

Indigenous Water Resource Conservation Practices in Contemporary Ghanaian Society

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Abstract: This position paper discusses indigenous water resource conservation practices and modern methods to address challenges in Akwamu traditional area in the Eastern region of Ghana. Africa is bedeviled with environmental crisis in this 21st century, and this has been a major concern to environmental conservationists. In Ghana, one of such environmental crisis is pollution of water bodies as a result of indiscriminate human activities. Some have argued that non-recognition of indigenous knowledge in the management of water resources has been one of the major challenges of water resource crisis in Africa and Ghana is no exception. In the life and thought of indigenous people of Ghana, studies confirm that conservation of water resources is enforced through traditional religiously governed norms which have stood the test of time before formal institutions responsible for biodiversity conservation were established by government. Using Akwamu traditional area in Ghana as a case, this study explores how the indigenous people manage water bodies and to find out the possibility of incorporating indigenous knowledge practices and modern methods to address the current water resource problems in Ghana. Primary and secondary sources are employed for data collection. The study is carried out within the concept of 'worldview' to understand how indigenous people manage the environment through their indigenous belief systems. The findings are that; indigenous knowledge practices are potential tools for addressing water resource crisis in Ghana. The study also indicates that if indigenous knowledge practices are used alongside with the modern methods in water resource management, our water resource problems would be minimized if not totally solved in Africa.

Keywords: Indigenous, Water Resource, Conservation, Practices, Society**How to cite this paper:**

Kwasi Osei, B. (2023). Indigenous Water Resource Conservation Practices in Contemporary Ghanaian Society. *Universal Journal of Social Sciences and Humanities*, 3(1), 1–10. Retrieved from <https://www.scipublications.com/journal/index.php/ujssh/article/view/573>

Received: August 24, 2022**Accepted:** October 4, 2022**Published:** January 3, 2023

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1. Introduction

Africa is bedeviled with environmental crisis in this 21st century, and this has been a major concern to environmental conservationists. In Ghana, one of such environmental crisis is pollution of water bodies. Dumping of human and industrial wastes into water bodies, illegal surface mining, bad farming practices, among others are the major causes of water pollution in Ghana [1]. One would have thought that the introduction of formal institutions which are enshrined in policies, regulations and international conventions by the state could solve water crisis in Ghana, yet the problem still persists, endangering the lives of many people in the country, considering the socio-economic values of water resources. However, some scholars argue that the non-recognition of indigenous water resource conservation practices has been a major challenge to water resource crisis in Ghana. They contend that management of water resources is more like a "top down" model, where policies and programmes are formulated by the central government and relayed down to the local people without incorporating their views and ideas in the management of water resources [2]. Meanwhile, in the life and thought of indigenous people of Ghana, several studies confirm that before the introduction of formal

institutions in the management of natural resources such as water in Ghana, indigenous societies had elaborate natural resource management systems which were based on their religious beliefs and practices [3, 4].

Basically, the exploitation of the natural resources was systematic and done through the inspiration of spirit mediums and through the guidance of traditional institutions [5]. With this mechanism, no one could mismanage his/her natural environment and go free without the anger of the gods. The anger and punishment that were arranged for persons who mismanaged their natural resources were severe, thus, community members were mindful in utilising the available resources. Therefore, certain areas such as woodlands, water bodies, mountains and certain animals, among others were considered sacred and were not to be abused. These practises helped to conserve the natural resources such as water bodies [6]. This shows that indigenous water resource conservation practices in Ghana existed before modern methods of water conservations were introduced. In this study, primary and secondary data sources were used to examine indigenous water resource conservation practices in contemporary Ghanaian society with particular reference to Akwamu traditional area in the Eastern region of Ghana. Specifically, the study sought to address these issues - (1) Assess the nature of pollution associated with water resources in Ghana. (2) Examine how environmental conservation (Water resource) is shaped by the worldview of indigenous people of Ghana. (3) Examine indigenous water resource conservation practices in Ghana with reference to scholarly work done at Akwamu traditional area. (4) Examine challenges to the effective use of indigenous water resource conservation practices in Ghana in this contemporary times.

2. Water Resources and Pollution Problems in Ghana

Water resources constitute an integral part of the ecosystem, supporting human lives, flora and fauna in various land surfaces of the world [6]. This important resource is also essential for a wide range of economic activities that include hydropower generation, transportation and production of fish. However, its availability is threatened by anthropogenic actions with serious negative consequences for the global population [7]. In Ghana, water bodies which serve as sources of potable water face huge challenges in terms of pollution as they journey through economically active zones. Awuah-Nyamekye for instance observed that inadequate industrial and domestic wastewater management has resulted in the pollution of most surface water resources in and around urban areas in the country. He also stated that some inland fishermen use poisonous chemicals such as dichlorodiphenyltrichloroethane DDT in their fishing expedition, thereby endangering many aquatic lives and water quality in the country [8].

In a survey conducted in the south-western parts of Ghana, it was revealed that about 60% of water bodies were polluted with most of them in critical condition as a result of industrial waste, illegal mining, farming and household disposals [1]. Another study also conducted a survey in some selected regions of Ghana and it was observed that water bodies have been polluted due to indiscriminate human activities [9]. In the Western region for instance, the researcher observed that rivers such as Pra, Daboase, Tano and Ankobra have been polluted. In the Eastern region, rivers such as Birim have been polluted, compelling Ghana water company to construct boreholes to serve the masses, because the water treatment plants in Kyebi were forced to shut down due to pollution of the river [9]. In the New Juaben communities in the Eastern region, water bodies have been polluted due to fishing activities. A study asserted that minimal chemicals were being used in treating the water from the Volta river, but currently the chemical usage is high due to gradual increase in pollution [9]. The Densu river in the Greater Accra region which is situated around the Waija and draws its water source from Western Accra has been polluted due to industrial waste and farming activities. The Densu river journeys through the coastal savannah areas and in these coastal savannah areas, it has been recently found that the influence of over fertilization of the soil with chemicals has a direct

impact on the nitrogen loads of the waters [10]. In the Central region, some water bodies particularly in Cape Coast have been polluted due to illegal mining activities. The situation is not different in Brong Ahafo and Sunyani as residents have been blocking the course of the river at definite intervals to prevent water from flowing into some areas in the region in order to irrigate farms [9]. In Ashanti region, residents have been battling with water pollution. Notably, the Enu river which serves residents at Konogo is polluted due to illegal mining activities. In the Northern region, the basic activity causing pollution of water bodies is sand winning and illegal mining activities [9]. For instance, the Nawuni river in the region has experienced massive sand winning activities and that has continuously altered the color of the River [9].

In Akyem Akokoaso of the Eastern of Ghana, Daily Graphic report on November 6, 2021 indicated that due to the heavy pollution of the Aboabo river, which serves as the main source of drinking water for domestic chores as well as for small-scale palm oil production, residents now resort to using sachet water for their various chores. The report further indicated that the river that runs through a palm plantation had almost dried up. This current state of water bodies has raised concerns to stakeholders across all divides in Ghana.

3. Indigenous Worldview and Environmental Sustainability in Ghana

A number of authors argue that natural resource management is underpinned by indigenous worldview. To these authors, indigenous societies claim that their worldviews have been the foundation for sustainable natural resource management [11, 12-13]. Some researchers contend that the sustainability of natural resources needs ecocentric models of relationship with the environment, and that indigenous cultures provide such models and therefore there is the need for multicultural societies to include their values in natural resource management [14]. This means that the way societies manage their natural resources is a reflection of their worldview. The relationship between humans and the environment is informed by the worldview that people hold about the universe [15]. One such worldview is the 'planetary management worldview' which states that, human beings are the most important and dominant species and that the earth should be managed according to human needs. This worldview places all forms of creation, such as plants, animals and water in the hands of humans. Planetary worldview in this sense focuses solely on how humans can benefit from the existence of other aspects of the earth. The second worldview which an author points out is the 'environmental stewardship'. According to this worldview, humans have an ethical responsibility to be caring and responsible managers, or stewards of the earth [15]. The third worldview is 'Earth-centered worldview' which holds that because humans and all forms of life are interconnected parts of the earth's life-support system, it is in their own interest not to act in ways that would impair the overall system. This means that since human beings are part of the ecological processes that sustain all lives, and since the sustainability of all species depend on the biosphere of which humans are part, they have an ethical responsibility to prevent degradation of the earth's ecosystems.

Among the Akan societies in Ghana, a study argues that their worldview is underpinned by religious beliefs which form the basis for the sustenance of the environment [8]. The universe is seen as God's creation, and all the elements of creation that serve as sources of sustenance for human life such as trees, animals and rivers are given more attention, because the Akan societies believe that everything that belongs to the ecosystem and the environment has a strong spiritual meaning for humans. This worldview which the Akan hold about the universe enjoins them to be good environmental stewards [8]. Traditional African ecology is inseparably linked with traditional religion, because environmental protection is sanctioned by God and the ancestors of the land [16]. Researchers' submissions are evident in the worldview among the Ashantis of Ghana who believe that natural resources are highly revered because they

are considered as places of abode of the gods and the ancestors [8, 16]. Therefore, farming, indiscriminate felling of trees and other anthropogenic activities that affect the quality of the natural resources are considered as taboos, therefore, violating them attracts punishment from the gods and the ancestors [17]. Sustainable environmental conservation is said to be unachievable without adequately factoring cultural attributes such as religious beliefs and practices which shape people's worldview into environmental conservation policies [18]. This shows that the sustainability of the environment largely depends on the cultural beliefs of people which shape their worldview.

Following the foregoing discussions, one would conclude that the 'worldview' which is underpinned by beliefs that people hold about the universe forms the basis for their conduct towards the sustenance of the environment. The 'worldview' as used in this study is seen as a useful framework, because it provides a tool for analysing the religio-cultural beliefs and practices which constitute the worldview of Akwamu people in the sustenance of their environment as far as water resource management is concerned.

4. Indigenous Water Resource Conservation Practices in Akwamu Traditional Area

This section examines how religio-cultural beliefs and practices which form the worldview of the people of Akwamu traditional area influence their attitudes towards water resource management. It begins with a brief history of Akwamu traditional area and followed by two major religio-cultural beliefs and practices which underpin the worldview of the people in Akwamu traditional area in the conservation of water resources.

4.1. A brief Historical Background of Akwamu traditional Area

Akwamu traditional area accounts for about 55% of the total population of Asuogyaman District in the Eastern Region of Ghana [19]. Some of the major towns in Akwamu traditional area are Akosombo, Atimpoku, Senchi, Akwamufie, Gyakiti, Adjena and Akrade. The population of the area is heterogeneous in terms of ethnicity and religion. The predominant ethnic group is the Akan followed by Ewe people. Other ethnic groups make up the remaining portion of the population. The dominant religion in the area is Christianity followed by Islamic and Traditionalists which account 89 percent, 6 percent and 5 percent respectively. The current chief and queen mother of Akwamu Traditional area are Nana Kwafo Akoto III and Nana Afrakomaa II respectively [19].

4.2. Religious Life of Akwamu people

Religiously, prior to Akwamus' encounter with the Western culture in the latter part of the 19th century, their indigenous religion, which is now known as African traditional religion was the only religion known to them and this faith has profoundly influenced their lives and thought [20]. The people of Akwamu believe in deities called "abosom" as personified spirits. They have family and community gods they pray to for protection and prosperity. The "abosom" are believed to be the children of God and are believed to inhabit in images, rocks, mountains, caves, trees, rivers and other natural objects and this belief makes the people treat such natural objects with a form of reverential respect [19]. The Akwamus have a very special place for the ancestral spirits who occupy a very unique position in their lives. Ancestral spirits are the spirits of the dead who have departed from the land of the living and are believed to be in the land of the dead known as "asamando". The Akwamus believe that through the ancestors, they are able to communicate with God and through that they petition on peoples' behalf when they do something wrong against the Supreme Being through libation.

4.3. Socio-Economic Life of the Akwamu People

In Akwamu traditional area, fishing in the Volta river constitutes an important part of agricultural business. Also, the Volta River Authority and Akosombo Textiles Limited

form the major industries which employ the youth in the area. Major hotels such as the Volta Hotel, Benkum Motel, NP Plaza, Senchi Royal Hotel, Akosombo Continental Hotel, Afrikiko River Front and Sajuna Beach Park in the area also contribute to the socio-economic lives of the people. Atimpoku, a suburb of Akwamu traditional area is a major commercial center where traders meet to trade. The brisk business activities at Atimpoku is due to the presence of the 'Adomi Bridge' where, vehicles cross as petty traders outclass one another to reach vehicles to either sell "abollo", "one mouth thousand", shrimps, iced water or bread, while electronic stores and drinking bars are alive with music to attract potential customers [19].

4.4. Religio-Cultural Beliefs and Water Conservation Practices in Akwamu Traditional Area

In the life and thought of the indigenous people of Akwamu traditional area in history, management of water bodies is enforced through religio-cultural beliefs and practices. These practices have been in place over the years to protect and manage river bodies in sustainable way before formal institutions in charge of managing natural resources were established by the government (Personal communication with Opanyin Kwabena Awuah, 30th June, 2021). Two major religio-cultural beliefs and practices which form the worldview of the people of Akwamu traditional area in respect to water resource management are the institutions of taboos and sacred grove.

4.4.1. Institution of Taboos and Water Resource Management

In Akwamu traditional society, the significant role of taboos in the conservation of water bodies cannot be underestimated. The threat associated with taboo makes Akwamu people treat natural resources such as water with care. In Akwamu worldview, water bodies are regarded as sacred and therefore it is a taboo to catch fish from these water bodies on taboo days. In an interview with a traditional leader in Akwamu traditional area, he explained that "taboo days" are called "nkyida or nnabɔne. According to him, "Nkyida" literally means "hateful day", while "nnabɔne" "which comes from the two Akan words, "da" (day) and "bɔne" (bad) literally means 'bad day'. "Nkyida" and "nnabɔne" are used interchangeably in Akwamu traditional area to denote "taboo days". In his explanation, "taboo days" or "nnabɔne" are days' sacrifices are offered to the ancestors and it is expected that no one works on that day in the community including fishing. The respondent indicated further that even though taboo days are sacred days for the ancestors, they are also hateful or bad days for people because of the repercussion or misfortune people go through when they violate the taboo rules. He noted that, there are countless number of misfortunes that befall on people who infringe upon the restrictions put in place during these taboo days. He gave a story about a man who never harvested fish for a whole year in the community because he attempted to catch fish during one of these taboo days. It therefore took the man to pacify the river gods before he could harvest fish from the river [19]. In explaining the philosophy underpinning these taboo days, the respondent said that the restrictions placed on fishing during taboo days help to promote sustainable use of the river by allowing it to rest in order to regenerate itself. He cited an instance where a ban on fishing on the Volta during Aday festival helps the fishes which are believed to be the gods of the Volta to grow for more production. This shows that the attitude of people in Akwamu traditional area towards taboo days is a positive approach to conscientise them on the need to conserve their environment such as water bodies. This idea is in line with Awuah-Nyamekye's assertion that in Akan societies, all elements of creation that serve as sources of sustenance for life, such as trees, animals and rivers are given more attention [8].

The people of Akwamu traditional area believe that water bodies are associated with gods or abosom who relay taboo rules to the indigenes through a fetish priest who is the mouthpiece of the gods. These gods ensure that the indigenes keep lakes and rivers pure

because they are regarded as the dwelling places of the gods (abosom). The rationale is to protect the water bodies from pollution and to avoid many water related diseases which can affect the health of the people. In view of high premium put on water bodies by the Akwamus, it's a taboo to have open defecation along the river banks. When one is caught in such act, he or she is said to have offended not only the community, but also the gods. The person is therefore not recognized as a member of the community because he or she is unclean or polluted and as such a ritual rites have to be performed to atone his or her sin in order to be integrated into the community and the ritual rites go with cost by providing two bottles of foreign schnapps, one ram and a white fowl to pacify the gods (Personal communication with nana Samanhyia, 6th June, 2021).

4.4.2. Institution of Sacred Grove and Water Resource Management

The institution of sacred groves is held in high esteem among the people of Akwamu traditional area because of the religious underpinning attached to them. In Akwamu traditional area, a sacred grove is located close to the Volta River known as "abosom mpo", meaning, the dwelling place of the gods. It comprises objects such as trees, stones and a small water body whose source is the Volta River. According to the respondent, the grove is strictly protected by taboos for religious and conservation purposes. It is a taboo for non-royal members to enter the sacred grove, and that if a non-royal member enters the grove, he or she faces serious punishment such as offering seven sheep and seven schnapps to pacify the gods [19]. Also, it is a taboo to kill any animal in and around some parameters of the grove. A respondent said that in the past, no one could harvest snails from the grove and whoever violated the law would get missing for three days walking in the grove. It is believed that since the sacred grove is reserved for only the royals, non-royals are still not permitted to enter there to harvest snails, but those that move along the street and in front of the grove can be harvested.

Christians and Muslims were asked whether they believe taboos related to the sacred grove among the Akwamus and they said that *"even though they don't believe in them because of their Christian and Islamic doctrines, they have been told about the history of the sacred grove and what happened to people who violated the taboos, so they fear to challenge the law"*. One of the respondents who is related to the royal family of Akwamu confirmed what the Christian and the Muslim respondents said and added that though he has never seen that someone has got missing for three days for harvesting snails from the grove, but because the laws are believed to have come from the gods, no one wants to experiment it. This shows that since violation of taboos is thought to invoke the anger of the gods, no one is prepared to act in such a manner that repercussion befalls on him or her.

On the issue of people being killed when they enter the sacred grove, the respondents explained that in the past, non-royal members who entered the sacred grove were instantly killed by the executioners. However, that tradition has been abolished and has been replaced by seven sheep and seven schnapps to perform rituals to pacify the gods and ancestors who are believed to have been defiled. The respondents said that in the olden days, human blood was needed to appease the gods when they were offended, but in this 21st century, a stop has been put on the practice of human sacrifices as a result of civilization. Findings from the above analysis show that the Akwamus still strictly adhere to the taboos associated with the sacred grove, but those that are inimical to human development have been wiped out [21]. The above assertion was supported by previous study that the creation of sacred groves was informed by religious and cultural motives, but recent studies among indigenous people including those of the Akan have shown that the concept of sacred groves is also underpinned by conservationist motives [18]. This assertion was also evident in an earlier study that, while the histories of most sacred groves have spiritual or religious beginning, the primary motivation is to conserve nature [8].

5. Challenges with the effective use of Indigenous Water Resource Conservation Practices in Ghana in this Contemporary Times

Available studies have shown that engaging indigenous belief system in the management of natural resources such as water in Ghana of which Akwamu traditional is no exception has been practised over centuries. This practice has encouraged the indigenous people to live in harmony with nature. Regrettably, it has been observed in recent times that, the use of indigenous knowledge in water resource conservation practices has not been effective. This has resulted to pollution of our water bodies as a result of indiscriminate human activities associated with fishing, farming, human settlement and industrial activities, posing serious threat to the lives of Ghanaian people. The question worth asking here is that, what factors militate against the effective usage of religio-cultural beliefs and practices in the management and protection of our water bodies as they used to be in the past? This is what this section seeks to engage.

5.1. Over-Reliance on Western Style of addressing Environmental Issues

Evidence available shows that right from independence, successive governments in Ghana have been aware of the potential roles of indigenous knowledge in managing environmental issues, but have failed to give indigenous knowledge serious consideration in their policies [22]. Basically, none recognition of indigenous knowledge in government policies to Ghana's adoption of the "Western" perspective of developmental issues which compel government to place economic growth high on its developmental agenda at the expense of preserving natural resources, leading to the marginalization of indigenous knowledge of conservation in environmental policies [23]. The Western view adopted by Ghana does not only perceive humanity as superior and in charge of creation, but also sees indigenous knowledge of conservation as 'savage superstition' and unproductive [23]. A researcher, therefore blames government for her over-reliance on scientific means of addressing the environmental issues in the country to the exclusion of the use of indigenous methods that should be seen as being complementary to those of science [24]. It was further contended that more science and more technology are not going to get us out of the present ecological crisis until we find a new religion, or rethink our old one [24]. It is evident that this Western style of development is in conflict with indigenous knowledge of conservation among the Akan people of Ghana of which the people of Akwamu are no exception. While the scientific approach seeks to exploit natural resources for economic development now, indigenous knowledge on the other hand seeks to preserve it for the future generation through measures such as the institution taboos, sacred grove, the belief in totemic animals among others. It may be against this back drop that policy makers in Ghana today exclude indigenous knowledge in environmental policies, as it appears not to champion the cause of government's developmental agenda, and therefore is seen as counter-productive [23].

A study postulates that the Western view of nature was through the lenses of science which empowers humans to master and utilize nature for their own betterment, because decisions with scientific knowledge often command acceptance based on evidence than indigenous knowledge and beliefs [25]. A researcher, however contends that indigenous knowledge of conservation may not be inferior to modern and scientific methods as some people claim [3]. He explains that while indigenous knowledge and beliefs are transmitted through oral tradition, they are verified, validated and revised daily and seasonally within a specific geographic context and environment [3]. This is in opposition to Western science which thrives on a set of assumptions on which knowledge generation is tested for validity. He further, therefore proposes that despite the variations between Western science and indigenous religio-cultural beliefs, both can complement each other for the conservation of natural resources [3]. Although indigenous knowledge of conservation is not officially acknowledged in Ghana's environmental conservation policy presently, some Non-Governmental Organizations (NGOs) and researchers are recognizing the

significance of various traditional religious beliefs and culture-based knowledge schemes in dealing with the alarming environmental crises [26]. Also, the value of indigenous knowledge and beliefs for the protection of biodiversity and the attainment of sustainable development goals are gradually being acknowledged globally. For instance, Article 8 of the UN Convention on Biological Diversity advises humans to respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity [27].

5.2. Introduction of Western Religion and Education

Until the advent of colonization and Christianity, the system of government known and practised in Ghana was chieftaincy, a system of governance or political arrangement under which the leader is known as a chief. The chief is viewed as the source of all traditional authority who ensures that traditional norms are obeyed [24]. It is important to note that things took a different dimension when the colonial masters gained ground in the affairs of Ghanaians. The colonial administrators passed legislations that were influenced by Christian principles which disregarded indigenous institutions that formed the basis of nature conservation. For instance, some of the youth who had been converted to Christianity resorted to burning down shrines, and in some cases show gross disrespect to rules instituted by their respective traditional authorities, because they had been told that such injunctions were primitive and unchristian [24]. researchers' assertion supports a claim made by a Christian respondent at Akwamu who had this to say, *"I don't comply with the taboo which forbids people for travelling on taboo days in Akwamu traditional area because it violates my right of movement"* [21, 24]. It is important to appreciate that the encounter between Christianity and Traditional religion has brought a gradual replacement of traditional system of government with the western liberal democracy with Christianity principles to weaken the authority of the chief. The direct consequence of this is that taboos, totems, the institution of sacred groves and others, which thrive on traditional religion and culture, have been removed and now at the mercy of people. It is for this reason previous study remarked that sacred groves have become increasingly marginalized institutions, and therefore accessible for resource exploitation. Indigenous knowledge and beliefs, including those that preserve the environment are being lost as more and more traditional societies become assimilated into Western culture and religions [29].

Like Western religion, formal education which was introduced by the missionaries also contributed to the gradual demise of indigenous beliefs and practices in nature conservation. A study expounds that formal education has contributed to the demise of indigenous beliefs either by commission or omission. Thus, formal education has admitted children into a new world that lies outside the boundaries of indigenous communities [3]. Formal education tends to promote Western science and values at the expense of indigenous beliefs and values. It has also failed to put forward indigenous beliefs and knowledge as worthwhile subject matter and therefore has created attitudes in children that militate against the acquisition of indigenous beliefs and knowledge. As a result of formal education and Christianity, traditional leaders who serve as the representatives of the ancestors and custodians of traditional cultural values no longer see these cultural values as relevant to this modern world. It is therefore evident from the foregoing discussions that, the emergence of modernity or Western culture (education, religion and science) has paved way for a new wave of culture that has alienated Ghanaians from their indigenous values that were resilient for the conservation of natural resources. Many lands were once considered sacred, not to be disturbed, today all the noble values are destroyed under the cover of modernity and new religions.

6. Conclusions

This paper has discussed pollution problems associated with water resources in Ghana. This is followed by how environmental (Water resource) conservation is shaped by the worldview of indigenous Akan people and how they manage natural (water) resources through indigenous knowledge system. The paper has also examined the challenges associated with the effective management of water resource among Akan people in this contemporary times. From the paper, it is found out that the current states of river basins in Ghana are threatened with pollution due to anthropogenic activities. It is also clear from the discussion that in Akan societies, their worldview is underpinned by religious beliefs and practices which form the basis for the sustenance of the environment. The paper has further shown that among the Akan people of Ghana, management of water bodies is enforced through religio-cultural beliefs and practices such as the institutions of taboos and sacred grove which were very effective in the past before formal institutions in charge of managing natural resources were established by the government. Among the people of Akwamu traditional area, the paper reveals that they strictly adhere to taboos associated with sacred groves, but those that are inimical to human development have been wiped out. The paper has also made it clear that in recent times, the potency of religio-cultural beliefs and practices in the conservation of water resources among Akan people of Ghana have declined due to over-reliance on Western Style of nature conservation and the influence of Christianity and formal education.

From the discussion so far, it is important to note that before the advent of Christianity and formal education, indigenous nature(water) conservation was inspired by religio-cultural beliefs and practices which were very effective. Even though modern methods have become alternative for water resource management in Ghana in recent times, the problems associated with water bodies continue to persist as far as pollution is concerned. This paper therefore proposes that policy makers, environmental conservationists and researchers are encouraged to revisit religio-cultural beliefs and practices that managed to live in harmony with our rivers and used them sustainably in the past. Therefore, it will be more appropriate to complement traditional management methods (customary laws) and modern methods (statutory laws) to effectively address water resources management problems in Ghana, because relying on scientific based model alone may not be enough to address nature conservation practices as far as water resource is concerned.

Author Contributions: Conceptualization; methodology; formal analysis; investigation; Resources; data curation; writing-original draft preparation; writing-review and editing; visualisation; supervision; project administration; Author has read and agreed to the published version of the manuscript.

Funding: “This research received no external funding”

Data Availability Statement: Data is available on request from the corresponding author.

Acknowledgments: We acknowledge respondents for their time with us.

Conflicts of Interest: “The author has declared no conflict of interest.” “No funders had any role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results”.

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