outside the designated wetland. Where possible, a contracting party shall compensate for a loss of wetland by creating a new one. Also, carry out research, promote the training of personnel for wetland research and management.

2.2.3 Ramsar Convention Implementation

The conference of contracting parties has the responsibility to enforce the Ramsar Convention at the international level.

Article 6. (2c) The conference of parties shall consider information regarding changes in the ecological character of wetlands.

(2d) Make general or specific recommendations to the contracting parties regarding the conservation, management, and wise use of wetlands and their flora and fauna.

The conference also reserves the right to:

(2e) Request relevant international bodies to prepare reports and statistics on matters which are essentially international affecting wetlands.

(3) The contracting parties shall ensure that those responsible at all levels for the wetlands management shall be informed of and take into consideration, recommendations of such Conferences concerning the conservation, management, and wise use of wetlands and their flora and fauna.

2.2.4 Influence of Ramsar Convention and IUCN on Civic Public

The source of conservation and management of knowledge for the postcolonial state personnel comes from the conference of parties, the postcolonial state, research institutions, and IUCN (Ramsar convention Article 3, 4, and 6). They constitute regulators of the wetlands and the regulated are primordial and non-primordial, whose actions have to be limited. However, that should not suggest that the Western idea of conservation had not been introduced before African states ratified the Ramsar Convention; the Western concept of conservation filtered through the colonial institution, agents, and Western scholars. Forest reserves, national parks, sanitorious were established as a means of preservation (as conservation was understood at the time) and research (Happold 1971; Asibey 1971). The legal arrangement for preservation was set up in the 1900s, and wildlife departments emanated out of the legal systems. Along with the legal framework which gave strategic directions on how to preserve wildlife and criteria for recruiting staff.

One viewpoint held that the preservation of wildlife could not be defended on any ground unless it served as a medium of providing protein to the local people (Collier 1934). This viewpoint made provisions for hunting forests and breeding zones as well. A contrary

viewpoint posits that the needs of local people were not the most important (Shorthose 1935). The decline in animal population was more paramount, therefore, there should be stricter regulations to prevent hunting during the breeding season. Besides, there should be large reserves and national parks for breeding. The wildlife policymakers did not find merit in preservation that served the needs of the local people. The staff of wildlife departments was recruited first on the ability to shoot a firearm, and second, on the stated lack of interest in games (Asibey 1971). As the years went by, a host of wildlife professionals, administrators, and technicians were added. It was this state of administrative structure that IUCN has worked with from 1963 to the formation of the Ramsar convention and beyond, to dispense ideas of conservation in Africa.

2.2.5 Keta Lagoon Ramsar Convention Management

As indicated above, the state party constituted some members of the civic public to formulate a management plan. Two key management frameworks were drafted and adopted by the contracting party when Keta Lagoon was designated as the Ramsar site in 1991. The first was formulated by researchers in the field of ecology and wetland, professors Ntiamoa-Baidu and Gordon (1991). The second management plan was drafted between 1993 and 1999, with funding from the Global Environmental Facility, disbursed through World Bank (Ghana Wildlife 1999). The local implementing agency was the Wildlife Division of the Ghanaian Forestry Commission. It was out of the above broad management frameworks that a specific management plan was designed for Keta Lagoon in 1999. For this research, the Keta Lagoon management plan is discussed under five topics: ecological character, threats, management objectives, implementing agencies, and action plan.



Figure 5: The boundary of the Keta Lagoon Ramsar site. Source: Ramsar website

2.2.6 The Ecological Character of Keta Lagoon

The term ‘ecological character’ is not clearly defined in the Ramsar convention and Keta Lagoon management plan. It is, however, mentioned once in each of the above documents (Article 3 (2) and Keta Lagoon Management Plan 199:21).

In the Ramsar convention, it is suggested that wetlands do have an ecological character that can change depending upon adverse human factors, for which reason Keta Lagoon management measures were instituted. Taking into view the management plan, and the Ramsar Convention (Ramsar preamble; Article 1,2, and 3), the ecological character is the life force that coheres with geological, flora, and fauna elements of wetlands in a sustainable system. The ecological character can be divided into terrestrial and aquatic life forces that complement each other. The list of all the elements would lay out the physical attributes of the ecological character.

Table 1: Ecological Character of Keta Lagoon (the content of Table 1 and 2 are extracted from Keta Lagoon Management Plan)

	Geological elements	Flora	Fauna															
Aquatic	Surface Water (fresh & brackish) <ul style="list-style-type: none"> ▪ Rivers ▪ Streams 		Fish															
	Minerals in the mean value <table style="margin-left: 20px;"> <tr> <td></td> <td>*Min</td> <td>Max</td> </tr> <tr> <td>Sodium</td> <td>855</td> <td>6900</td> </tr> <tr> <td>Potassium</td> <td>36</td> <td>885</td> </tr> <tr> <td>Calcium</td> <td>78</td> <td>1987</td> </tr> <tr> <td>Magnesium</td> <td>133</td> <td>2888</td> </tr> </table>		*Min	Max	Sodium	855	6900	Potassium	36	885	Calcium	78	1987	Magnesium	133	2888		Macro-invertebrates
	*Min	Max																
Sodium	855	6900																
Potassium	36	885																
Calcium	78	1987																
Magnesium	133	2888																

	Chloride 815 41300 Sulfate 300 2460 Alkalinity 98 3080		
	Sediment: anaerobic mud, sand, and shell		
	Lagoon margins		Macro-invertebrates Birds
	Inland marshes	Grass species	
Terrestrial	Beachheads	Coconut Plantations ground cover of mainly rhizomatous species	
	Grassland Thickets, Shrubs zone, termite mounts	Small trees and climbers, baobab (Adansonia digitata) savanna	Mammals (sitatunga and monkeys) Reptiles

2.2.7 Threats to the Ecological Character According to Keta Lagoon Management

The threats to the ecological character are internal and external. The internal threats are human and natural factors from the Keta Lagoon catchment area and the external factors are also human and natural factors from outside the catchment area of the Keta district.

Internal Threats

The Keta Lagoon lies downstream of Akosombo Hydroelectric dam constructed on the Volta river. The downstream water flows into the Lagoon, especially during the dry season. The salinity of the Lagoon becomes low from where the Volta river flows into the Lagoon and increases towards the eastern side of the Lagoon. As a result, some salt intolerant flora and fauna species are threatened. A high-level salinity is also lethal to the biological species.

Human Threats

There are four main human-induced threats to the ecological character.

Population Pressures

About 500,000 people depend on the Lagoon and it precipitates overfishing, an extension of infrastructure, salt mining industry, and harvesting of wetland products such as trees for fuel, crafts, and shelter.

Reclamation

Land reclamation at the bank of the Lagoon threatens the size of the hydrological state and the size of the Lagoon.

Pollution

Nearly 80% of domestic waste is produced in the district. Some of which is used for land reclamation at the bank of the Lagoon.

External Threats

Climate and hydrology are two indirect non-human factors that threaten the Lagoon. Climate change and annual floods from the Volta river carried alluvial substances which were good for the Lagoon and agriculture, but this has declined.

One of the main external factors is the construction of the Akosombo dam upstream on Volta Lake in 1965. Before the construction of the dam, the flow of water downstream was from 30m³/s to 10.000m³/s. But after the dam, there is a constant high volume of water flowing downstream which has affected seasonal variations of the water level.

2.2.8 Strategies for Long-Term Measurements

Objectives

There are four long-term management objectives of the Keta Lagoon management plan:

1. To maintain and enhance the value of the wetland as a wildlife habitat and integrate wildlife conservation into the existing human use of the wetland.
2. To enhance benefits derived from the wetland and improve the quality of life for the local communities who live in the vicinity of the wetland and whose activities influence the wetland ecosystem.
3. To control, monitor, and coordinate the activities which affect the coastal zone close to the Ramsar site.
4. To create awareness about the rich ecological value of the Keta Lagoon and develop the infrastructure
5. Base requisite for the sustainable use of this heritage for education, recreation, and tourism.

Strategic Measures

Below are specific measures to achieve the above objectives.

Objective 1

Zonation.

Reduce pollution through waste management.

Restoration of mangrove through tree planting.

Control of over-exploitation mangrove vegetation, fish, and bird.

Objective 2

Enforcing existing regulations and traditional taboo days.

Establishment of woodlots.

Give financial support to groups for biodiversity-related income-generating activities.

Involve local communities in decision-making.

Objective 3

Design a monitoring program of biological features.

Research into sustainable limits of wetland resources.

Ban sand and stone winning at sensitive locations.

Objective 4

Educate the public regularly.

Promote tourism and recreation.

2.2.9 Keta Lagoon Management Plan Recognised Institutions

The Keta lagoon management plan has recognized four local institutions that have been assigned different responsibilities. They are the state wildlife division, District Assembly, Non-Governmental Organisations (NGOs), and traditional authorities. State legislation has devolved supervisory powers to wildlife division and District Assembly over the Lagoon (L.I 1659).

Wildlife Division

The division is the implementing and coordinating agency with other state organizations research institutions and international agencies. The division has staff employed by the state, two-site wardens, technicians, laborers, and drivers.

District Assembly

The district assembly is the last executive political unit at the local level. It coordinates local security, civil engineering, and public works in line with government policies. The assembly facilitates Ramsar Site Management Committee.

Non-Governmental Organisations

The Keta Lagoon management plan considers NGOs as flexible organizations, unlike state administrations, which are bound by red-tapism. They are therefore thought to be indispensable in the management of Keta Lagoon. In the view of IUCN, when community members of Anlo form an NGO they constitute local people who have indigenous knowledge about wetland conservation (IUCN, 1988:63; 1990:186). IUCN and Royal

Society for the Protection of Birds sponsored Anlo community members to form the Ghana Wildlife Society as an NGO.

Traditional Authorities

The Keta Lagoon management plan acknowledges that the traditional council of Anlo owns the Keta Lagoon. But the banks are owned by individual families and clans. It is further acknowledged that the Anlo traditional council determines who is a community member and also resolves conflicts among traditional members. Also, the council makes “by-laws for wetland resource management based on local knowledge of the ecological dynamics and institute measures to deter local people from using wetland resources” (Ghana wildlife 1999:27).

2.2.10 Action Plan of Keta Lagoon Management

The action plan is an extract from the Keta Lagoon management plan based on the description of the ecological character above. Table 2 below divides the ecological character into aquatic and terrestrial and the actions assigned to the above institutions and time frame of the actions. In addition, recreation and tourism, public education, and research and monitoring have specific actions assigned to designated institutions.

Table 2: Aquatic and Terrestrial Ecology

Aquatic	Action	Institutions	Time Frame
	Prevention of pollution into the lagoon;	Municipal Authority	Long Term
		Traditional Authority	
		Wildlife division	
		NGO	
	Enforcement of fishing regulations	Municipal Authority	Short Term
		Traditional Authority	
Wildlife division			
Improve freshwater inflows	Municipality	Short/Medium Term	
	Wildlife division		
Terrestrial	Protect roosting and nesting zones, Rehabilitate mangroves. Prevent sand winning	Municipality	Short to Medium Term
		Wildlife division	
	Observe taboo culture of wetland with conservation implication.	NGOs	Long Term
Recreation and Tourism	Provide tourist facilities	Municipal Assembly	Long Term
		Wildlife division	
		NGOs	
		Municipal Assembly	Long Term

Public Education	Educate people on wetland conservation	Wildlife division	Short Term
		NGOs	
Research and Monitoring	Monitor ecological trends in the lagoon complex	Municipal Assembly	
		Wildlife division	
		NGOs	

2.3 Theory of Commons and Anlo Communal Ownership of Keta Lagoon

A dictionary definition equates ‘common’ to that which belongs to the public (Websters 1828). It means all the members of the public have equal rights of access and equal rights to exploit, no individual ownership. The right of access and to exploit by individuals pose a problem as to when a common property transcends a public domain into an individual realm of ownership. Four Western classical notions of Roman law have popularly been used to designate public and private realms of properties. They are *res publica*, *res communes*, *res nullius*, and *res private* (Black 1968; Birnie and Boyle 1993). Ghana as a postcolonial state still depends on the above notions it inherited from the English common law system to categorize public properties (Constitution of Ghana 1992). More precisely, the postcolonial state’s belief in Auguste Comte’s (1798-1857) development model and acceptance of private property ownership as a catalyst for efficiency, led to the vulgarisation of community ownership and commons (Appell 1993). As a result, the state (civil public) considers Keta Lagoon, mineral and crude oil deposits in the Lagoon as public property (Ofosu-Mensah 2011; Ghana Minerals Act 126; Ghana Minerals Commission Act 450). Things like air and light which are freely available and cannot be monopolized by an individual are *res communes*. The number of biological species in the Lagoon or at the bank of the Lagoon in Western understanding does not have a direct owner and is therefore *res nullius*. But when an individual harvests tilapia from the Lagoon, it becomes *res private*. On the other hand, crude oil deposits in the Keta Lagoon would be designated as *res publica*. The Roman classical notions seem good at pointing out the properties and owners. However, it does not clearly label which of them is ‘common’. Again, the above four notions, without citing an example, do not clearly show the domain of the natural resource and nature of the resource. For the sake of clarity, it has been proposed that two attributes, exclusion, and subtractability, should be used as a guide (Ostrom 2005) (see figure 6 below). Exclusion is the degree of difficulty in preventing others with the same rights to use a resource. Subtractability touches on resources that can be appropriated by a community member which would diminish the availability of that particular resource. The two attributes are helpful in identifying the nature, domain of resources, and categorization of private properties or common goods. However, the mere categorization leaves out time-labor as is partially understood in a Marxian definition and Anlo context as an intervening factor. This will soon be demonstrated using the Atsidza fishing concept. The Atsidza demonstration becomes easier drawing clarifications in Hardin’s ‘tragedy of the commons and a counter-response from his critiques.

As stated above, the vulgarisation of communal ownership in the postcolonial state began from the West. In 1968, Hardin published an article entitled “The Tragedy of the Commons”. Though the article was mainly on human population growth, Hardin’s views in the article have been discussed in economics, ecology, biology, anthropology, sociology, political science, philosophy, and environmental philosophy (Ostrom 1990; Appell 1993; Norton 2005). Hardin argues hypothetically to let all individuals in the community have the freedom to appropriate resources in the common domain. Acting from self-interest, the individuals would appropriate endlessly. The value of the resource item would belong to the individual but the negative impact would be shared by all in the community. As the result, freedom in the commons brings ruin to all, injustice is much more preferable to the tragedy of the commons (Hardin 1968:1247; Appell 1993). Hardin has been flawed on lack of empirical evidence and misconception of commons with open access. However, Hardin encapsulates the ideas of ‘carrying capacity and ‘sustainability’ without using the specific term ‘sustainability’ (Hardin 1968:1243). Hardin’s argument directly castigates communal ownership and projects private ownership as a rationally favorable option. To avoid the excesses of private ownership, Hardin advocates the use of ‘cohesive force’ by a public authority to regulate the private interest. Hardin’s hypothetical argument by and of itself bears all the similarities with Aristotle and Hobbes’ Leviathan (Aristotle 1885; Ostrom 1990; Appell 1993; Feeny et al 1996). Hardin was then giving credence to some settled assumptions about private and public philosophical discourse, one of which was methodological individualism (Norton 2005).

A bit of history would lift the veil off methodological individualism implicit in Hardin’s

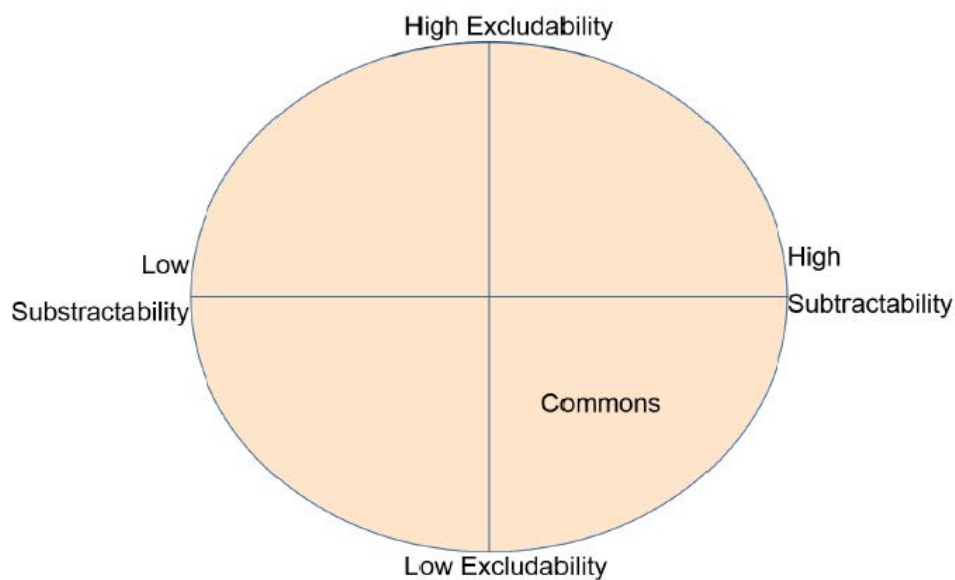


Figure 6: Adapted from Ostrom (2005)

argument, but also alive in all social sciences, economics, and philosophy (ibid). Those who believe in private property doctrine and liberal state found renewed force in Hardin’s point of view and used it to terminate communal ownership. Perhaps Hitler’s understanding of *folk geist* in the philosophical work of Hegel led to the construction of the Nazi state (Pinkard 2000). Hegel (1807:360) speaks of a “thing that matters” as

something an individual deems to be important either to himself or to a universal cause. The thing that matters forms the individual's spirits and consciousness. The spirit expresses itself in the spiritual world and the material world. Beyond the individual, the spirit is present in the family and can function as the universal power of government. There can be a lack of harmony within the spirit, but it is the self-spirit that can examine itself to essentially become itself. Also, to maintain equilibrium, the self-spirit would have to eliminate opposing spirits and eventually come to cultural development. Possibly in Hitler's perspective, total loyalty to *folk geist*, culture, and total obedience to *folk geist* should radically obscure individual opposing forces. In that regard, science and knowledge were only good so long as they promoted the course of the Nazi state regardless of adverse effect on an individual or an alien to the state. (Shaphy & Schatten 2003). Indeed, the Second World War and the goals of Hitler launched a virulent attack on the Western liberal states and made some Western academics jittery. Methodological individualism became popular as a result to curtail all forms of linguistic resources that could resolve the 'tragedy of the commons' in collective terms. The fundamental assumption of methodological individualism is that an individual human being is the legitimate object of any social study (Norton 2005). At the normative level, all benefits must be conceived as individual benefits. The measure of everything and anything was the individual, nothing could be done to benefit another solely. Norton (2005) has shown that it cannot be argued that a mathematical tabulation of an individual's goods would be equal to the total goods in the common. Nor is it possible, given the limitation of human knowledge or the contingency of human knowledge, to conclusively make that extrapolation. That leaves a gap of 'excluded goods' in the common. This gap in the commons shall be known as '*deductive excluded goods*'. These are goods that humans are not yet aware of and do not have any existential benefits to humans, but could well be useful or supportive of non-human things. It cannot be said that the deductive excluded goods are of no value just because they do not directly benefit anyone at a particular time. Beyond Norton's observation, Hardin has been criticized on three other points.

The first is a lack of empirical evidence. Appell (1993) has accused Hardin and his followers of being blinded by methodological individualism and moved quickly to design the future of postcolonial societies without an empirical test of the hypothesis. But a variant of individualism ideological strain had been planted in the colonial period. Communal ownership was held responsible for a lack of initiative and a lackadaisical attitude (Peters 1987). Social problems, such as overgrazing and environmental degradation, were blamed on communal ownership. In Botswana, the counter solutions the colonial state promoted were private land freehold and private ownership of wells (ibid). These set the individual in conflict with the community. However, Hardin's critics have listed successful examples of communal ownership which does not end up in environmental ruin. The strongest evidence yet is the Anthropocene. The West has excised belief in private ownership, land ownership, and exploitation of material resources, but Anthropocene environmental disaster has not been averted.

Secondly, Hardin also confused communal ownership with open access properties. There was no attempt to critically delineate the various property rights in the commons. Hardin's critics have numbered four different types of ownership in the commons. They are public, private, communal, and open access (Bromley & Cernea 1989). The public and private have been adequately discussed above using Roman classical terms. Open access resources are described as properties that do not belong to anyone (Ostrom 2005). It is assumed fishers are self-interested people who are not concerned about the Lagoon long-term and are therefore competing with others for what they can own through fishing. This description comes close to the 'deductive excluded goods' in the commons. The excluded goods have a feature of being open to all but they arose out of limitations of methodological individualism. That is not to say, excluded common does not exist in the Anlo Keta Lagoon commons. It does exist as part of the commons and is bound to communal ownership.

Thirdly, critics agreed that communal ownership involves multiple owners, and it is essentially private ownership. But this assertion does not fit well in the postcolonial state and private ownership system. The problem with categorizing communal ownership as private property is two-fold. One, local people mostly existed as distinct states with systems of ownership. They also had ways of regulating the commons in their unique ways before the imposition of the colonial and postcolonial states. To consider communal ownership as a form of private ownership is to use the power of colonial/postcolonial language and reduce them to an inferior status. The reason for which this study refers to a section of the local people as primordial public with moral legitimacy. No doubt, the multiple ownership of the commons is a feasible suggestion. Appell (1993) introduced a jural analytical system to identify the possible relationships of the multiple owners. Appell divides the communal relationship into three, individual, corporate group, and corporation. A corporate group is a collection of natural persons whilst a corporation is an artificial creation without a social counterpart (ibid). Each of the divisions has a jural entity which also "engages in either [a] passive relationship with all other jural entities at large, or with a specific jural entity, with respect to rights and their correlative duties, over an object, which includes, goods, services, and interests themselves; sanctions, both positive and negative, and a title, including the facts or events that have resulted in the acquisition of rights being vested in the present owner and circumstances by which the title may be extinguished" (Appell 1993:12). As good as the jural analytical scheme is, the divisions do not quite capture the divisions in Anlo commons. It leaves out family, clan, deities, ancestors, and chiefs, all of whom have a jural entity in Anlo wetland commons. On the other hand, it talks about a punitive measure in the jural relationship which could be used to avoid 'the tragedy of the commons. The punitive measure has the same affinity with the primordial moral laws that the primordial public can exercise to avert a 'total ruin' of the common. Lastly, it suggests circumstantial cases, temporary and permanence of properties without qualifying it with time-labor dimension, convertibility, and reversibility of properties. This last point is explained by the Atsidza concept below in Anlo local knowledge.

2.3.1 Demonstration of Atsidza as Anlo Unique Communal Ownership

Atsidza is one of the ways fishing is carried out in the Keta Lagoon. It is not clear from the archival record when this type of fishing started among the Anlo people. In an interview with Bokor, Atsidza is mentioned as a type of fishing method Anlo's ancestors carried out. Bokor also mentioned *Gbeshishi* as a fishing method. The meaning of *Gbeshishi* in Anlo is a careful groping or searching through the grass in the Lagoon (see figure 3 above). It is probable the Lagoon drought or disappearance of grass in the Lagoon at some point compelled Anlo ancestors to invent the Atsidza concept as a way of creating a house for the fish when the grass was reduced in quantity.

The Atsidz fishing process begins with cutting stems and branches of trees from the bank of the Lagoon or on the mainland. The number of trees depends on how big the fisher wants the Atsidza to be. The cut branches are allowed to dry for about three weeks. The fisher then piles the branches in a boat and ferries them to the desired part of the Lagoon, mostly the deeper parts (*wego*). The branches are dropped at a specific spot to cover a radius of about three meters. The fisher uses stronger and taller stems for three purposes (see figure 5 below). The most obvious is to serve as a barrier to prevent the Lagoon currents from dispersing the branches. The Atsidza eventually becomes compacted and firm to trap sediment (sediment is mainly anaerobic mud, sand, and shell, see *table 1* on Lagoon Ecological character), creating a soft ground for fish to burrow. When it is left for about a year, the bigger fish (*Tilapia*) go deeper by digging holes in the ground and the Atsidza becomes a covering. The other purpose is, the poles serve as a signpost and a warning to other fishers that there is a deposit of branches at the said spot. The final purpose of the poles is a stamp of ownership. In some cases, the fisher hangs a bundle of red cloth and cowries signifying that Atsidza is under the protection of his god. Everyone in the community knows the Atsidza is owned by an individual in the community.

It is clear that the Atsidza occupies space in the common and has ownership (figure 4). However, if the poles become weaker, it is pushed down by the Lagoon current and taken for granted that no one owns it and others could harvest the fish 'residing' in the Atsidza or find different uses for the branches. Therefore, the Atsidza ownership is subject to time, it is temporary, with no permanent ownership. After a period, the space can revert to another person in the community. There is yet another factor that is important for the duration of ownership - labor.



Figure 7: Atsidza in Keta Lagoon.

Sure enough, there is labor involved in the cutting and the making of the Atsidza. There also has to be continued maintenance to ensure the Lagoon current does not overpower the poles. The individual's time and labor become intervening factors in the duration of ownership. It can therefore be said, ownership in Anlo commons is dependent on time-labor.

Analyzing purely from the capitalist mode of production, Karl Marx speaks of "Socially necessary labor-time as the time required to produce any use-value..." (Marx 1976:129). In Marxian understanding, use-value is a material basket of goods that is relevant and can be exchanged for a completely different set of items, it is the exchangeability of the basket of goods that makes it a commodity. Without labor-time, there would not be a use-value and hence no commodity as well. Most importantly, labor has an ownership in the commodity, the owner of labor does not suffer from alienation as is in the alienation of labor-time in a commodity. In the case of Atsidza, the fisher has time-labor, but his material use-value is realized at the end of harvesting 'domiciled' fish in the Atsidza. Before the harvest, the fisher is aware he owns a place in the common, a set amount of fish that lives widely in the Lagoon only run into Atsidza for feeding, breeding, and safety. During the waiting period, the fisher would be concerned about the gestation of fish, other fishing methods, and the ecological character of the Lagoon. It is in this sense that Atsidza has both material use value and immaterial use-value. It is concerning the immaterial use-value that Atsidza can also be considered an epistemological tool similar to gardening (Schwarz 2019).

2.3.2 Atsidza as an Epistemic Tool

Immanuel Kant was categorical in stating human knowledge begins with experience and no knowledge precedes experience (Kant 2007). A knowledge form, be it empirical or metaphysical, begins with human experience. As stated above, objects from the senses stir the thinking categories to form impressions by themselves or force humans to analyze opposing things. If Kant's assertion is considered about the Atsidza concept as an epistemic tool, it would mean the experience of fishers with the Atsidza is a source of knowledge about the Keta Lagoon. Knowledge can be extracted from sediment trapping, the compactness, fish stock, nature of the fish, and types of fish. For example, the compactness of the branches in the Lagoon would indicate how active the current of the Lagoon is or has been any time the fisher observes the Atsidza. At the point of harvesting the fish in the Atsidza, the size and weight of fish can tell a fisher how long a fish has taken residence in the Atsidza and how well the fish has been doing. The Atsidza concept strikes some similarities with garden practices. Schwarz (2019) has underscored the long discussion in a technoscientific field that garden practice is sociotechnical, and as such, is laden with social values and can serve as epistemic objects. Schwarz (2019) puts forth the argument that gardens can provide experimental settings to learn what is possible and what is not possible. Given the duty of care and responsibility a garden practitioner owes to the garden, a meaningful contemplation about such experimental settings can produce rules and habits for individuals and society at large. It would seem as though a meaningful engagement with nature and its process is bound to stir ideas about the world. Though Atsidza is submerged in the Lagoon and therefore does not portray visual beauty, it can also provide an experimental setting for experiencing and learning about the Lagoon. It can be argued that the duty of care and responsibility would be stronger in the fishers since Atsidza is a source of livelihood. In most instances, fishing in the Keta Lagoon is the only source of livelihood. It will become apparent in chapters four and five, that the learning of local people from epistemic tools was undermined by the political influence Western science has enjoyed in the colonial period and the postcolonial periods.

From the foregoing, Ostrom (2005) introduced subtractability and excludability to explain the domains of property ownership. Appell (1993) has identified the existence of rules (moral-laws), and types of ownership without clarifying the duration of ownership in the commons. The Atsidza concept has demonstrated temporality and reversibility of ownership in the common. And more importantly, no lack of alienation makes the fisher intimately concerned about the Lagoon, which is tied to material use-value. On a whole, Anlo commons is communitarian ownership with chiefs, priests, Bokor (diviners), gods, ancestors, and community members having a jural interest. The jural interests of the gods and ancestors are permanent but that of the people is temporary and reversible. There is yet another set of human actors behind the Ramsar convention who also want to appropriate Keta Lagoon commons for a single piece of the biodiversity - migratory birds. Since Ramsar is an international convention it makes the third interest an international interest in Anlo commons. The fact that Ramsar is backed by the state makes it public. The Ramsar interest would include buffer zones, which are physical spaces, but the

biodiversity species are not tied to those buffer zones. Therefore, what happens in the common domain directly affects the buffer zone's species. The interaction between the Ramsar idea of wetland management and local knowledge is examined below.

2.4 Local Knowledge of the Primordial Public

In the literature, indigenous knowledge is used interchangeably with local knowledge. The General Assembly of IUCN admits the existence of an accumulated body of knowledge and experiences among indigenous people relevant to sustainable use of the environment (IUCN 1988). However, indigenous people's knowledge and experience had not been included in economic development strategies and conservation measures. IUCN took the initiative to combine 'traditional knowledge' with 'scientific knowledge'. The UN has recognized the rights of indigenous peoples and their practices boding well for addressing environmental and climate change problems (SAB 2016). The phenomenon called indigenous knowledge has been termed differently in the literature. Terms such as people's ecological knowledge, ecosystem-like concepts, people's science, traditional knowledge, local knowledge, traditional practices, native wisdom, and ethnophilosophy have been used (Mudimbe 1985; Gupta 1991; Berkes et al 1998).

Atte (1989) posits that the African primordial public is in 'contact' with elaborate knowledge of the ecosystem and species. Atte's use of the word 'contact' suggests that indigenous knowledge is abstracted from the physical environment and the cultural milieu is used to manage resources sustainably. Atte, therefore, defines indigenous knowledge as "shared environmental knowledge, beliefs and rules, and techniques for productive activity" (Atte 1989:3). Three key points arise from Atte's understanding of indigenous knowledge. First, indigenous knowledge is empirical knowledge absorbed in cognitive categories of all those who take part in the productive activities of society. And as such, one would expect the respect of basic rules among the people, hence a coordinated organizational setup of indigenous people. Related to the foregoing is the concept of the 'commons' discussed above. Second, the reduction from empirical into cognitive models back into practical techniques to sustain growth and development is indicative of a process in which indigenous knowledge functions. The third is that there is a use of linguistic markers, classifications, and propositions in which the indigenous is organized. In other words, indigenous knowledge is organized around terminologies, taxonomy, and theories. McClure (1989:1) observed that indigenous knowledge is "learned ways of knowing and looking at the world". The organizational structure of the knowledge would make it possible to be learned and transferable from one generation to another. It also suggests a world-view that is not fixed but has within its purview a mechanism of accumulating what is possible and what is not possible in the practical world at a given time.

However, Atte (1989) and McClure (1989) give the impression that indigenous knowledge is *sui generis* empirical and *a priori*. Perhaps they were limited to the practical implications of indigenous ideas in agriculture. Horton (1967) had considered a reduction of the indigenous into empirical as a trap into Western-style common sense reasoning.

The non-empirical is very much beneath the ontological entities in the indigenous world. Other scholars in anthropology, theology, philosophy, and philosophy of science have suggested that the particulars of the indigenous are the belief in a supreme being, the ancestors, lesser gods, and the impersonal forces that manifest themselves in the workings of magic, witchcraft, sorcery, charms, and amulets (Rattray 1914; Mbiti 1975). Moreover, the indigenous knowledge form is not written down in literature but it is “written” in peoples’ myths and folktales, proverbs, and pithy sayings (Oruka 1965). Horton (1967) has labeled the above early scholars not only trapped in Western-style common sense but under the influence of ‘mythical thinking’. Horton would rather affirm the existence of the gods actively ordering the physical world from a theoretical realm available to diviners, priests, and traditional healers. African philosophers and theologians (Gyakye, Mbiti, Busia, Horton) are unanimous about the existence of the supreme being, God in the African indigenous. The supreme being is the creator of the world who manifests himself in natural objects and phenomena. An explanation Levy-Bruhl casts doubt upon, questioning how it could be possible to say that if one steps into the water, the person is also stepping into a spirit? How can one-touch a stone and touch a spirit at the same time? The physical object and metaphysical are joined together in African thought. It is in that regard that Horton (1967) calls it a theoretical trap. A subscription to African indigenous thought would reveal African theoretical frameworks in which the physical and metaphysical are conjoined. Given the right theoretical orientation, it would be easy for one to understand that water and stone have atoms and molecules. That is not to equate atoms and molecules to God, but to point out how a shift in theoretical standpoint can reveal other things. It is that theoretical orientation the indigenous have that is why they turn to worship and revere natural objects and phenomena. Nevertheless, African ontology is not singular, it is pluralistic and hierarchical, there are lesser spirits and ancestral spirits. At the apex is the supreme being, followed by deities and ancestral spirits.

2.4.1 Anlo Primordial Public’s Views on Ecological Character and Ontology

The ecological character of Anlo has been divided into aquatic and terrestrial. In Anlo’s local thought, some entities reside and are responsible for the two spheres. During libation pouring ceremonies, the Anlo invoke the supreme being as “*Mawu sogbolisa, aragnu wɔwɔ be yewɔ Rashi wɔ afɔ*” (The wise supreme being who created the hand and feet). It is commonly referred to as *Mawu*. The invocation is also followed by “*Avle chili, Avletor Avlenor*” (Interview with Midawo 2018). The terms convey three entities, the first is gender-neutral, the rest have a male and female gender. The male gender entity (*Avletor*) reveals himself as (*Loso/ So*) thunder. *So* resides in the sky. *So* is sometimes understood as the thunder god and his progenitor is *Xevieso*, which manifests itself as a pantheon. *Xevieso* is the rainbow that appears in the sky (Akyeamong 2001). *Xevieso* assists the sky god to allow thunder and lightning to come to the earth. It is associated with rainfall and fertility. The worship of this deity overlaps and its influence can be noticed in the *Yewe* cult. The female entity reveals herself as *Agbe Vodun*, the facilitator of life. *Agbe Vodun* lives in water. Both the male and female entities originate from ‘*Avle chitin* which

is water. Therefore, it is out of water that life originates from. There are also water deities and land deities. The indigenous word for the Lagoon is *Amutagba*. The Lagoon is contrasted with the sea where the Lagoon is seen as a female deity and the sea a male deity (Interview with Bokor). The estuary is seen as a fertilization point of the two deities. Each Anlo community has water deities. The name for the deity at Anloga is 'Tɔvumetsikpo'. Greene (2002) records that *Tɔvumetshikpo*'s shrine is at the bank of the Lagoon. However, Greene did not demonstrate whether *Tɔvumetsikpo* is a female deity. *Tɔvumetshikpo* protected the town from flooding in the past. Besides protection, the deity is also responsible for the production of fish in the Lagoon. Whilst it does not seem clear in Anlo thought how the Lagoon can be a female deity and yet another set of deities in the Lagoon in each of the Anlo communities, it confirms the view of pluralistic ontological entities.

There are visible places of abode for the deities along the banks of the Lagoon, some reside in groves. The deities have human agents who commune with them. This brings out two perspectives of Anlo's ways of making sense of a place. One is theocentric and another is ecocentric. The theocentric places are marked and visible as such. It is only the human agents, priests, and devotees who are allowed to enter such places for ritual activities, consultation, worship, prayers, or atonement. The other members of the Anlo community can only be led in by a priest during one of the ritual ceremonies. It can be said that these theocentric places are not part of the excluded commons in Anlo society. The ecocentric places are places named after geological properties, water, mud, and geographical location (Akyeampong 2001). '*Wego*' is the deeper part of the Lagoon; '*Tɔgome*' is the fertile plains of the Lagoon where farming is done; '*Tɔkɔ*' is the bank of the lagoon mostly where the fishing boat berth. These landing stages serve as contact with fisher folks and members of the community and, therefore, have excluded common. But when fisherfolk raises a platform to put his boat, that spot would be his. It would cease to be his if that platform is removed or falls into ruins. That would become a legitimate reason for another person to own it. The theocentric places exercise power and influence over the ecocentric places through taboos as theocentric laws.

2.4.2 Law and Order in Anlo Primordial Public

Awoonor (2006:210) enunciated that the local knowledge is "a compendium of long-accumulated experiences operating on the basis of what are essentially moral laws which are part of natural law as it responds to the fundamental question of human survival." There is no sense at this stage that the deities give laws. Midawo (2006:224-225) qualifies it further, the moral-laws form part of the local knowledge and they remain unchanging in the changing cosmos. But when societies leave their local knowledge practices, "God and his knowledge disappears from that society and automatically, the society falls into darkness and oblivion". There is, therefore, a consequential link between the deities, moral laws, and human survival. If Awoonor is right, then the Anlo society would continue to accumulate new experiences, the new experiences would be added to the moral laws. In that case, the moral laws are not fixed as Midawo suggests. On the other

hand, the addition of new moral laws can lead society to the point of destruction. So, there must be points of selecting which new experiences should be accepted. It would be clear that it is on the basis of human survival that a determination is made on which moral laws are accepted or rejected. The Anlo linguistic expression “*Bu season ηu*” captures a deep contemplation about the moral laws (Midawo 2018). To the members of the primordial society, it is a constant personal reflection and obedience to the gods and their moral laws. The reverse is expected from the civic public which assumes the gods and their moral laws are unnecessary. Specifically, to some Judeo-Christian perspective, “*Bu seawo ηu*” is construed as satanic. However, this Judeo-Christian viewpoint has changed as African Independent churches sought to liberate themselves from Eurochristian interpretations of African moral laws.

The focus is therefore placed on how the primordial society determines moral laws. Following from Awoonor’s viewpoint, there are conditions for human survival, such conditions may be fixed. Are those conditions fixed by the deities or by the human? It would seem to Midawo that they are fixed by the deities for the deities are *Agbe Vodun*, the conscious impregnators of life. In a literal sense, granted the Lagoon is a deity, she, therefore, set outlaws, and proceeding with the view that the law and the deity are the same, it would be obvious that lack of obedience is a condition for the deity to disappear. There would be no aquatic life when the Lagoon dries up. If, on the other hand, the Lagoon is a simple geological phenomenon with a physical ecological character, for Anlo society to survive, moral laws have to be enforced. This requires human agents.

2.4.3 Role of Human Agents in Primordial Public

The priests and diviners are two primordial roles assigned to human agents for annual ritual performances. The priests are human caretakers of deities. A diviner is called Bokor in Anlo; he is not necessarily a caretaker of a deity but has a formulaic interpretation of events and phenomenon, whether in the past, present, or future, and causal relationship of these events and phenomena to the spirit realms and what the wishes of the gods are about events and phenomena to the people. Besides annual rituals, the priests and diviners are consulted when there is a strange situation, for example, incurable diseases (Horton 1967). The appearance of a strange phenomenon suggests that moral laws are violated. Since the gods and the moral laws appear to be directly related, it would also mean the gods allowed the occurrence of the said strange phenomenon as a demonstration of their withdrawal from society. In Anlo, the month of November is the beginning of another year and the elders of the community would consult priests and diviners. The key person is Bokor, who goes through divination exercises to ascertain the spiritual state of the Lagoon. There are some visible signs to show a moral law has been violated. The presence of dark mud at fishing zones, worms in fish, low fish harvest, and drying of the Lagoon are some of the visible signs that moral law has been violated.

2.4.4 Punishment and Atonement in Primordial Public

Three possible questions open up for discussion under punishment and atonement. One, who or what does the punishment and atonement? Two, what is the relationship between punishment and atonement in Anlo's context? Three, who educates society on moral laws? First, from the views of Awoonor and Midawo, the moral laws and the gods appear to be the same. When the gods are not obeyed, they would leave society. That means *So* would not give of rain, *Agbe Vodun* would also disappear, implying the Lagoon water would also disappear. The consequence would be that society will experience hardship. If indeed an unpleasant consequence of human action is tantamount to punishment, then the withdrawal of the gods would be a punishment to society. Besides a benign withdrawal, Anlo also believes when their personal properties are dedicated to the cult of *So*, he punishes a person who steals the said dedicated property. *So* then functions as a personal protective god (Interview with Agbotadua 2018). However, the practical disappearance of the Lagoon means there would be more salt on the ground at the eastern part of the Lagoon for people to mine, sell and profit from. This may not mean punishment for these people. Unless the deity in charge of the land is also violated and she decides to disappear. The plurality of the gods in charge of the various natural resources has direct consequential punishment. On another scale, if Awoonor's conception of moral laws holds, then there is no ontological entity that can be pointed out as the entity punishing the society. Where there is no god to punish wrongdoing, the society would also not sit idly by for its moral laws of survival to be violated. The fishers are the possible direct persons to find out about the violation of the lagoon's moral laws. They take the responsibility to enforce compliance with the moral laws (Field note 2018).

Second, the moral laws here understood as taboos have expected behavioral patterns and forbidden acts towards the Lagoon. The following are some taboos in Anlo: cessation of fishing in any form during the ritual week (this seems to be different from the closed season, there is no evidence to suggest Anlo have the observance of a closed season), depending on the wishes of the gods, *Bokor* can reveal a day of the week or days of no fishing, no washing of black pots in the Lagoon, sexual acts must not take place at the bank or on the Lagoon, and a female in her menstrual period must not step into the Lagoon (*Bokor* 2018). The consequences of violating moral laws are both personal and societal. The societal consequence is atoned for during Anlo's state ritual performance. It is not clear if personal and societal consequences are mutually exclusive in this regard but it has a deterrent effect on individuals. The Anlo state's rituals invariably maintain the ecological character of the Lagoon.

Third, there seems to be no specific persons or primordial unit to make people aware of the moral laws beyond the family units and family and clan heads. The heads of families educate family members on family/clan taboos and wider Anlo moral laws. For example, some families do not eat a species of tilapia called '*Adzorvia*' in the Anlo language. Members of the *Yewe* cult do not eat catfish; that would be the responsibility of the cult head or the priest to educate members. There are some who a diviner has been diagnosed

not to eat some Lagoon species as a result of ill health. However, when fishers move from one town to another, they introduce themselves to the chief and an elder takes them through the moral laws of the town.

2.4.5 Chief

The chief office of a chief is seen as the overall caretaker of the Lagoon for the living, unborn, and ancestors. His involvement in Lagoon-related issues is not as direct as Bokor, priests, and fishers. He takes decisions in consultation with elders, Bokor, and priests. However, the colonial encounter has shown that the chief has been more tilted towards the civic public and has had disagreements with priests (Greene 2002). Indeed, the archival record reveals that the chief was indirectly part of the British colonial administrative structure (British archival record, File no. C0 96/ 770; Lord Hailey's visit). Therefore, though the chief is the overall caretaker, the colonial and postcolonial interactions have shown that the chief has not sided with members of the primordial public on some occasions. This could be due to political influence from the colonial or postcolonial heads. This also explains why the involvement of the chief in the Keta Lagoon management plan would give an impression that it is representative of the primordial public.

3. Strategies for Data Collection and Analysis

This chapter discusses the use of written sources and how elements of historical methodology and ethnography have been used in collecting information. The selection of sources and strategies adopted were based on their relevance to the topic and research questions. The chapter also discusses how Hempel's deductive-nomological approach is used in analyzing information in the study. Given the nature of the archaeology metaphor described in chapter one, it will be explained how the above analytical approach helps in overcoming possible conceptual difficulties.

3.1 Historical Method

For this study, the phenomenon is wetland/Keta Lagoon. The composition of the wetland phenomenon is the ecological character. Discourses about the wetland spread into local knowledge and Ramsar convention for which archive and ethnography become relevant. The use of archives gained hold in historical methodology during the colonial and postcolonial in historical and archaeological disciplines. The basic proposition of this method is, to every artifact there is a corresponding written document. The weakness in this methodology in a typical oral society where writing culture was not as it is in Western societies, is that the archival sources became what Europeans had written about the postcolonial societies. There are archival holdings in Ghana and Europe. Repositories in Europe include the Rigsarchive and the Kogelig Bibliotek in Copenhagen, the Public Records Office in Kew, England, the Archives des Colonies in Paris, North German Missionary Society archive housed at the Norddeutsche Mission, and the Bremen Stadt Archives in Bremen, Germany.

The researcher consulted the British National Archives and Public Records Office in Kew, London for a week. This archival exploration helped in determining the possible beginning of events and nature of Anlo's relationship with the colonial state and postcolonial state. The researcher used a digital camera to take pictures of drawings of the Keta Lagoon, correspondences between British colonial officers, and petitions from chiefs of Anlo.

3.1.1 Written Sources

As indicated in chapter one, the first major publications on Anlo came from Europeans, Jacob Speith, and A.B. Ellis. Historians such as Amenumey (2008), Akyeampong (2001), and Greene (2002) have used the above archives to produce academic history on Anlo. However, their focus was not the wetland but the socio-economic and political histories of Anlo. Akyeampong focuses on environmental history about marine fishing, not the Keta Lagoon, and local knowledge in relation to the Ramsar Convention. The researcher consulted the works of the above historians. Other written sources are the Ramsar convention, annual reports on the wetland, the Ramsar management plan, and IUCN journals. These are available on the website of the Ramsar Convention. In addition, the

works of ecologists who did preliminary studies to design the management plan were also accessed online.

Another set of written sources came from local people. These are Motte (1968), Kwasi Kuma (1973, 1991), Seshie (1991; 2017), Ameevor (1994), and Kumasah (2016). The writers are Anlo citizens who did not follow a known scientific method as was in the case of academic historians. The writers are literate and wrote in both English and Anlo-Ewe language. “Origin of Anlo people”, “Anlo cultural practices”, “Anlo proverbs”, and “Anlo encounters with the colonial” are some of the themes covered in the books. Awoonor (1974) and See (1991; 2017) published Anlo traditional songs; Oruka calls them sages, whereas Awoonor calls them “guardians of the sacred word”, but both are not literate locals. These sages, or “guardians of the sacred word”, were themselves musicians who composed songs about their contemporary early nineteenth-century experiences, and songs that have imagery of slave trade, colonialism, the role of the gods, and origins of Anlo-Ewe. The source of the Anlo literate publications was oral history, some of which missionaries in the eighteenth century had recorded. The academic historians cited above, contest some of the missionary narratives about Anlo society, but seemed unquestioned in the works the Anlo non-academic historians have published.

3.2 Ethnography

Ethnography compensates for the weakness of historical methodology and what might have been captured in the written sources above. “Within the ethnographic paradigm, the actors and their corresponding actions, behaviors, and beliefs are examined within the cultural and societal context in which they take place” (Whitehead 2004:15). From the views of Ranke (2011), European anthropologists should use ethnography to study ‘primitive’ people in their societal context. They were required to stay for a long duration of time among the primitive people. Ellis and Speith were anthropologists who studied the Anlo-Ewe people. Ellis (1890) lived and worked in Anlo. How then should the work of Ellis and recent publications of Anlo literates be examined? What happens when the local people from either the ‘civic’ public or ‘primordial’ public decide to use ethnography to study their knowledge systems? Can Anlo literate scholars be said to be ethnographers or anthropologists? Would they require such long years? Ellis’s work on Anlo was based on Ranke’s assumption of ‘primitive’ people, and his conclusions derived, therefore, were also founded on theories about ‘primitive’ people. However, Anlo-Ewe seems to have a response about theoretical assumptions in the views of Ranke. It is captured in the proverb “Until lions/leopards have their historians, tales of hunting would only glorify the hunter” (Baku 1990:1) The proverb suggests Anlo literates should produce knowledge about Anlo society based on theoretical assumptions in Anlo local knowledge. It raises questions of how to validate knowledge forms based on different theoretical assumptions. It also suggests a tendency on the part of Anlo literate scholars to overindulge in self-platitudes, self-legitimization, and revisionism in a grandiose bid to seek ethnocentric importance in the milieu of increasing postcolonial onslaught on retreating, yet fungible, Eurocentrism. It is for that reason; the researcher finds receiving

information from multiple sources would help in maintaining focus on the phenomenon under study. Especially having a closer look at law-like statements, such as moral principles present in Anlo proverbs or Ancestral scholarship, could perhaps help to avoid drift from the phenomenon. This strategy might even allow one to construe a standpoint that is based on historical epistemic resources of the Anlo people.

The researcher used elements of ethnography - personal observation and interviews with primordial society for two months. Various types of fishing methods were observed across the southern bank of the Lagoon. A digital camera was used to take pictures. The research period coincided with a public sensitization hearing under the auspices of the Ghana Environmental Protection Agency on the prospects of crude oil exploration in the Keta Lagoon (see figure 8 below). Present were: The Member of Parliament, Municipal Head, Ramsar local manager, Chief, Queen mothers, Association of farmers and fishers and ordinary citizens. Audio recordings of presentations in the Hall were made. Four key informant interviews were conducted with Agbotadua, Bokor, Midawo, and Torfia.

The interviewees were selected based on positions they hold in Anlo primordial public. Agbotarua is the title of a chief from the female line of inheritance and, accordingly, a sub-chief in the Anlo hierarchy of chiefs. Bokor is a male diviner in Anlo; his duty is to consult the gods and ancestors on the first causal principles of things in Anlo and how to remedy human wrongs about people, wetland, and society. Midawo is a male leader in the Anlo Yewe cult. Torfia is a title of the leader of fisher groups on the Keta Lagoon. However, this title is recent and does not have a traditional role in the Anlo hierarchy of chiefs. In Anloga, Torfia aims to organize fishers and enforce wetland-related rules (Interview with Borkor). The interview with Torfia was disrupted by an agitated fisher and a group of fishers who had gone to seize his canoe because he violated the no-fishing-on-Friday ban. The researcher used the occasion to observe the procedures of enforcement.

In each of the interviews, the researcher posed questions on Anlo's local knowledge and its relationship with the wetland. The researcher used a notebook and pen to make notes of salient points during the interviews. The interviewees did not consent to audio recordings.



Figure 8: Public forum held on crude oil prospecting in Keta Lagoon.

3.3 Analytical Approach

As stated in the introduction, the analytical orientation is hanged on the ‘archaeology’ metaphor. It requires digging beneath the preconditions of the concepts and deductively linking them to the wetland phenomenon. In the view of Foucault, the establishment of ‘truth’ is through a system of ordered procedures for the production of statements before an individual that has the power of the state to declare the truthfulness of statements or persons (Foucault 1991). There is, therefore, an implicit controlling power behind how individual members of the state form statements, convey ideas, and carry out actions. The goal of the analysis in the remaining chapters is to reveal the power asymmetries operating behind local knowledge and Western science as they relate to the Keta Lagoon phenomenon. However, it has been suggested that such a goal is not attainable, let alone to understand ‘concepts’ propounded by people in different disciplines and different historical periods. It will be shown through the works of Hempel (1966), Latour (2014), and Dewey (1910) that it is possible to understand such concepts through a study of the particular environmental phenomenon.

In the views of Kuhn, research in normal science has the tendency “to force nature into the conceptual boxes supplied by professional education” (Kuhn 2012:5). It suggests knowledge supplied through each academic discipline can only be understood by only

those within the discipline. It can also be deduced that others cannot proceed to construct a history of the past because we cannot understand the conceptual context of statements made in the past. One cannot possibly understand the future consequences of actions taken today, let alone, be sure how the future generations would understand statements of the present generation. If so, how was it possible for Albert Einstein to understand exactly what Newton mechanics and Faraday's magnetic field meant to the extent that Einstein built on their theories to invent his relativity theories? Albert Einstein speaking to the ghost of Newton says "the concepts which you (Newton) created are even today still guiding our thinking in physics, although we now know they will have to be replaced by others farther removed from the sphere of immediate experience if we aim at a profound understanding of relationships" (Schlipp 1970:242). How come Einstein was far removed from the 'immediate experiences' of Newton, yet was able to understand him? Most likely, Einstein used his imagination, but can imagination be said to be rational? Imaginative activities of a person may not be testable; they are idle flights of fancy (Lauer 2004). The possible rational activities the Anglos engaged in, were possibly available to Einstein as well. In the same way, a mathematician can understand an art historian across academic disciplines (Eglash 1999). Hempel devised a rational mechanism to approach explanation in such discourse analysis. Hempel (1966) used a deductive logical framework to craft a deductive-nomological model of explanation about the phenomenon of the physical world in the natural sciences. Supposing a wetland resource manager wants to explain the low levels of water in the Keta Lagoon, the manager would have to explore all possible statements about the low levels of water that describe both the initial conditions and covering laws. The covering laws are law-like statements.

Possible covering laws in the above example would be:

1. When water is exposed to heat, water molecules change from a liquid into vapor.
2. The tropical sun provides a lot of heat during the dry season.
3. There are no rains during the dry season.

Possible statements describing the initial condition would be:

1. The water level was high during the rainy season.
2. The tropical sun produced less heat during the last rainy season.

Statements a-e are the explanans. It is from the explanans that it would be deduced that the low water level in the Lagoon is to be expected. However, there is an apparent weakness in the model. The first is the practical impossibilities for the resource manager to come up with all possible covering laws and preconditions. The second is the tendency to assume that a precondition necessarily explains the low levels of water in the Lagoon. As indicated in chapter two, it could also be possible the Lagoon's upstream was blocked, or the Anlo people failed to observe their local knowledge and started building on streams

that flow into the Lagoon. It will be suggested in the ensuing chapters that, Anlo type of consensus building and adaptive management will help to address the weaknesses in the model. However, the same deductive approach can be applied in explaining power asymmetries behind local knowledge and Western science and to concepts from different time periods and disciplines.

Summing up the mood around the threats of the Anthropocene, Latour (2014) borrowed terms such as ‘common cosmopolitans and ‘civil compact’ to rally all disciplines and peoples towards a common goal. It is a recognition that humans face a common existential threat and must form an agency. Similarly, optic scientists in the seventeenth century and electrical scientists had to form a kind of agency that did not take the “common body of belief for granted”, but when they achieved the result they were searching for, the rest of the time was spent defending conceptual frameworks (Kuhn 2012:13-14). The concern of Latour is, all do not see the magnitude of the threat. There are economic interest groups who do not see the threat, maybe because of the way the problem had been framed in the past. To avoid conceptual traps and defenses, Paul (2017) proposes phenomenology as a method of carrying out environmental philosophy to concretely capture the human/environmental relationship. Thus, a framework that brings together the social and the natural for analysis.

Phenomenology as a method is already being used in environmental humanities to track all the nuances of human/non-human relationships and human/environment relationships (ibid). Environmental philosophy does not have a clear-cut method. It borrows methods from social sciences, hermeneutics, and also from science and technology studies. The peculiarity of social science methods is such that there is an over-concentration of human and social norms (ibid). The situation of the Anthropocene environment is that humans have changed the environment and the environment is also changing humans. So, a methodological approach that ties humans to strict Anthropocentric viewpoints would seal off a nature-centric voice. In the face of the threats, it would not be prudent for humans to be hearing only their voices about the environment. The environment must also speak about itself. The question then is; what method can be devised to hear the voice of the environment? Paul (2017:10) makes an additional ambitious point that a phenomenological method can concentrate on the local level with the aid of “strong philosophical theorizations, attempt to carry out in-depth analysis to obtain a universal knowledge that can go beyond the particular.” It is not yet clear what the ‘strong philosophical theorization’ is, but it could be understood from Hempel (1966) as construction of law-like explanation, and law-like normative values, moving from the particulars to the universal. This is similar to the point which Darwin, Dewey, and Norton suggest achieving a universal knowledge of the world (Dewey 1910; Norton 2005). Thus, it is possible to take account of local experiences of tilapia in the world, put all those experiences together to achieve a universal view of tilapia. In that case, it is an aggregation of all ‘particulars’ to construct the ‘universal’ or ‘universals’.

In light of the above, the analytical approach of the chapters below depends on a deductive logical approach inherent in Hempel's deductive-nominological model of explanation. Again, the ecological character of the Lagoon described in chapter two above will be treated as a phenomenon in which the concept of adaptive management will be deductively applied.

4. Postcoloniality of Local People, Local Knowledge, and Western Science

This chapter aims to uncover the postcoloniality of local people and their local knowledge from the viewpoint of Western scholars, African 'philosophizing leaders' and African scholars. Horton's view of African knowledge and Western science and how the two can relate in the postcolonial without losing the 'vigilant memory' in the work of Mbembe will be examined. Sustainability and adaptive management have been featured in environmental philosophy. The two concepts are examined in the light of the research questions to determine how they can be deductively appropriated in Anlo's local knowledge. Clues will be drawn from Darwin, Dewey, and Norton, to suggest that a mechanism for managing local adaptations if situated in local knowledge(s), would be feasible in tackling the universal environmental problem in the Anthropocene.

The totality of experiences that set the preconditions for postcolonial discourse in Africa is categorized as Transatlantic slavery, European colonialism, and South African apartheid (Mbembe 2017). The three historical events put to doubt the local means of knowing, local knowledge, and roles of the locals in the knowing forms. Three exterior outcomes - separation from the self, disappropriation, and degradation - define the postcolonial discourse (ibid). It is from the exterior outcomes that the postcolonial subject seeks to know and engage in current ubiquitous environmental discourse. The local had accumulated a body of knowledge about the physical environment and non-physical entities. These constituted the 'self' for the locals. Upon the appearance of the other, the locals lost sovereignty over the 'self'. The local's expression of the 'self' was muffled and receded to a point of silence at the fringes of political domination. It was an alienation of the locals from the political space it occupied.

As indicated above, separation from the self was not fortuitous but it was laid in how the West conceived difference, nested in Western historiography, it stemmed from the causal connection between societies and environment. The 'difference' from the other has engaged fertile inquiry of philosophers, historians, anthropologists, physical scientists, and the ancillary disciplines in the West. According to Dove and Carpenter (2008), the environment was held as a cogent justification of the differences among societies as shown in the works of Thucydides, Hippocrates, and Aristotle. In the views of Thucydides, fertile lands influenced social formation and invasion in a way that is different from sterile lands. His view accounts for how wealth is generated from the land and how it culminates in political power to dominate others but did not account for differences in physiology. Hippocrates also used environmental factors to show four cultural types. He divided the environment of the world into extreme heat, extreme cold, and the lukewarm distinction between the extremes. Aristotle (1908) depended on

Hippocrates' thesis to analyze why so-called politically advanced nations are in temperate zones. Pliny (1952) on the other hand, used Hippocrates' thesis to explain the racial origins of differences.

These narratives are the building blocks of the European framework through which European actors looked at the world in the seventeenth and eighteenth centuries as they constructed their sense of national histories and nationalism around European groups of feudal origins and the diminishing influence of Roman Catholic churches (Mazrui 2004). Hegel equated world history to 'reason', which various European epochs try to attain through a search for freedom. That 'reason' is also 'spirit', which is self-determining and self-justifying; it is shaped by such changes as the environment and technology surrounding it (Pinkard 2000:491). Hegel's understanding of history as 'reason' informed his conception of nationalism and why the starting point of world history was the emergence of European states. A contemporary of Hegel, Leopold von Ranke, rejected the attempt to equate world history to reason and held the view that world history started when the state made contact with previously unknown people (Ranke 2011). In this scheme of things, the flow of history is from Europe to unknown people, not from the so-called unknown people making contact with European states. Again, though Ranke believed every generation had something unique that should be considered history, Ranke would not attribute history to the previously unknown people that European states made contact with; for him, those that cannot be counted as history should be studied by anthropologists. The obvious role Ranke is assigning to anthropologists is, the duty to study groups of people whose local knowledge and achievements are not equal to Western people to be counted as history. Therefore, the whole disciplinary orientation of anthropology towards others was to reveal their 'primitiveness' even in the light of archaeological evidence of mathematics, astrology, medical surgery, and metal technology in non-Western cultures. The Western anthropologist would not take them as the other's intellectual achievement (Sertima 1983). The works of Ellis on Anlo discussed in chapters one and two fit into this viewpoint.

Within anthropology, Arnold (1869) held that culture is that which represents the best of people. The best, in his view, could not be from Africa but that which the Europeans did and thought. In contrast, Tylor (1903) held a plural notion of the term culture, but even in that plural sense, for most people in Europe at the time, Africans would not be included in that pluralistic definition of culture. In other words, a culture was 'pluralistically singular' or 'pluralistically European'. It is in this regard that Europeans can speak about others as not having culture. Since culture is also at the base of what constitutes history, Ranke would not have placed any significant value on non-European cultures, let alone attribute history to them. Hegel would also not accord them 'reason' as well. Thus, from early European thoughts to the eighteenth century, the mere use of the environment to explain differences among the races and nature of societies gave way to appeals to rationality and science. Auguste Comte articulates these appeals as three stages of human advancement.

For Comte, the human mind conceptualizes explanations about the world which could be referred to as science, but science has a theological stage, metaphysical stage, and positive stage (Comte 1798-1857). Each stage is an improvement on the preceding stage. This gave birth to the doctrine of historical determinism. The positive stage, which could be regarded as the highest form of science, offers possibilities to modern humans to grasp the scientific laws in the physical sciences and human behavior to construct a society devoid of diseases, poverty, and conflict, which are characteristics of 'simple' societies - African societies. Comte is a beneficiary of Francis Bacon's legacy, which put enormous faith in unlimited scientific inquiry into the causal connection like humans and society to produce a utilitarian scientific knowledge and technology to advance society (Stevenson & Byerly 1995; Schwarz & Krohn 2011). The Baconian faith in science is praised as laying the foundation of modern science. Stevenson and Byerly (1995:5), apparently under the sway of Comte's historical determinism, took Bacon's contribution (and seventeenth-century generation of scientists) and scientific thought out of context, marking them as Western European pioneers of new physics, which propelled capitalism. The seventeenth-century scientists made it possible to understand natural causal structures, as Bacon imagined, and also manipulated the environment during European industrialization. Stevenson and Byerly based their views on a false assumption and were ignorant of the various historical epochs that have contributed to the body of knowledge that is not uniquely European. A thriving intellectual activity existed in parts of Sub-Saharan Africa seven centuries before Newton and Leibniz and that body of knowledge was passed on to the Islamic World and they in-turn handed it to Europe (Sertima 1983; Kea 2002). The origin of algebra is traceable to the Islamic World, without which Newton and Leibniz would not have flourished independently (Lauer 2003).

The second exterior outcome is disappropriation. Disappropriation convokes "juridical and economic procedures that lead to material expropriation and dispossession..." and "... a singular experience of subjection characterized by the falsification of oneself by the other" (Mbembe 2017:78). The falsification was nursed from the immaterial to a made object whose newfound purpose was the role the falsifier assigned in the capitalist commercial enterprise. In that case, the falsified object loses grip on primordial roots and misplaces ontological space. Perhaps, in the Comtian view, what Mbembe said is falsification, was rather help to lift 'primitive' society to an advanced positive stage of development. But the mere existence of any society suggests a process of mustering environment and development of institutions to support the society. Thus, all societies advance at their own pace and a different rate (Rhodney 1973). They also uniquely adapted to their environment, responding to ever-changing existential threats the physical world imposes on them, otherwise, they would not exist as a society in the first place. The process of a unique local adaptation to the environment and of institutions to the environment is curtailed through disappropriation. The idea of disappropriation also carries with it the issue of separation of local people from their local areas not according to any self-driven determinations, but according to the dictates of forces behind slavery, colonialism, and apartheid (Mbembe 2017). Such forces did not have in view recognition of local knowledge and the uses of resources - land, or wetlands. The third exterior

outcome, degradation, sharply relates to the foregoing. After the locals were falsified, they were plunged into servitude conditions. “It also incited a process of ‘social death’ characterized by the denial of dignity, dispersion, and the torment of exile” (Mbembe 2017:78).

The three exterior outcomes coalesced in a desire in the postcolonial context, especially in a period where the West appears not to wield direct political power on postcolonial societies (Harari 2011; Mbembe 2017). It is a desire to shake off the falsified self, a desire for autonomy and sovereignty. It was also as feeble an effort to seek freedom in the slave dungeons, as bold an effort to resist colonial takeovers of local natural resources and as radical an effort as to declare independence from colonial masters. It was a desire to recover the ‘memory’ of scholarly ancestors for immediate ‘self-repair’, collective identity, and juridical claims. Postcolonial historiography put the wave of resistance on two chronological poles, primary and secondary (Mazrui 2004). The primary resistance was installed when colonizers first entered Africa. This form of resistance was cultural. The secondary resistance sought to dismantle colonialism after it had taken hold. The intellectual bedrock of such attempts found expression in philosophies of Negritude, Pan-Africanism, Sankofa, emancipation, Neo-colonialism, African civilization, Afrocentrism, Decolonising the mind, Delinking, and self and community in a changing world, (Cesaire 1955; Wiredu 1998). The nature of the philosophical response was shaped in the different phases of the capitalist – colonial, and imperial encounters, sharply divided along with Anglophone, Francophone, Lusophone, continental, regional, and diasporic geographical areas. They are all unanimous in the rejection of colonial imposition. More precisely, there was a response from ‘philosopher presidents’ and emerging African academics.

First, the academic response came under the banner of African philosophy grouped on two axes - particular and universal. What Eglash (1999) calls sameness and difference. The ‘particular’ thesis defines African philosophy against the other. Since African philosophy does not present a glaring presence of formal logic, analysis, and individuals whose thoughts could be traced, it is particular to Africans (Lévy-Brühl 1910; Senghor 1964). African philosophy is characterized from the ‘particular’ viewpoint as a collection of African proverbs, mores, folktales, and myths with philosophical traits. It may not be denied the foregoing are products or habits of thought. The universalist thesis latched on to those habits of thought and pushed it a step further to say, though is not an exclusive preserve of a particular racial group. Philosophy cannot be ambushed in racial labels (Hountondji 1983; Appiah 1992). Wiredu (1998), possibly under a heavy influence of Noam Chomsky’s *Knowledge of Language*, posits, if it’s possible for a German missionary to learn Anlo, and an Anlo person can learn English and communicate with British colonial officers, then philosophy as thought is universal (Chomsky 1986). Also, if there can be a Kantian school of thought, Marxist school of thought, and Chinese philosophy, then there can be African philosophy and Anlo philosophy as well.

Oruka’s philosophic sagacity, or sage philosophy, provides an influential sharpness to African philosophy which guides the methodology of this research (Oruka 1991). “Sage

philosophy consists of the expressed thoughts of wise men and women in any given community and is a way of thinking and explaining the world that fluctuates between popular wisdom (well-known communal maxims, aphorisms, and general common-sense truths) and didactic wisdom (an expounded wisdom and a rational thought of some given individuals within a community)” (Oruka 1991:33-34). Oruka qualifies it further by saying, popular wisdom is not critical of the communal setup, but didactic wisdom is critical of the community. The use of the term ‘community’ appears problematic in the light of Peter Ekeh’s work in locating the primordial public and the civic public in the postcolonial experience (Ekeh 1975). The civic public is loosely local people who form part of the postcolonial state. The ‘philosopher presidents’ also belong to the civic public. The primordial is pre-colonial local knowledge and local knowledge holders. The problem is invoked when one asks the question; which public do the sages belong to? And what didactic viewpoint do they hold when one wants to retrieve local knowledge? In line with the research questions of this study, the two publics come under local knowledge and ‘Western’ science and the power asymmetry between them. The variants of the ‘particular’ and ‘universal’ will be discussed differently in adaptive management as an assemblage of ‘particulars’ to attempt a ‘universal’ response to the Anthropocene environment.

Also, the ‘philosopher presidents’ or ‘philosophizing rulers’, like Kwame Nkrumah, Leopold Sander Senghor, Julius Nyerere, Amilcar Cabral, Nelson Mandela, and Thomas Sankara, borrowed philosophical ingredients from John Locke and how Lockean ideas defined a person’s inalienable rights (Mazrui 1967; 1990). The political personification of Locke in the American revolution perfected strategic options on how to actualize the inalienable rights of postcolonial people under the power of the postcolonial nation-state (Mazrui 1967). On the other hand, the ‘philosopher presidents’ took the anti-capitalist traditions echoed in the works of Karl Marx. It provided fertile grounds for the postcolonial responses largely as a class struggle for which there must be a ‘permanent revolution. Russian Revolutionary scholar, Leon Trotsky, brought Marx closer to the postcolonial era suggesting that, based on the theory of ‘permanent revolution, all social struggles were “interconnected due to their common reproduction in the capitalist system, so the resolution of one struggle shaped the outcome of others” (Drew 2000:137). Societal advancement occurred continuously and unevenly, rather than proceeding through discrete stages, enabling a proletarian revolution to occur in undeveloped non-capitalist countries. A ‘permanent revolution’ would remove contradictions between the classes. In this regard, the postcolonial state did not need to go through Comte’s three-stage model of societal advancement.

On the practical economic front, the ‘philosopher presidents’ were conflicted on Lord Lugard’s doctrine of ‘Dual Mandate’ (Lugard 1922). Lugard acquired a hegemonic authority in Colonial West Africa as the first British Governor-General to Nigeria. His ethnographic presence in African soil gave him a pre-eminence voice within the colonial gaze of Africa and postcolonial relations with the UN, EU, and Commonwealth (Mazrui 1967). Lugard was convinced that an “identical” interest of European colonizers, with

locals in the tropic, would attain a successful development. Lugard regarded the tropics (Africa) as a “heritage of mankind”. And as such, “neither, on the one hand, has the suzerain Power a right to their exclusive exploitation nor, on the other hand, the races which inhabit them a right to deny their bounties to those who need them” (Lugard 1922:60-62). The imperial French authorities later incorporated Lugard’s views in what was called ‘Euroafrica’ (Mazrui 1967). Lugard was speaking at the time transatlantic slavery was abolished and colonialism was at its peak, coupled with a rise in industrialism. Also at the time, Western scholarship had not accepted that Africa had history, so the use of the term ‘heritage of mankind’ could be about material resources needed for Western manufacturing industries. The interest of European powers would be raw materials that would be ‘identical’ with locals. Colonial Europe, therefore, developed an economic network around the raw material where the locals became producers of raw material. In the post-colonial era, the ‘philosopher presidents’ had a choice between keeping to the ‘Dual Mandate’ or discarding the doctrine. The doctrine had injected a fresh ethical basis of *interdependence* in the international political discourse. However, the root of the ‘Dual Mandate’ was Adam Smith’s concept of ‘absolute advantage’ a manufacturing company had in producing the same goods and services a competitor did not have, given that the same resources were available to both (Smith 1776). The ‘absolute advantage’ concept metamorphosed into political economy and international trade in the periods of the slave trade, European industrial age, and colonialism. David Ricardo introduced the idea of ‘comparative advantage’ into the concept, suggesting that the company should specialize based on their comparative advantage whilst the government maintained free international trade (Ricardo 1852). Lugard appeared to have built ‘Dual Mandate’ on the foundational thoughts of Adam Smith and David Ricardo (see also discussion on sustainably below). Faithful obedience of ‘Dual Mandate’ would mean the postcolonial would be permanently a producer of raw material and consumer of Western industrial goods, a fate the ‘philosopher president’ Dr. Kwame Nkrumah tagged ‘Neocolonialism’ (Nkrumah 1963, 1970; Afari-Gyan 1991).

The very presence of Locke, Marx, and Lugard in the postcolonial is indicative of Western thought and puts to question the claim of recovering the ‘memory’ of ancestral scholarship. If the postcolonial human conditions - separation from the self, disappropriation, and degradation - were sawdust and iron filings mixed, it would have been easy to sort them out with a help of a magnet. Would it indeed be possible to eat the other’s food and refuse to be nourished by it? How is it possible to recover the precolonial ancestral local knowledge? Again, a seemingly unanimous response to the above questions was the concept of ‘African socialism’ by the ‘philosopher presidents’ (Gyekye 2004). It is argued, African ancestral local knowledge and socio-economic setup foreshadowed socialism (ibid). Its root was communal ownership. African socialism is then the recovery of African socio-economic identity. This assertion is not particularly surprising and may not be an ownership type engraved in the socio-economic gene of Africans. It was peculiar to most pre-capitalist societies (Smith 1776).

The examination of the ‘theory of the commons’ in Anlo affirms communal ownership of wetland and dependence of ownership on time-labor and attached epistemic objects. As was expanded upon in chapter two above, Hardin’s theory of the commons wrongly assumed that the African communal ownership inherently meant the destruction of resources, that that type of ownership seems to be what the ‘philosophizing leaders’ had in mind. However, as a single concept, communal ownership, does not mean affirmation of all other claims implied in African socialism; it at least shows some form of ancestral scholarship recovery is possible. But then, to what ends must such recoveries be put into environmental philosophy discourse? Should a recovery mean a rejection of non-precolonial? If not, on what criteria can they be adopted in the postcolonial, bearing in mind concerns about keeping a vigilant memory? It is to the point of these questions that civic public and primordial public, local knowledge and Western science, sustainability and adaptive management are examined below.

But first, Anlo’s ancestral scholarly thought gives a direction to the power asymmetries implicit in local knowledge and Western science. The direction is conveyed in the Anlo proverb, “*Nunya adzidoe, ame reka fe asi me tune o*”. “Knowledge is as big as a baobab tree; no one person can wrap his/her arms around it”. It means, to determine the circumference of the baobab tree, a group of persons would have to join hands together. The first deduction to make might be that the Anlo do not have a sense of geometric measurement, a doubt on Anlo abstract cognitive categories. Eglash (1999) has cleared this doubt in his book *African Fractals: Modern Computing and Indigenous Design*. The second deduction is about the teamwork needed. It also touches on trust and relates directly to the epistemological question; how can one trust a piece of information received through a sense perception of another person? The same teamwork is invoked when Anlo elders sit in council to arbitrate a dispute brought before them. This sort of teamwork is known as consensus building in African local politics (Wiredu 1998; Lauer 2013). Here, the contending factions would be made to appear before the council of elders and present their case and answer questions. The factions are allowed to ask questions before the elders. The council of elders may select a day thereafter to discuss the issues amongst themselves alone. Though the elders would be family heads in most cases, the deliberation is not guided by a partisan interest that has to be defended, rather, it is guided by common values, values of peace, justice, and moral laws. The same common values guide the determination of punishment and the aim is to restore an individual to society. This shows that it is possible to overcome conceptual differences and abandon previously held positions to that which is in the interest of society’ most especially when individuals engaged in the deliberation have access to the same epistemic tools. Again, this deflates the claim that there cannot be a universal presumption of common rationality in the global Promethean discourse (Lauer 2013).

Consensus building as a form of deliberation without intransigent allegiance to any other viewpoint other than the interest of society draws parallels in pragmatic philosophy ever-present in the works of Norton (2005). The “pragmatic ethos” has four themes: antifoundationalism, fallibilism, the social character of the self, and recognition of radical

contingency (Bernstein 1997). Norton emphasizes “the role of language and symbolic expression as conventional tools of understanding and communication; a rejection of representationalism in epistemology and its companion, [and] the correspondence theory of truth...” (Norton 2009: 254). The pragmatist is oriented towards action and experience, rather than pure thought. The pragmatist looks for theories out of unique problems, rather than using a prior-committed theory to explain the problem in question. The epistemological difficulty here is the impossibility to perceive something as a problem without hanging on to any theoretical straw. To the extent that consensus-building practice does not have an individual laid down *a priori* commitment, but explore all perspectives, consensus building is antifoundationalism. But to the extent that it (consensus building) holds firmly to the collective interest of society from which the views of the diviners, ancestors, gods do matter, suggests some foundationalism. In the ontology of Anlo local knowledge discussed above, the gods and ancestors formulate the first sets of principles from which human values are determined. It has to be qualified that there could be hard foundationalism and soft foundationalism in Anlo thought. Hard foundationalism suggests a fixed set of first principles, while soft foundationalism would acknowledge amenable fixed principles underlining institutions, but the issues decided out of those institutions are influenced by contemporaneous factors. It is the place of the Anlo diviner to consult the gods on wetland offenses, but the same offenses have varied remedies. At any rate, Anlo’s ancestors migrated to the present location and adapted to the wetland, so there exists a possibility that the ancestral scholarship had gone through some changes. Perhaps, it was as a result of grappling with changes, the vastness of knowledge beyond an individual, and the importance of many perspectives that the proverb gained recognition in ancestral scholarship to clear uncertainty and ignorance. Therefore, Western pragmatism is not wholly applicable to Anlo. There is an emphasis on experience and observance of first principles. The same approach, anchored on soft foundationalism, would be how local knowledge engages Western science in the Anthropocene.

4.1 Contrasting Local Knowledge to Western Science

Horton (1967) suggests that it would appear a bit baffling to a Western scientist, ecologist, or conservationist observing Anlo wetland and hearing claims of Lagoon deities, gods, and ancestors. Western scientific knowledge on the wetland would be received through observable common-sense, therefore, any talk of non-observable entities operating within or behind wetlands stands to be dismissed. But local people can obey rules of non-observable entities with direct consequences to the wetland. This suggests a link between theory and practice in the observable common-sense world. Comte’s “modern positivists have taken the view that it is the things of common sense that are real, while the ‘things’ of a theory are mere fiction useful in ordering the world of common sense” (ibid:2). This is opposed to Locke and Planck who “...have taken the line that it is the ‘things’ of a theory that are real, while things of the everyday world are mere appearances” (ibid). Horton admits the plausibility of the two arguments in ancestral religious thinking. The purpose of theory is to “demonstrate a limited number of kinds of entity or process

underlying diversity of experiences” (ibid). The gods, ancestors, heroes, and water deities have the corresponding function on the local people and natural phenomena. The same way an individual would not touch a stone and would depend on common-sense to know the composition of molecules, atoms, and electrons in the stone.

As stated above, besides Western science’s dismissal of any other validation of knowledge, there is tension within the postcolonial local knowledge and Western science, as well as among the civic public and primordial public (Ekeh 1975). Ekeh uses private and public realms to locate their political spaces in the dichotomy between local and colonial. The ‘primordial’ has a private realm that is linked to the gods, ancestors, cults, proverbs, and mores inherited from pre-colonial society. The public expression of the ‘primordial’ in the postcolonial setting does not disengage from the private but draws strength, legitimacy, and inspiration from the private. Examples of the primordial public members are chiefs, local priests, cult devotees, and diviners. The public expressions of the primordial are visible in terms of ritual performances, ancestral worship, chieftain, and also in terms of their aesthetic appearances. On the other hand, about five hundred years of European colonial contact has created a public space that forms the foundation of postcolonial politics. This space is called civil public. Its constituents are European-styled ‘philosopher presidents’, public servants, state security personnel, the managers of the Keta Lagoon management plan, and any other institution erected by colonial authorities. Peter Ekeh attributes moral qualities to the two publics, the primordial is moral whilst the civic public is not. In other words, the ‘localness’ of the primordial public makes it moral but the foreign nature of the civic makes it amoral in its vale attempt to operate in the private realm of the primordial. It is the offshoots of the civic public - Ghanaian scientists, public servants - that ratified the Ramsar convention drafted a management plan, and determined how to engage the primordial public in the management of the Keta Lagoon.

Western science is characterized as a knowledge form that defiles the integration and assimilation of local knowledge (Lauer 2007). The introduction of Western science in Africa went hand in hand with extreme political and military power in the phases of slavery, colonialism, and apartheid, so Western cannons of science became intolerant of local knowledge. At the onset of the canons of Western science in the early enlightenment period, the intellectual class adopted a dismissive attitude and extreme skepticism towards other knowledge forms as already pointed out in the works of Hegel, Ranke, and Bacon. From Comte’s explanation, Western societies had left the theocratic stage and Reformation period where the Vatican was the sole validator of knowledge. At the time the European society was recovering from religious war, Francis Bacon posited Western science: (a) objectively collect “first vintage” data without prior explanation in mind, (b) generate principles, and theories from evidence empirical data, (c) aim to arrive at general truth, (d) avoid cognitive bias - ‘idols of the mind’ (Bacon 1676; Farrington 1967, 1969; Ducheyne 2005). In principle and practice, there is no contradiction between the observance of the Baconian method and Anlo’s ancestral consensus-building deliberation (Asseming 1997). It has rather been Western science that has prevented appropriation of

other knowledge in areas they controlled (Lauer 2004). Even in the emergence of the ecological field, ecologists tried to represent their field like science and adhered strictly to Baconian cannons and did not take notice of ecology in local knowledge (Norton 2005).

4.2 Sustainability of Resource Management

This section of the chapter attempts to deductively explain what is sustainability, the three principles of adaptive management, and how adaptive management should include a fourth principle – consensus-building discussed in the chapter above. The adjectival word sustainability transmits the idea of that which can maintain the lifespan of an object. From an Anthropocentric point of view, humans are the subject in control of the object called nature. The methods, mechanisms, tools, culture, habits, and thoughts can be said to be sustainable or not based on how such go in prolonging the lifespan of nature. In that sense, humans are the ones nurturing nature or “giving nature a home” (RSPB n.d). This perspective raises unique questions, some of which go beyond this research. For example, how can one know the lifespan of nature is being prolonged? Is it possible to prolong the lifespan of nature? By which means can the trappings of ‘the human condition allow for a common agreement towards prolonging nature (Arendt 1958)? To whom must nature be prolonged? Whose duty would it be to prolong or supervise that process? Besides, there is also a nature-centric point of view, which calls for sustaining natural processes for their own sake. In that regard, humans would have to invent rules to prevent themselves from interfering in the processes of nature. This viewpoint radically shifts humans to object position and nature becomes the subject determining the fate of humans. The difficulty in this position seems obvious; humans have been trying to eliminate the malaria parasite in mosquitos for ages. The malaria parasite can eliminate humans, so far as nature can also eliminate humans suggests some natural forms and processes are also not sustainable. This explains why some natural forms have gone extinct, like the dinosaurs long before the industrial age. If humans have to depend on nature, then nature and humans cannot do so without some form of interference. The intervening factor would be the cultivation of sustainable mechanisms or social values to guide human-nature interaction.

The idea of sustainability prescribes future expectations. Humans of today would have to take some actions aimed at preserving nature for future humans. The response to this demand is split between weak sustainability and strong sustainability (Norton 2005). The weak sustainability is wholly championed by Western econometric thinking, which says, it is not possible to know the needs of future people. It would be worthwhile to measure sustainability in a Western economic tradition of resource analysis (Robert Solow, quoted in Norton 2005). The Western econometric traditions are attributable to Adam Smith (1776) and David Ricardo (1852). On premising the argument on the fungibility of resources, it is concluded that it is monetary capital that should be bequeathed to future humans, not the stuff of nature. Suppose a parent collects shares in a company for their children, the children arrived in the future but the company had polluted the air which

deteriorated their health, of what benefit would the said capital be to the children? Concerning Hempel's model of explanation, the health of humans cannot thrive in a polluted environment, so it is entirely possible to know now what another future human needs to have a healthy life. It is from this perspective that strong sustainability holders suggest an inventory of natural resources that have to be salvaged because of their corresponding social values (Norton 2005). The resources to be salvaged have to be socially determined at the local level, and relevant to local resource management. In turn, the local people develop normative values that sustain the salvaged resources. Therefore, sustainability in this research means how Western science and local knowledge can be applied to prolong the ecological character of Keta Lagoon.

4.2.1 Adaptive Management

Adaptive management is modeled on Western pragmatic thought. The importance of including all knowledge forms based on a criterion of lived experiences gained ground in John Dewey's (1910) interpretation of Charles Darwin. For about two thousand years, the Western mode of thought (philosophy) proceeded from the belief that there is something permanent about the world (Dewey 1910: 6). That permanent entity is self-evident, the origin of things. On the other hand, entities that change are defective and could not be real. The Cartesian enterprise is to use 'rationality' alone to discover the origin of the 'world'. Most philosophers after Descartes made unsuccessful attempts to achieve his aim. Charles Darwin's theory of 'natural selection' presented a different way of thinking about nature and knowledge forms. If indeed the 'origin of species is through natural selection, then it would seem there cannot be the first cause of biological entities discoverable through 'rationality'. This is certainly not a defeat of the Cartesian enterprise, but first, a different way of thinking about nature and the world. Second, because of the classical belief that there is the first cause of life and a final goal that life must attain, it became the task of philosophy to prove life has some qualities and values independent of experience (Dewey 1910). Dewey observed that despite the pursuit of a transcendental cause of things, diseases still plague the world. Progress in politics and knowledge forms is only possible when there is a break from the classical mode of thinking to a specific examination of "conditions of generations" (Dewey 1910:22). Finally, the task of philosophy would be how to find methods to resolve conflicts in the practical world and ways of resolving such problems. Therefore, Anlo's soft foundationalism admits to the Cartesian project, whilst at the same time finding practical solutions to problems through lived experiences as well.

Norton conceives adaptive management as a set of principles a resource manager observes together with society:

1. Experimentalism – an adaptive manager is assigned the responsibility of taking specific actions that have been tried and tested in the local area. The primary goal is to reduce uncertainty in the future.

2. Multiscalar analysis – the manager has appreciated the use of models in monitoring the causal structures of natural phenomena normative values concerning time.

3. Place sensitive – the manager adopts a place for multiscalar management from the perspective of the local place and defines the human and geographic elements that constitute the place to establish its local needs. The three principles are essentially applicable to the Western scientific context and do not factor in soft foundationalism in the postcolonial context. Therefore, there has to be the fourth principle:

4. Consensus building – the manager consults civic public and primordial public on natural stuff to be salvaged, formulates models, and determines normative values to be developed or rejected.

5. Discussion

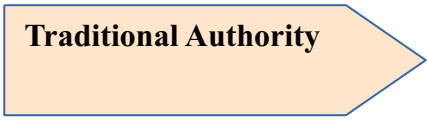
The convergence of hydra-headed discourse on wetland phenomenon has revealed a flow of deterministic ideas from the West. These ideas were active from the earliest contact with the West but fade into a latent position in the postcolonial presence. The Western ideas were active when the postcolonial subjects were objectified, classified, falsified, and ferried from one place to the other as a labor force. Another active stage was when colonialism took hold of the territory of the postcolonial people. At that stage, it was postcolonial resources that were emphasized as the “heritage of humankind” (Lugard 1922:60-61). The postcolonial knowledge forms and means of knowledge validation did not receive recognition in Western scientific knowledge. Yet, the postcolonial mounted cultural resistance, mostly drawing from ancestral scholarship, to give themselves a sense of being and a sense of place. The cultural resistance intensified through the phases, preserving in varied forms, ancestral memory. The accumulated ancestral memory became a signpost for later colonial subjects to usher in political independence from the West marking the effective beginning of the postcolonial.

At the beginning of postcolonialism, Western ideas that were active in determining the fate of other humans and their resources became inactive in political and economic discourses without a radical material change. This is because of a lack of unanimity in the postcolonial response to the colonial legacy. For this thesis, attention is drawn to the discourse between the civic public and the primordial public. The civic public inherited colonial political and economic architecture. They were faced with the option of dismantling the colonial architecture completely and erecting a new sociopolitical organization or keeping the colonial system in place. What has emerged is a hybrid of Western ideas of state formation and economic production and scintillas of ancestral ideas at the political level. At the cultural level, the ancestral memories preserved during the colonial engagement are retained in the discourse of the primordial public. The civic public, though appearing tolerant of local knowledge, has absorbed Western science, the colonial superiority and has an apparent backing of the postcolonial state.

The postcolonial state’s support of the civic public on resource management is essentially on a permissive ethical basis nested in Lord Lugard’s “Dual Mandate”. In so far as the West was no longer in control of exploiting the resources, the postcolonial state appeared to agree with the ethics of *interdependence*. Postcolonial sovereignty and self-autonomy became largely restricted to material political and economic activities. The reason which Ghana as a state party to Ramsar convention would, by implication, agree with the Ramsar preamble to “stem the progressive encroachment on and loss of wetlands now and in the future.” Keta Lagoon management plan has noted that the Anlo population has been growing and has the potential of impacting the ecological character of Keta Lagoon. However, the scale of wetland encroachment visible in the Western industrial societies is incomparable to Keta Lagoon. Western industrial societies had ‘busting of wetlands’ and wetland replacement, which was not present in Anlo society. At the conceptual level,

Western societies adopted a pragmatic philosophy that deemed the material utility of wetlands more important than any esoteric considerations about the wetland.

Table 3: Civic Public Institutions and Primordial Institutions

Institutions recognized in Keta Lagoon Management Plan	Primordial Institutions
District Assembly	No equivalent
Wildlife Division	No equivalent
NGOs	No equivalent
	Priest Divines Deities Chief

Though Western notions of wetland changed after the Second World War, it retained the pragmatic philosophy in the process. Western science became the arbiter of which knowledge forms are engaged in wetland management. This is observable through the works of IUCN, Ramsar, RSPB, ecologists, and Ghanaian civic in Anlo. From table 3 above, the civic public constituted District Assembly, Wildlife Division, NGOs, and Traditional Authority. The Wildlife Division was founded on the Western colonial philosophy of wildlife management. The Division has a *pack manager* who implements the Keta Lagoon Management Plan. Concerning NGOs, they seemed to have arisen from the Western influence which had direct support from IUCN and RSPB. Though members of the institutions may come from the local area, they do not represent primordial institutions, nor do they carry out the duties of primordial institution members. The use of ‘Traditional Authority’ in the Keta Lagoon management plan is not representative of the primordial institutions. The traditional authority in this context refers to a unit within the District Assembly. There is no constitutional provision that permits primordial institutions to be part of the District Assembly, even if they participate in the activities of the Assembly, they do so on the expressed will of the Assembly. There is a convention that makes the chief part of the deliberations of the Assembly, but that would not be a representation of primordial institutions. In all, it’s the Assembly that determines which of the primordial public takes part in the Assembly’s activities, and also, which local practice becomes a law in the local area. Both the state policy and regulations on wetlands in Ghana states “A District Assembly where a Ramsar Site is located may in consultation with the Minister prescribe custody and traditional conservation practices which are compatible with the Ramsar Convention and permitted under these Regulations” (L.I 1659 (5)1). Therefore, it is the power of the state and Western science that regulate what role local knowledge and local institutions play in the Keta Lagoon management plan.

The predisposition of the postcolonial state from the above has shown a misconception of *excluded common*, neglect of communal ownership and the interceding *time-labor*, and obliteration of local *epistemic tools*. The misconception arose in the recourse to *methodological individualism* in Western resource management. This is where the Keta Lagoon management plan would seem to have divided Keta Lagoon into public and

communal property. The public areas are the core zones that are so designated and owned by the postcolonial state and protected as safe havens for migratory birds. A strict application of *methodological individualism* exposes *excluded commons* that would not have individual ownership or public ownership. The *excluded commons* is a conceptual gap in the application of *methodological individualism* and possible weakness in practical application to resource management. The nature of Keta Lagoon is such that protection of a core zone does not protect the core zone from problems in the communal property. The Keta Lagoon management plan's approach is to educate the community about the *wise principle* using local NGOs. The use of the term 'education' in this context could be an orientation towards Western principles rather than local. Yet, the unique Anlo communal ownership and epistemic tools are local elements that can achieve the same ends without the imposition of Western values born out of wetland encroachment in Western industrial society. Communal ownership reveals Anlo people believe Keta Lagoon is collectively shared and collectively managed by the living, for the departed ancestors and posterity. This belief impressed upon individuals to owe a duty of care for the resource, if nothing at all, for their collective existential survival and amity with future generations and their ancestors.

It seems clear from the objective of local people that there are temporal interests in the Lagoon, and long-term interests as well. To maintain both time-bound interests, they have moral laws to regulate the conduct of community members and fishers. From the Anlo sentence "bo saw gnu", there is some level of education in the local community to bring the moral laws into awareness of citizens. Fishers enforce the moral laws directly, the gods do so indirectly through withdrawal from the community, such as drying of the Lagoon, or a situation of the low fish harvest. As Horton (1967) has pointed out, these attributions to the gods may not have a causal link in Western science, but they form ecological knowledge of local people and are beneficial to the sustenance of ecological character as spelled out in the Keta Lagoon management plan (Table 1).

More precisely, the soft-foundationalism in Anlo philosophical approach admits a role for the gods and a role for humans in the physical world. As such, there is a link between moral laws and epistemic tools. In the view of Awoonor (2010), the moral laws have accumulated local experiences about the Lagoon, whilst Midawo (2018) suggests there is a permanent moral law that the gods appear to have given to ensure the gods reside in the community. The presence of the gods is in tandem with the sustainability of ecological character. The Anlo epistemic tools, for example, Atsidza, function as a means of justifying the moral laws, or as a means of knowing what is wrong with the Lagoon and also determining which practices should be repeated or which ones should be rejected. The fishers in Anloga rely on knowledge from the epistemic tools to know something is wrong and proceed to consult Bokor, the diviner. Through consultation, a day is chosen to observe a ban on fishing.

On the question of sustainability, the salient point is, Anlo has local knowledge that regulates human and Lagoon interaction. The local knowledge includes moral laws and

epistemic tools. The local knowledge ensures the people maintain vigilance on the Lagoon to prolong the lifespan of the Lagoon. Though Ramsar's objective is also to prolong the lifespan of the Lagoon, it has engaged the Anlo knowledge adversely (Table 3). If local people are oriented towards the Western construct of *wise use*, and the institutionalization of NGOs, it would tend to undermine Anlo's knowledge as a system. The tension between local management and Ramsar does not sustainably relate. More importantly, Ramsar selects an element of Anlo knowledge systems that are deemed to have ecological value, the execution of that selected practice can end up becoming a strange practice to the local people. The NGOs, Wildlife Division, and District Assemblies do have the power of the postcolonial state, but that would not mean they implement local knowledge in a manner that would be acceptable to the primordial society.

To guarantee sustainability between Ramsar and the local people, the four principles of adaptive management would have to be utilized.

5.1 Application of Adaptive Management

5.1.1 Consensus Building

The adaptive manager could be selected by Wildlife Division but because of the presumptions about local knowledge being non-scientific, the adaptive manager would first have accepted the validity of the consensus-building method of treating knowledge from all perspectives as pertains to Anlo local knowledge. Second, in line with consensus building, the Keta Lagoon management plan should be revised to tap into Anlo local knowledge and institutions of priests/ Bokɔ instead of NGOs. Second, the adaptive manager recognizes the power of the postcolonial state and Ramsar but focuses solely on the wetland phenomenon taking into cognizance communal ownership and time-labor as indicative factors that the local people have a collective interest in the Keta Lagoon and then make efforts to preserve the ecological character of the Lagoon. The wise use principle in the Ramsar convention should not be the overriding issue. Fourth, consult primordial institutions as well as the civic public.

5.1.2 Experimentalism

The adaptive manager would have the task of depending on local epistemic tools to validate Keta Lagoon practices that are relevant to prolong the ecological character of the Lagoon. This study has identified Atsidza as one of the epistemic tools among Anlo fishers. Atsidza would be relevant to an aquatic component of the ecological character. The adaptive manager would have to find other relevant terrestrial epistemic tools; this could be farming at the bank of the lagoon as indicated in figure 3 above. In that case, the fishers (farmers) who own the epistemic tools could constitute a team for periodic deliberations about the findings from the epistemic tools. This research has also pointed out the important role Bokɔ plays in Anlo's local knowledge. Therefore, information from Bokɔ's act of divination would be another source of information. The adaptive manager could initiate an experiment on current practices and on nature-stuff that have to be

safeguarded to remove uncertainty about prolonging their lifespan. The experiment the adaptive manager initiates could be based on a Western science lab experiment.

5.1.3 Multiscalar Analysis

The Lagoon has various components that form the ecological character (Table 1). The adaptive manager would have to identify the respective epistemic tools for each of the components, then generate information from different times and seasons, and for a period. It is clear from the above that there would be three sources of information, fishers' epistemic tools, lab-experiment, and Bokɔ's divination act. Information from the three sources would have to be analyzed based on Anlo consensus-building style without a presumption that one is superior to another. In doing so, attention is paid to 'covering laws' and the preconditions of any problem that may be identified from the pieces of information. The indication from the analysis could lead to the revision of Anlo's moral laws. This would mean the Chief and elders would have to deliberate and effect the change as such. Since the source of this is coming from the fishers and Bokɔ it can be consistent with Anlo's local knowledge. The implementation of moral laws through this procedure could be easy because the fishers, would know their epistemic tools and their livelihood would be in danger.

It is possible that information from the three sources may not be in agreement and as the history behind the role of the Chief shows, he may decide to side with the civic public or primordial public. But where the adaptive manager is appointed by Wildlife Division and the adaptive manager indicates precisely the role of Bokɔ and the fishers, the Chief may agree with both the adaptive manager and primordial society. In that case, there would be no clear political influence to shift the support of the Chief to one side. Another possibility is, for example, le, Bokɔ's divination may reveal that the gods do not want a particular moral law that information from the adaptive manager's lab experiment suggests. In so far as Anlo holds a soft foundationalism viewpoint, the foregoing example is a real possibility. In that regard, the information from the fishers' epistemic tools may prevail. However, the adaptive manager could identify equivalent local epistemic tools which could deliver the same result so that the local people could come to the same determination from the lab experiment.

It has been made clear in the Keta Lagoon management plan that Anlo population poses a threat to the Lagoon. However, that determination did not factor in *time-labor* intervention. The adaptive manager can apply the time-labor concept to the population size to know the effect of population on the Lagoon. GSS (2014) population census gives the total population in the Keta Municipality as 147,168. *Time labor* directly relates to a certain active group of the population. That is, those who have time and labor to spend on Lagoon fishing. Also, what they spend their time and labor on is likely to attract responsibility and duty of care. GSS population census states that the active age group starts from age 15 and older who are engaged in economic activities. A total of 20,576 males and females are employed in Agriculture, forestry, and fishing representing 19.1 % of the total population. The population of Lagoon fishers would be far lower because

GSS total figure includes both sea fishing (Sf) and Lagoon fishing (Lf). And also, fishing in Anlo is predominately a male activity. The likely total number of Lagoon fishers would be $Lf = 20,576 - Sf$. It is the activities of Lf that the adaptive manager would have to consider about the ecological character and the size of the Keta Lagoon. When the activities of Lf comply with the moral laws, then the adaptive management can be said to be sustainable. When they are not, the adaptive manager would have to bring it to the attention of fishers and Bokɔ and start consensus building on the specific activities and the problems they pose to the ecological character.

5.1.4 Place Sensitive

Though Anlo people speak the same language and have the same culture, there are some differences among them concerning deities, location to the part of the Lagoon, and peculiarities. Those at the eastern end of the Lagoon have more salinity than those in the western end, therefore, the types of fish that inhabit each section varies. There are also areas of the Keta Lagoon that vary in depth. The adaptive manager would have to be sensitive to these in the multiscale analysis. Given that, the adaptive manager could work with fishers in the respective towns, Bokɔ, and the sub-chief.

5.2 Conclusion

The key argument of the thesis is anchored on the claim that the Ramsar wetland concept was conceived from the Western point of view and promoted as a generic standard among the contracting parties. Consequently, the contracting party's scientists and ecologists from the civic public appreciated the management of Keta Lagoon from the Ramsar perspective. In support of this claim, it was demonstrated how the urgency about the wetland conservation, after the Second World War, shaped the approach of IUCN, which eventually influenced the setup of the Ramsar Convention. Indeed, in the formulation of the Ramsar convention, the initial contracting parties made inputs until the final articles of the convention were agreed upon. Post-World War II concerns about conserving the wetlands for migratory birds were still an overriding factor. As such, the *wise use* principle in the convention is essentially about conserving wetlands for migratory birds or because of the migration of birds. Admittedly, there is flexibility for contracting parties to craft their management plan from their nation-state point of view. However, not much can be made of that because the management plans have to conform to the objectives and principles in the Ramsar convention. Also, there are already existing disagreements between Western science and local knowledge. Those disagreements found expression in civic public where the contracting party's scientists and ecologist have their orientation, and primordial public base their orientation on local knowledge. The civic public's orientation towards local knowledge was framed in Western science and Western pragmatic philosophical approaches, and coupled with traces of methodological individualism, coalesced in the theory of commons, trickled down through Western academic disciplines, the World Bank and International Monetary Fund's policy imperatives to the postcolonial states. In that civic public orientation, only selected aspects of local knowledge are utilized in the management of Keta Lagoon. Besides, it

glossed over intricate communal ownership of Keta Lagoon. It has been shown in this thesis that local people have epistemic tools which some respective members of Anlo owned in the commons. The nature of the epistemic tools is such that it imposes a duty of care and responsibility on the fishers not to damage the ecological character of the Keta Lagoon. The fishers could also use the epistemic tools to validate knowledge about the Keta Lagoon and develop new measures or do away with existing measures, that would make the ecological character of the Keta Lagoon sustainable. Some ecologists have acknowledged the importance of local knowledge in providing practical know-how on how to live with the ecological character of wetlands (Berkes et al 1998). The nature of practical living experience with wetlands is lacking in Western science and Western industrial societies. Therefore, the narrow selection of aspects of local knowledge would not make the full benefits of local knowledge available in managing Keta Lagoon as is currently done in the Keta Lagoon management plan. Also, the mere fact that the selection and implementation are done outside Anlo local institutions and local knowledge bearers makes the selected local knowledge inadequate and adversely engaged. That type of engagement would not make the local knowledge function as it could in the local context, and therefore, could not be sustainably implemented with Western science. The way out of the problem lies first in Anlo's principle of consensus-building and Norton's three principles of adaptive management. These constitute four principles of adaptive management which are consensus building, experimentalism, multiscalar analysis, and place sensitivity. The four principles would be ideal for a sustainable engagement of the Keta Lagoon management plan and local knowledge. By the biological theory of Charles Darwin on local adaptation and John Dewey's philosophical view on constructing the universal as an assemblage of particulars from the local level, Ramsar can adopt the four adaptive principles to grapple with wetlands in the world.

From this research, it has emerged that the postcolonial 'philosophizing leaders' appropriated Western political and economic philosophy in the bid to gain independence. In post-independence, they sought to formulate African political and economic philosophy. However, it appears African environmental philosophy has not been pronounced upon, though local knowledge holds repositories of environmental philosophy. An in-depth study would therefore establish what the views of the philosophizing leaders were at the point of constructing the postcolonial state. Parallel to that is the issue of commodification of nature in the colonial and postcolonial periods. The theory of the commons hints at the idea of carrying capacity, and the Keta Lagoon management plan also raises the issue of population impact on the ecological character, a study can be conducted to examine the notion of carrying capacity about Lagoon related population, time-labor and methods of fishing. Finally, the use of Anlo proverbs could be a creative method to retrieve ancestral scholarship on carrying capacity as well.

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Abstract

Wetlands have gained immense importance in scientific discussions as well as in governmental policy discourses since the 1970s. The Ramsar convention provided a certain clarity of definitions concerning wetlands and their natural and societal importance. However, the current scientific understanding of wetlands was construed in Western knowledge production centres. One of the consequences was, and still is, that local knowledge on wetlands is disguised, or even worse, completely ignored. This research explores archival records, using methods of historical archaeology and ethnography to unearth and carve out Anlo's local knowledge on wetlands in Ghana. Implicit in Anlo local knowledge are unique forms of wetland ownership, management approaches and Atsidza as an epistemic tool. Local knowledge is examined in the context of scientific evidence on the precarious state of the Anthropocene age that demands a search for sustainable solutions to Western science and industrialisation. Bryan Norton's conceptual framework of adaptive management grants an important role to local experimentation, and therefore, is considered to be a pivotal tool for sustainable management. Yet, adaptive management needs Anlo styles of consensus building to engage local knowledge and Western science in wetland management adequately. Adaptive management is then amended to suit postcolonial studies of knowledge production and is likely to contribute to the growing body of local knowledge that postcolonial theories have rather underestimated or even ignored so far.

Keywords: Anlo, Ramsa Convention, Adaptive Management, Consensus Building, Commons