

The Conservation Ethos in the Asante Cultural and Artistic Elements for the Management of Ghana's Biodiversity

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Abstract

Cultural and artistic elements have often been criticized as frozen in time and less useful in conservation issues for biodiversity. The study was carried out to argue substantially that some of the Asante cultural and artistic elements still hold practical worth for the conservation of biodiversity in Ghana. A case and phenomenological studies under the qualitative research design were utilized in ascertaining the conservation worth of Asante cultural and artistic elements from a purposively and randomly sampled respondents of 112. The study revealed that Asante Cultural and Artistic elements have philosophical and scientific values that are compatible with scientific conservation approaches and hold great weight in modern biodiversity conservation initiatives. The study contends that for better results in biodiversity conservation in Ghana, conservationists must be helped to appreciate and utilize the cultural and artistic elements pertinent to biodiversity conservation as viable complements to the scientific conservation approaches.

1. Introduction

Asante cultural and artistic elements collectively are seen as very important in the conservation of the rich biodiversity resources in the environment (Adom, Kquofi & Asante 2016). Asante cultural and artistic elements, as used in this context refer to the traditional cultural practices that governed the activities of the Asantes including their behavioural attitudes towards the biodiversity resources in the environment such as cosmological belief system, taboos, festivals, sacred groves and totemic system. On the other hand, the Asante artistic elements are the performing artforms borne out of man's wisdom and experiences though some have religious affiliations that governed the behavioural attitudes of the Asante people (Gadzekpo 2013). Examples include proverbs, myths, folklores, moral values, music, dance and drama just to mention a few. These elements are artistic because they were creatively formulated or propounded by the Asante forebears. They were carefully planned and organized based on the rubrics of language and cultural values (Adom 2016c). Also, it has to be latent so that critical thinkers or the wise ones can glean their imports. They were cleverly organized with rhythm, balance, dominance etc. They were created by skilled people, old sages who have wide and time tested experiences in life. Some of them like the totemic animals and birds used as clan or family identification symbols are sometimes crafted and created into metal arts such as necklaces, wristlets and anklets (Adom 2014). Others are tattooed on the bodies of members of that particular clan or ethnic society. Moreover, the walls of traditional palaces, shrines and communal meeting houses are painted with some of the totems of the clan, family or ethnic society. Thus, since these are visually created and artistic media were used for their creation, they are artistic.

These cultural and artistic elements were powerful agents that greatly influenced the forebears of the people of Asante in demonstrating values that helped in conserving their biodiversity resources, leaving it to the younger generation in their pristine form which they were also mandated to do same or even leave it in a better state than they came to meet it (Danquah 1968). Culture is seen as naturally glued to the ideals of conservation and preservation (Witoszek 2013).

Adu-Gyamfi (2011) argues that the indigenous beliefs and cultural practices are more environmentally friendly and are better conservation strategies than the Western paradigms of conservation. Likewise, the artistic practices which were construed by the Asante forebears based purely on their great wisdom and experiences of the world around them are viable sources for biodiversity conservation. The Asante forebears, realizing the great support that biodiversity gave to their life sustenance, propounded various proverbs, narrated folklores, celebrated festivals and brainstormed numerous myths all in the quest of helping save the biosphere resources in the environment. Gadzekpo (2013) indicates that modern conservation planners and policy makers must consider the rich wisdom in these artistic practices and weave them into biodiversity conservation strategies because they are time-tested and were the ideal devices for biodiversity conservation in the past. The cultural and artistic practices of the Asantes were and are the driving force behind the prevention of resource exploitation in Ashanti and various areas of Ghana (Bonye 2007).

The Asante cultural and artistic elements and their roles in biodiversity conservation were successful because culture was and are believed to have influenced the thoughts and actions of the Asantes. Khan, Khumbongmayum and Tripathi (2008) opines that traditional culture and its practices clearly indicate a symbiotic relationship between human beings and the environment. Traditional culture dictates practically how each aspect of life must be led especially moral life such as living in harmony with the things in nature. The reverential fear for the things in nature, thus nature worship, which is enshrined in these cultural practices, is pivotal to the conservation of the flora and fauna species in the environment. It was believed among the people that a breach of the instructions in these cultural practices would result in misfortunes and even disasters for the offenders, extending to his or her lineage, clan or entire community (Gyekye, 1996). These misfortunes, according to Gyekye (1996), were believed to have emanated from the supernatural powers who meted out punishments for the display of a bad conduct such as needlessly cutting down of trees, urinating in rivers or polluting the environment. In addition, monetary and offertories were paid by culprits such as the presentation of livestock such as sheep, fowls, and schnapps (Boateng 1998). These spiritual sanctions and physical sanctions served as ‘traditional checks and balances’ for the conduct of the Asantes and a disregard for these cultural and artistic practices have resulted in the degradation of Ghana’s biodiversity (Adu-Gyamfi 2011).

In sharp contrast, the so-called elite in the Ghanaian society view these cultural practices as superstitious and even brand them as idolatrous (Adom 2016b). This accounts for the abandonment of most of these cultural and artistic practices in the formulation processes of conservation policy planning and the development of conservation strategies. The full integration of these values in the cultural and artistic practices in modern conservation policies and strategies are viewed as ‘not agreeable to tradition’ (Bonye & Millar 2004). This view is very disparaging because the relationships that the Asantes had with the environment was basked in these cultural and artistic practices and were practical in remedying environmental challenges such as biodiversity decline. It is no wonder that the Rio Declaration on Environment and Development stated that the indigenous people play significant roles in the conservation of biodiversity due to their traditional knowledge embedded in their cultural and artistic elements.

It is worth noting that today as Opoku (1978) has noticed, some scholars and the elite community are enlightened about the knowledge that humans, being the caretakers of the biodiversity resources in the environment, have been the intrinsic value behind the cultural practices. This clearly indicates that there are sound points that can be gleaned from these cultural and artistic elements that can be beneficial to the conservation of biodiversity and thus, calls for serious academic discussions and considerations. North (1990) concurs that these cultural and artistic elements are still valid points for a deep and broad approach to the development of biodiversity conservation strategies. That is why Presbey (2000) strongly posits that advancement in modern development must involve rigorous down-to-earth search for the inherent values in the traditional practices rather than setting them aside in our search for solutions to contemporary challenges such as biodiversity decline. Due to the rapid deteriorating rate of Ghana’s biodiversity, there is the need for a great form of knowledge that links humans to the biosphere while inculcating in humans, the spiritual values of respect, moral sanctity and stewardship. This form of knowledge can only be found in the cultural and artistic elements of which the Asantes set a perfect example (Bonye 2007).

Why the strong conviction that the knowledge woven in the Asante cultural and artistic practices is the greatest and the closest to the conservation of biodiversity?

The answer gleams in the words of Awedora (2002) that the cultural and artistic elements of the Asantes are resilient and have stood very firm even in varying times in the search for answers for biodiversity conservation policies and strategies for the conservation of Ghana's biodiversity. Indeed, the pragmatic changes in the area of biodiversity conservation can only happen if national biodiversity policies and strategies offer comprehensive information on cultural and artistic elements (Witoszek 2013). This can be achieved if conservationists in Ghana who lack thorough knowledge on the conservation worth of these Asante cultural and artistic elements are educated. Therefore, this study aims at unveiling the conservation potentials of some of the Asante cultural and artistic elements pertinent to biodiversity conservation. Moreover, it would be justifiable to argue that even in modern Ghana, the Asante cultural and artistic elements can yield maximum benefits in Ghana's biodiversity conservation. The research questions laid out for the study were:

1. What are the Asante cultural and artistic elements pertinent to biodiversity conservation in Ghana?
2. What are the distinctive roles that the Asante cultural and artistic elements play in biodiversity conservation management?
3. What justifies the conservation worth of the Asante cultural and artistic elements in relation to biodiversity conservation in modern biodiversity management in Ghana?

1.1 Asante Cosmological Beliefs and their Ecological Relevance to Biodiversity Conservation

Asante cosmological belief systems refer to the Asantes belief in the universe and the things around them. This is referred to by many scholars as 'Worldview' or 'Cosmvision' (Awuah-Nyamekye 2013). Chalk (2006) avers that this worldview of a group is largely responsible for their behavioural attitudes toward things in nature. Kehinde (2013) noted that most African societies believe that the cosmos is full of spirits and this greatly has a toll on the use and conservation of the biodiversity resources in nature. The indigenous Asantes of Ghana believe that the universe is in two forms, that is, naturalism and supernaturalism. There is also the belief that various spirits, some benevolent and others malevolent consistently operate in the cosmos or universe (Adom 2014). Owing to this, Twumasi (1975) noticed among the Asantes that they led their moral life and values in line with this belief so that they would ensure equilibrium between these two worlds in the cosmos. There was great caution amongst the people not to do anything uncalled for or exhibit a bad trait that would adversely affect the peaceful relationship they and their forebears enjoyed with the forces in the natural and supernatural worlds (Rim-Rukeh, Ierhievwie & Agbozu 2013). This disturbance that can cause the depletion of the biodiversity resources in nature would incur the wrath of the spirits in the cosmos and they would vent their anger on the culprits including instant death, madness, sickness and so forth (Boamah 2015).

These spirits believed to be dwelling in the two-parted universe are believed to fight for supremacy. However, Adom (2014) noted that these spirit forces are arranged in hierarchical order on the criteria of the extent of their power in the cosmos or universe. This has propelled some scholars to refer to the traditional belief system rightly as 'cosmological belief system' (Gyekye 1996; Opoku 1978). In a sequential order of the highest in power to the less powerful is the belief in the Supreme Being, belief in Ancestors, belief in Lesser spirits or deities, belief in Animism and belief in Sorcery and Witchcraft. It is, however, interesting to note as will be seen in later discussions of the various beliefs, that they all have one commonality. The familiar feature in all the systems of beliefs is the abhorrence of the deities to the wanton use and depletion of nature's biodiversity. Also, Grim (2001) argues that even in the era of globalization and westernization, the cosmological belief systems that perpetrate the idea of conservation and sustainable use of biodiversity still exert great impact in the lives of the Asantes of Ghana. Thus, Rim-Rukeh, Ierhievwie and Agbozu (2013) strongly aver that the cosmological belief systems have ecological corollary for the sustainability and conservation of biodiversity. This explains why the traditional belief system merits a serious academic discussion in the development of such a relevant discourse on biodiversity conservation.

1.2 Taboos and their Ecological Relevance to Biodiversity Conservation

They are the unwritten or oral laws and prohibitions formulated by man to protect the earth, which was viewed as a mother to help her to perform her roles more effectively (Boateng 1998). In times past, taboos were enough in controlling the attitudes and behaviours of people towards the environment and its resources. It instilled spiritual fear in people against the wanton use of nature's resources. Offenders were sometimes struck with infertility (Eshun 2011). Ormsby (2013) talks of infringers facing serious health problems such as seizures, culprits not being able to eat or drink, as well as seeing strange things at night. A reverse of such ailments was only possible when special rites and rituals were performed to appease the deity believed to be inherent in the sacred grove.

This fear orally told by the elderly ones in the community deterred the people from cutting down trees and destroying its rich biodiversity resources. The infringers were asked to pay monetary fines. Ababio (2014) views these taboos as ethical instruments that ensure good relationships among humans as well as humans and nature. From an ecological perspective, the taboos are seen by Colding and Folke (2001) as having great potential in conserving biodiversity. He explained that taboos do not need governmental intervention in their reinforcement; they really assisted in the conservation of biodiversity in the past. However, the researchers of this paper are critiquing their assertion as not entirely true in many Ghanaian societies today. Many societal members flout them and punishing them using the traditional systems may become difficult. Therefore, for taboos to function very effectively in modern Ghanaian societies there is the need to back them with legislative instruments from government. This would make them stronger enough to take culprits to the law courts in societies where the powers of the traditional authorities have been weakened.

Osei (2006) highlights on why taboos could be instrumental tools for conserving biodiversity today. He stressed that taboos are subjected to metaphysical openness and epistemological overridability. This implies that taboos are not strict or absolute in terms of their formulation and interpretation when compared with other absolute moral and ethical principles like those proposed by Immanuel Kant which are known to scholars as the 'Kantian Ethics'. Thus, taboos that stifle current developmental trends can be reviewed or even abolished entirely. However, helpful taboos that propose for the conservation of biodiversity and are applicable to the modern social and economic development must be revisited and implemented. Others can even be formulated to address contemporary challenges, especially in the area of biodiversity depletion by local chiefs in their respective jurisdictions.

The flexibility and adaptability of taboos make them very appropriate to be considered in biodiversity conservation discourse. Also, the taboo sanctions are believed by most local communities that have rich biodiversity resources as instantaneous and thus are greatly honoured by the local residents as well as the elite communities even though they view them as mystical in nature. Hens (2006) agrees that the rules based on tradition are stronger and more community owned when it is compared with the governmental rules. This makes them powerful agents for regulating the moral behaviour of people, especially towards the bio-resources in the environment.

1.3 Festivals and their Ecological Relevance to Biodiversity Conservation

Festivals in ancient times, according to the Impart Development Associates (1991) as cited in Bonye (2007), were open forums where the local people met to discuss issues affecting the progress of the community. It was a fine opportunity for the entire society, especially the local stakeholders like chiefs, queen mothers and traditional priests to plan actions to undertake to help conserve nature's biodiversity. Conservation strategies agreed are also relayed to the local people. Bonye (2007) adds that elders in the community seize the opportunity to pass the traditional epistemological wisdom of life including biodiversity conservation strategies to young ones. Today, governmental bodies, Non-Governmental Organizations and other corporate agencies use festivals as avenues for laying bare the policies and strategies for national development. Therefore, propagation of conservation knowledge, both traditional and modern, is relayed to the general public. There are various festivals that help in the conservation of biodiversity resources in the environment. Though few of these festivals are specially linked to biodiversity conservation, the majority of them are not directly linked to biodiversity conservation, but they indirectly contribute to it. Regarding festival events that are directly linked to biodiversity conservation, Ormsby (2013) mentions the celebration of sacred grove festivals among the Mythadi and Karnataka in the Kodagu district in India. He explains that the Mythadi and Kogadu sacred grove festivals were carried out to discuss issues relating to the survival and conservation of the resources in the sacred groves. The Kogadu sacred grove festival was commemorated every year to sensitize the people on the need to treat the bio-resources in nature with respect. A total of one to nine days are often slated for the celebration of the festival, which is usually marked by abstinence from cutting of trees, eating meat, and hunting. Rites are performed for the deity believed to reside in the groves by the Brahim priest or traditional priest.

Hvenegard (2011) writes on Wildlife festivals as festivals that have immensely helped in the preservation and sustenance of the biodiversity resources of the environment. Wildlife festivals are short-term celebrations of local natural wildlife features celebrated among North Americans. The festival offers recreational activities for relaxation and more importantly, they offer environmental education, understanding, transformation of behavior, and improvement of the environment to the people.

The people engage in environmentally friendly activities such as de-silting of choked drains, clearing of weeds, tending and caring for animals. Attendants of the festival go to their respective places with new and refreshed conservation knowledge of the environment and its resources.

In South Africa, the Endangered Wildlife Trust (EWT) organizes the Chrissieesmeer Crane festival annually. According to Franke (2014), the festival is celebrated by the residents of the little village of Chrissieemeer in Mpumalanga in South Africa. The festival has helped in protecting Lake Chrissie from encroachment and degradation. Owing to this, the Lake can boast of over 20,000 water birds. Also, the festival has helped in increasing environmental awareness among local residents, visitors and the public as well as highlighting the importance of biodiversity and its conservation. Inclusion in the commemoration of the festival was field trips to Protected Areas, educational talks on ecological practices, and traditional dancing. These shining examples demonstrate that festivals can indeed be tailored in promoting conservation interests.

1.4 Proverbs and their Ecological Relevance to Biodiversity Conservation

Proverbs are powerful mechanisms through which epistemologies on biodiversity conservation is relayed to the members of the general public. Gadzekpo (2013) realized that there have been a resurgent interest and realization of the potential that indigenous epistemologies from proverbs can be used to solve the problems of mankind such as the depletion of the biodiversity resources in the environment. Many scholars today have likewise noticed that proverbs are embedded with ecological wisdom. A critical review of most of the proverbs propounded by our forebears reveal the high usage of characters or metaphoric symbols in the plant and animal life that helps to conserve biodiversity resources in the environment. These include diverse plant species and animal species. Gbolonyo (2009) and Gadzekpo (2013) suggest that this might have been used deliberately by our forebears to instruct us of the powerful relationship that exists between man and his biotic world. Proverbs portray the sanctity of nature, the need to live in harmony with nature and sustain its precious resources as well as touching and inspiring moral values of life that enhance human living. Proverbs, in particular, deepens our comprehension of the physical and spiritual elements in nature. Application of the viable, pragmatic and time-tested values hidden in them will ensure equilibrium between humans and the forces of nature (Witoszek 2013). It is sad that proverbs are losing their impact on the life of Ghanaians today. These ancient born traditional epistemologies are gradually being replaced with western fairy tales as Gadzekpo (2013) noted. There must be a renaissance, a total rebirth, and rejuvenation of proverbs especially to help in curbing the biodiversity menace Ghana is experiencing today. The younger generation, in particular, is losing the precious gems of wisdom in these proverbs skillfully crafted by their ancestors and the researchers of this paper suggest that this may be a contributing factor for the poor moral degradation in Ghana including the abuse of the bio-resources in the environment.

The impact of proverbs in environmental education and the creation of the awareness of the need to conserve the biodiversity resources in the environment have been well noted by various agencies and organizations for environmental protection. A classic example is the adoption of a Kikuyu proverb from Kenya by the United Nations as the theme for most of its campaigns on environmental and nature conservation. The proverb says 'Treat our earth well, for it was not given to us by our parents; it is lent to us by our children' (UNCED 1992). Proverbs are indeed traditional epistemologies that codify the values of conservation of the biodiversity resources in the environment.

2. Methodology

The study is cultural anthropological in nature driven in the purely qualitative approach because of its cultural and social context in the Essumeja forest fringe community where the *Asantemanso* Sacred Grove is situated in the Ashanti Region of Ghana (Denzin & Lincoln 1994). The fulcrum of the study was rooted in the phenomenological approach because the researcher wanted the views of the insiders of traditional knowledge systems (Leedy & Ormrod 2010) who are knowledgeable in the underlying conservation ethos of the Asante cultural and artistic elements for biodiversity conservation. The traditional methods of data collection in cultural anthropology, thus, interviews and observation were utilized for the study. The traditional authorities (chief, queen mother, elders in the community and the heads of the conservationists were interviewed privately due to their key positions and the salient information that was not meant for the public ear (Fraenkel, Wallen & Hyun 2012). The other conservationists working around the *Asantemanso* Sacred Grove as well as the elderly residents of Essumeja were grouped and interviewed in Focus Group Discussion sessions. This form of interview assisted in soliciting rich views from the respondents on the phenomenon under study in an open space (Pope, Ziebland & Mays 2000).

Direct observations of the promulgation of the cultural and artistic elements and their relation to biodiversity conservation were carried out by the researchers.

A multi-stage sampling technique (Nachmias & Nachmias 1992) of purposive sampling and stratified random sampling were employed in selecting the total of 112 respondents involved in the study (See Figure 1). In the stage, the researchers deliberately selected the traditional authorities, culturists, conservationists and the elderly residents of Essumeja because they were knowledgeable and possessed other distinct features (Fraenkel et al. 2012) that would easily assist in furnishing the right answers for the research questions that drove the study. It is the best sampling technique endorsed by researchers for studies steeped in culture dominated territories (Lewis & Sheppard 2006) like Essumeja. The sample was further categorized into various strata before the final sample was selected. The stratified sampling technique was adopted by the researchers due to the heterogeneous nature of the population for the study (Kumekpor 2002). A mere random sampling selection would have excluded respondents who would have assisted in answering the research questions for the study. The Interpretive Phenomenological Analysis was used for analysing the accrued data because of its rigorous nature in giving the right interpretations to the phenomenological data using a bi-fold interpretative lens (Smith & Osborn 2008). The first is the emic perspective (the meanings of the phenomena studied as told by respondents) and the second is the etic perspective (the meanings of the phenomena as cross checked from the informants by the researchers). The conservation ethos of the Asante cultural and artistic elements were ascertained and justified using the keys in the conservation value systems of traditional knowledge systems by Smith and Wishnie (2000). The criteria include the harvesting restraints of the fishes, the protection of the resource species, the regulation of the onset/duration of harvests, the avoidance of harmful habitat modification and the patch-switching to maximize overall return.

Table 1: Schematic Overview of the Stratified Random Sampling Design

Categories/Strata	Equalization Level	Sample of Population Level	Total Population	Randomization Level	Sample Data Level
Conservationists	41	15	329	32.9%	112
Elderly Respondents	180	60			
Traditional Authorities	80	28			
Culturists	14	5			
Traditional Priests/Priestesses	14	4			

Source: Researchers' Construct from Sample Survey 2017

2.1 Description of the Study Area

Essumeja is a small town in the Bekwai Municipal District in the Ashanti Region of Ghana. It is said that the town Asumegyia (*Subin Agya*) which means 'on the other side of the *Asuben* River', is where members of the Aduana Clan headed by a clan leader called Kusi Aduaku settled. The settlement was just opposite to the Subin River, hence the name of the town. The place is where the *Asantemanso* sacred grove, where the seven clans that formed the Asante kingdom, is alleged and believed to have emerged from a hole in the dense forest tract. The spot and its surrounding vegetation which measures almost 100 hectares is located at the eastern part of Essumeja. The place is barred from any unwarranted entry and as such, the sacred grove is stocked with high taxa of biological diversity. Numerous cultural and artistic elements such as taboos, cosmological beliefs and myths have protected the site till date. Also, the *Nkyiridwo* festival celebrated in November every year is used to mark the sudden appearance of the seven clans from the ground believed to have been a Monday.



Figure 1: The Map of Essumeja
Source: Ghana Statistical Service 2012

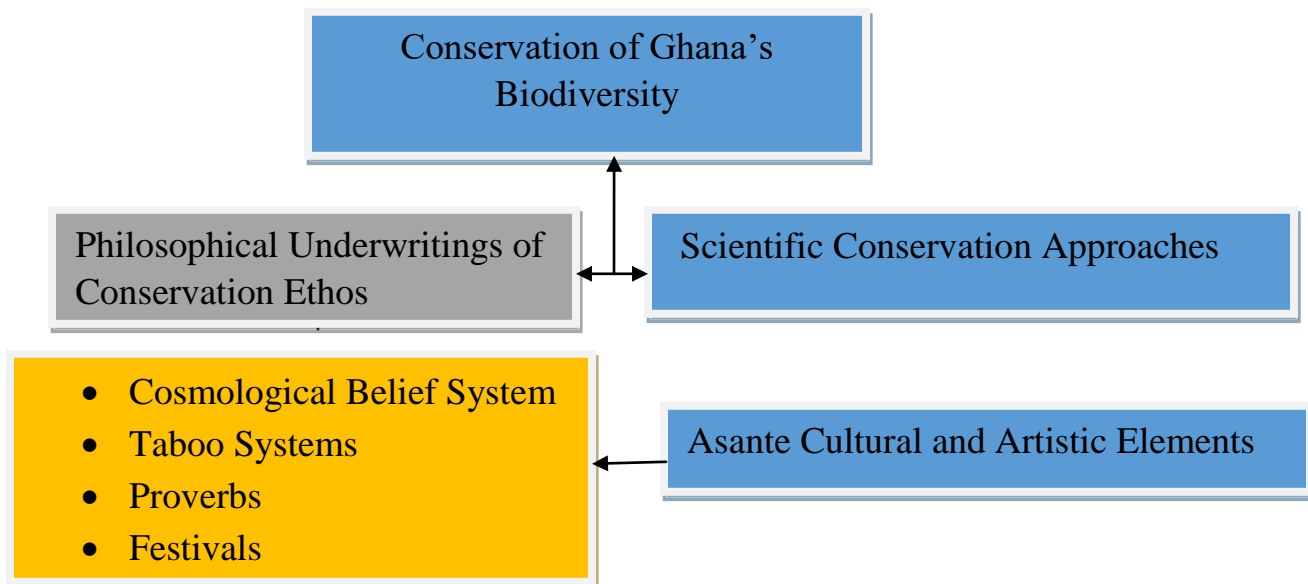


Figure 2: The Conceptual Framework for the Study

Source: Adapted from Pandey (2000) Conceptual Framework on Landscape Continuum

The researchers agree with Pandey’s assertion that cultural practices influence the conservation and use of biodiversity. Also, the researchers concur that the traditional conservation ethos enshrined in the cultural and artistic elements still hold great worth in the conservation of biodiversity in modern societies. Therefore, to maximize the conservation efforts in Ghana, the researchers contend that a synergistic approach of using both scientific conservation approaches and the conservation ethos laden in the Asante cultural and artistic elements would yield more beneficial results for Ghana’s biodiversity management. This assertion is not misplaced because many scholars believe that a pluralistic and multidisciplinary approach (Wilder, O’Meara, Monti & Nabhan 2016) to biodiversity conservation is the best and sustainable form of combating the biodiversity menace facing global communities (Adom 2016).

3. Findings

Through the research inquiry with the respondents, four Asante cultural and artistic elements were seen to promote the conservation of the biodiversity resources in the environment. These include cosmological belief systems, proverbs, taboos and festivals. All the respondents acknowledged through their comments that they supported the assertion of the researchers that Asante cultural and artistic elements had ideals that advanced the course of biodiversity conservation. However, looking at the data generated via their responses, it is clear that their support differed in the kind of Asante cultural and artistic elements that they contended were pertinent to biodiversity conservation. Yet, there were other respondents who agreed that all the afore-mentioned Asante cultural and artistic elements were all pertinent to biodiversity conservation.

3.1 Cosmological Belief Systems and Biodiversity Conservation

The study revealed that a greater section of the respondents affirm that cosmological belief systems of the Asantes hold a strong potential in conserving Ghana's biodiversity. Yet, the belief ratios in the various cosmological belief systems as well as their potentials in conserving biodiversity differed among the categories of respondents as shown in Figure 2.

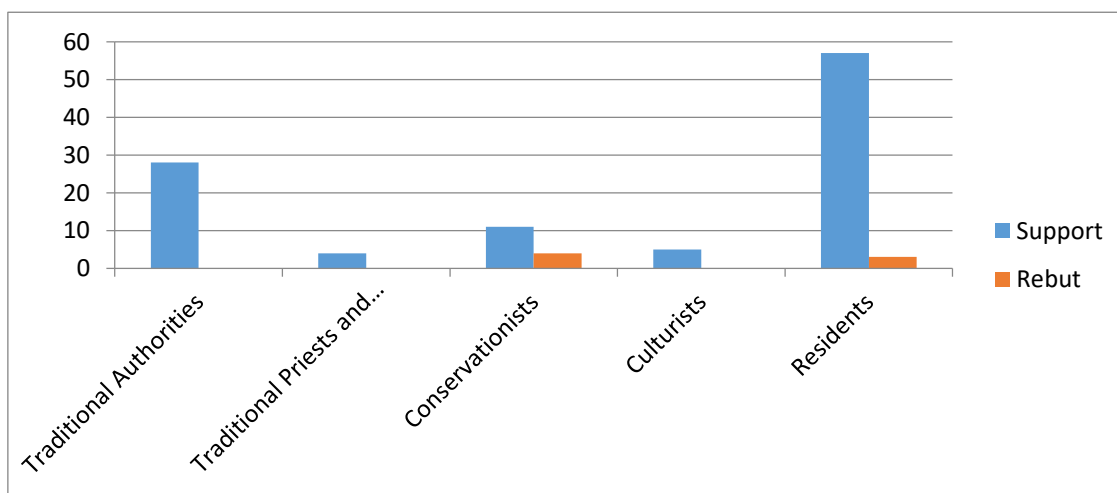


Figure 3: Cosmological Belief Systems help in the Conservation of Biodiversity

Source: Field Work, 2017 (Researchers' Construct)

All the respondents interviewed admitted of their belief in the existence of the Supreme Deity (God). They asserted that He is the creator and caretaker of all the biological diversities in nature. They also acknowledged that He is incensed whenever the biodiversity resources in nature are abused and/or wantonly destroyed. They also admitted that culprits of environmental malfeasance would be punished by the Supreme Deity. The elders in the study area (ES) interviewed in a Focus Group Discussion said:

Tweduampon (God) hates all kinds of evil deeds. This includes the greedily use of the plants and animal resources in the environment. He would make the life of all those who do not think of the future generation and therefore fail to judiciously use the trees in the environment very miserable. As for those who deliberately destroy these resources such as engage in wild fires for hunting, use [chemicals] poison in fishing and connive with illegal chainsaw operators to cut large numbers of trees, He would vent His anger on them now and in future, they would be destroyed everlastingly (ES-FGD, Personal Communication, 8 August 2017).

Recounting what would be the aftermath of such great disrespect for the Supreme Deity if the biodiversity resources are used unsustainably and unfriendly environmental practices are engaged in, the traditional authorities interviewed privately and individually in the various study areas shared similar sentiments.

All the respondents were of the firm conviction that living in harmony with nature, conserving the biodiversity resources in one's environment while caring deeply for these natural resources attracted goodwill and favor from the Supreme Deity. The elders in the various traditional Councils in the study areas as well as the park officers and culturists were very optimistic about the eternal favour they would enjoy if they treated the biodiversity resources with conservation in mind.

The belief in ancestors was also high among a higher section of the respondents interviewed. The traditional authorities, traditional priests and priestesses and the elderly respondents expressed strong sentiments of the presence and influence of their ancestors in their lives. They explained that the ancestors are interested in the welfare of their communities and they support good behaviours in the society such as the sustainable use and conservation of the plants, animals, river bodies and so forth. They insisted that the ancestors are spiritually vigilant and take active interests in the welfare of the societies and their natural resources. They also believe that the ancestors have the power to reward society members who act favourably towards the biodiversity resources in the environment and punish severely, those who abuse these resources.

There were many narrations during the Focus Group Discussions among the elders in the various communities where the study was undertaken on their dead relatives who acted unfavourably towards the biodiversity in the environment. One elder said that his uncle who connived with illegal chainsaw operators to cut and smuggle logs from their family farm when he was alive revealed himself to him in his dream. He disclosed to him that he has not been welcomed by the ancestors. He lamented in the dream to him that four months since his death he has not been offered a seat and his belongings were still intact with him. Similar stories narrated by the elderly have instilled reverential fear for the ancestors and are very much determined to conserve the biodiversity resources in their respective societies. Moreover, they believed that if they don't regulate their societies well for the youth to live in harmony with nature by conserving the rich biodiversity in their societies, the ancestors would punish them as well and extend it to the entire society. Both the traditional authorities and elders in the study area were very convinced that they are enjoying the blessings and goodwill of the ancestors now and a better position when they eventually go to the land of the dead. This conviction was as a result of their firm resolve to maintaining the statutes of the ancestors regarding the conservation and sustainability of the biodiversity in their environment.

The residents interviewed in the study areas believed strongly that their deities are those who oversee the biodiversity resources in the environment. They believe that their spirits reside in the biodiversity resources in their environments. No wonder particular forests, plant species, rivers and lakes as well as mountains were observed by the researcher that they have been named after these deities. In some societies in the study areas, some of the residents even believe that these deities and spirits are the owners of the biodiversity resources they are believed to reside in and/or are named after. For instance, the elders in the study area told the researchers:

The forest tract you see here [they showed the researchers] is for Bosom Dente. No unfriendly environmental activity is to be undertaken in it. Otherwise, Dente would vent his anger on the culprit and strike that person with blindness, madness or death. These [they showed the researchers] are the *Anakosu* River, *Abenasuo* River, and *Kwantempong* River. They are not to be defiled in any way. Otherwise, their owners who are vengeful spirits would punish the culprits of such environmental malfeasance, and their punishments are really severe. As a result, members in our society have carefully conserved and sustainably used these natural resources so as not to offend the spirits or deities that resides in them (KU-FGD, Personal Communication, 27 August 2016).

The thresholds and forest vegetation banks of these rivers are not to be encroached and/or destroyed. The researcher observed that the same naming of particular biodiversity resources in the environment after particular deities or spirits or transferring ownership to them existed in the other study areas. This practice has assisted in their conservation and sustainable use. For instance, the *Ahomakyem* (*Spiropetalum heterophyllum*), *Betene* (*Elaeis guineensis*) and *Odum* (*Chlorophora excelsa*) in the *Asantemanso* sacred grove are dedicated to the early ancestors of the seven Akan clans that later formed the Asante Kingdom. As such, these plant species are not to be cut anyhow.

The researchers observed that specific forests, mountains and river bodies were assigned to a particular group of ancestors who are believed by the people as the founding fathers of their community. For instance, the researcher was reliably informed that the thick forest in the *Asantemanso* sacred grove is believed to be the dwelling place of the first ancestors of the Esumeja people. As such, the place is not to be defiled in any way. This has resulted in the rich abundance of biological diversities of plants and animals in the area.

The belief in the existence of sorcery and witchcraft in the study areas was noticed by the researcher. All the evil in the communities are attributed to the witches and sorcerers in the society. Many of the respondents interviewed, about 93.75% believed that the witches and sorcerers are evil members of the society who hates the success of individuals and the society at large. Yet, their existence cannot be gotten rid off.

Thus, one has to seek protection against their machinations. In doing so, it is believed by the people that the witches fear certain tree species in the environment and abhor their aromas. Therefore, when they are planted in the surroundings of homes and at vantage spots in the society, they can protect individuals and society members from their evil influence. The elders in a focus group discussion in the study area told the researchers:

The evil spirits such as witches and sorcerers detest plants with strong spirits such as Nufutene plant (*Kigelia africana*), Kakapenpen (*Rauvolfia vomitoria Afzel*), Betene (*Elaeis guineensis*), Nyankyerenee (*Ficus exasperate Vahl*), and a-Katawani (*Pseudospondias microcarpa*). Therefore, when any of these tree species are planted in the surroundings of the house, witches would not enter such households (ES-FGD, Personal Communication, 6 November 2017).

The researchers observed the plantation of some of these tree species in the homes of residents in the study area. In some other instances, the researchers observed that particular parts of some of these tree species were hung at the entrances of the homes of residents. The researchers observed that the leaves, stalks and inflorescence of the Betene (*Elaeis guineensis*) were hung at the entrance of the chiefs in the afore-mentioned study areas. These chiefs who were personally interviewed disclosed the protective spirits believed to be in these aspects of the palm tree that ward off evil spirits and witches.

The conservationists interviewed disclosed to the researchers that the flora species identified by the people as possessing spiritual powers for the protection against evil spirits and witches have not been proven scientifically. Yet, they admitted that the plant species cited have medicinal and dietary benefits to humans. They stressed that their medicinal values may probably be part of the reasons why they were planted at the surroundings of most of the houses in the various towns. In a personal interview with one of the heads of the conservation agencies in the Ashanti Region, he informed the researcher that:

It is scientifically proven that the roots of the Kakapenpen tree (*Rauvolfia vomitoria afzel*) cures many ailments, with the common disease being Jaundice while the a-Katawani tree barks (*Pseudospondias microcarpa*) is used in the treatment of arthritis and as a pain killer for easing the pain of all kinds of injuries. It is possible it is because of these medicinal values that they were planted at the surroundings of houses (EER-PI, Personal Communication, 30 August 2017).

Despite the mysticism associated with the plantation and conservation of these plant species in the houses of many residents in the area, the culturists and conservationists admitted that the belief has helped in the conservation and prevention of the species from extinction in the local communities.

3.2 Proverbs and Biodiversity Conservation

Proverbs are seen as one of the powerful mediums for moral instruction among the Asantes of Ghana. The findings from the responses of respondents for the study affirm this. A total of 110 respondents out of the 112 informants supported the motion that proverbs can assist in biodiversity conservation education (Table 1). The elderly residents mentioned how proverbs were used during their youthful stages to regulate their moral behaviours. They informed the researchers that their elders used every opportunity, especially during societal gatherings and communal meeting days to recount morally charged proverbs to them. The elders interviewed in the focus group discussions disclosed the impacts of the proverbs on their moral attitudes to the researchers that:

The wisdom espoused in the proverbs we were instructed with, assisted us in cultivating good moral attitudes such as goodness, the need to be responsible towards the things in nature, resourcefulness, deep caring attitude and love for nature, the need to desist from carefree, unsustainable, and selfish ways of life. We gleaned these pieces of advice from the moral thoughts that were beautifully portrayed in the proverbs (ES-FGD, Personal Communication, 5 September, 2017).

One of the traditional rulers in a personal interview informed the researchers that the proverbs told by their forebears trained their thinking abilities while influencing them to think deeply about their actions. He told the researchers:

Many of the proverbs praised the exhibition of good traits and frowned on bad behavioural attitudes. The lessons distilled from them showed that there are always great physical and spiritual gains for living selfless lives while thinking about the consequences of leading a bad moral life. I personally learned the love for nature through the beautiful illustration of great care of these things in the proverbs that were narrated to me (ES-PI, Personal Communication, 16 October 2017).

Two conservationists who were skeptical about the use of proverbs in regulating the attitudes of the youth said that today’s youth are stubborn and don’t listen to any advice. As such, it is true that proverbs have great potentials in being used for biodiversity conservation education. They felt that the some of the youths may not apply the conservation wisdom enshrined in them. Other members in the Focus Group Discussion mentioned that it is because of the stubbornness in the attitude of the youth that is why there is the urgency to reason with them using proverbs to live sustainably. Some of the proverbs and their ecological relevance for biodiversity conservation have been discussed. The interpretations are largely from the views of the respondents.

1. *Tete wɔ bi ka/Mommue tete atempɔn no* (The past have many lessons/Open the ancient ways) - This adage is affirming the fact that there are many lessons that can be gleaned from the ways of the past forebears. Therefore, the cultural and artistic elements such as taboos, cosmological beliefs, totem, myths, festivals, folklores and so forth have great importance to the conservation of biodiversity. Their promulgation in the past by the early forebears has ensured the preservation of the biological diversities in the Ghanaian environment. Thus, it is urging conservationists and policy planners of biodiversity conservation to look into them and utilize them in their conservation programs and schemes. It is also a word of caution to the youth not to demean or devalue the significance of the cultural precepts handed down to the present generation. They are very useful in the modern quest for biodiversity conservation.

2. *Dua koro gye mframa a ebu* (A single tree cannot stand the might of a strong wind or storm) – This axiom indicates that there is the need to have in rich abundance, the flora species in the environment so that in the eve of heavy storm or wind, they would protect lives and properties. However, if societies unsustainable use the trees in their environments resulting in patchy and isolated forests, there would be serious environmental reprisals that would cause great havoc to lives and environment. Thus, it urges humans to live sustainable and conservatory lifestyles in line with the use of the biodiversity resources in their environments.

3. *Kwae a agye wo no yenfre no kwaewa* (Do not be ungrateful to the forest that has saved you)- The forests provides the resources that pivots the lives of humans. Thus, it would be a sign of ingratitude to destroy the forests that have been the very source and maintenance of the lives of humans. This bolsters the responsibility that humans have towards the environment that is, protecting and using sustainably, the biodiversity resources in the various forest tracts. This would keep the rich biodiversity in constant supply to serve both the present and future generations.

4. *Akwadaa bɔ nwa na ɔmmɔ akyekyedee* (A child can break the shell of a snail but not the shell of a tortoise)- This maxim reveals the limitation in the strength, thinking and knowledge grasping abilities of the younger members in the society in comparison to that of the elderly members. The elderly members have amassed a great deal of wisdom through experiential knowledge as a result of their ages and the experiences that they have gained in life. Therefore, the younger generation has to listen to the advice of the older members in the society and obey their rules and regulations, especially regarding how the biodiversity resources in nature must be used efficiently. They must also mimic their sustainable lifestyle and how they lived in harmony with nature.

5. *Aduane a wɔammeto wo ni anaa wo se gya so no na yekyi* (The food you did not come to meet on the cooking fire of your parents is tabooed) - This axiom means that practices that are not condoned by one’s people and culture must not be engaged in. For instance, bad environmental practices due to selfish lifestyle and greed that the elders in one’s community desisted from must also be shunned by the younger generation because it is not akin to the Asante ancestry. These ancestors carefully thought of the leaving a large measure of the nature’s resources for the future progeny.

Table 2: Proverbs help in the Conservation of Biodiversity

Category of Respondents	Total Number	Number who support the assertion	Number who rebut the assertion
Traditional Authorities	28	28	0
Traditional Priests/Priestesses	4	4	0
Conservationists	15	13	2
Culturists	5	5	0
Elderly Residents in the Study Areas	60	60	0
TOTAL	112	110	2

Source: Field Work, 2017 (Researchers’ Construct)

3.3 Taboos and Biodiversity Conservation

The study revealed that taboos are efficient ways of conserving the biodiversity in Ghana. The researchers noticed that the rich biodiversity resources in the study areas were heavily conserved as a result of the numerous strict prohibitions in the forms of taboos on what are not supposed to be done in the communities. They restrain the harvesting periods of the biodiversity resources in the societies and conserve them with sustainability in mind. In fact, many of these taboos safeguarded the plants, animals and water bodies in the environment. Their stringent nature is as a result of their enforcement by the traditional authorities and the elderly members of the society. Also, the success of this instrument in protecting the biodiversity in the study areas were also as a result of the huge punishment or penalty that infringers of the taboos are asked to pay as well as the spiritual burden imposed on the consciences of the offenders. The bi-fold repercussions on culprits who fail to observe the taboos are resilient enough to prevent society members from breaching them. The elders in the traditional council in the study area informed the researchers that:

The taboos are prohibitions that our ancestors handed down to us and it attracts severe physical and spiritual punishments. Spiritually, when a person breaks the taboo, the gods punish the culprit either with death, blindness, madness, dumbness, infertility and so forth. Physically, the traditional council would ask the defaulter to pay a huge sum of money, present sacrificial items such as Schnapps, fowls and others to propitiate the gods whom the culprit has defiled through his or her recalcitrant action. Even at the death, the culprit's family is supposed to pay all required penalties before the burial and funeral rites of the culprit is allowed to be performed in the community. Due to the stringent adherence in applying the sanctions, every society member strives very hard to observe the taboos in our society (ES-FGD1, Personal Communication, 8/11/2016).

Individuals and families who were involved in the breaching of the taboos in the society have low or no dignity. Also, the culprits were even subjected to public ridicule and mockery in the society. The researchers observed that many families in the society even rejected marital proposals to their members from culprits who have defiled the taboos in the society or their families. It is generally believed that they have a curse in their families or contracting marital unions with such families would not attract the favour of the deities and ancestors. This motivates the community members to observe all the taboos in the society.

The monitoring of the observation of the taboos is the responsibility of the entire members in the society. The people believe that the keeping of secrecy, a culprit's infringement on the taboos would result in the person being punished alongside the culprit by the angered deities. Therefore, many members in the study areas interviewed made remarks that indicate that reporting such foul act would rather earn them a blessing from the deities and would inure to the general good of the society. Thus, the supervisory role of the taboos is a communal affair. However, the members in the Traditional Council of the local community are supposed to oversee the implementation of the taboos. The researchers noticed the periodic monitoring exercises undertaken by some youths in the study areas to gazette sacred area in the study area. The researcher noticed this at the *Asantemanso* sacred grove. The researcher was reliably informed that these young men were given tokens of appreciation of their duties by the Traditional Council in the respective communities. As a result of these measures put in place by the traditional authorities, the implementation of the taboos was satisfactory.

The researchers also observed that taboos were set on particular species of flora and fauna species as well as some water bodies in the communities in the study areas. For instance, the flora species that are not supposed to be cut down until proper permission has been sought from the appropriate authorities included the Nufutene plant (*Kigelia africana*), Kakapenpen (*Rauvolfia vomitoria* Afzel), Betene (*Elaeis guineensis*), Nyankyerenee (*Ficus exasperate* Vahl), Osese (*Funtumia* sp.), Odum (*Chlorophora excelsa*), and Mahogany (*Khaya ivorensis*). The researcher realized that these tree species were on the farms of many of the local people because of the restrained harvesting imposed on them by the traditional council in the study area (AN). To cut down such tree species, the farmer has to seek the permission of the traditional council who would inspect the position of the tree and weigh the various consequences when it is cut down despite the fact that it is mandatory for the farmer to replace the cut down tree. They would finally approve of the cutting down of the tree. The researchers noticed that this action was highly detested by the general populace. The traditional authorities assured that when the position of the tree is strategic and it's saving the entire society from possible heavy winds, erosion or storm, the farmer would not be allowed to cut down the tree. However, they admitted that when a farmer is in dire need of the tree for his domestic constructional purposes, the traditional council allows him/her to cut from a good place which is sometimes, not within his/her farmland.

Also, the researchers observed a taboo against the killing of falcon birds in all the study areas earmarked for the study. The traditional authorities in all the study areas mentioned that the bird was the totem of the Oyoko clan of the Asantes that they are affiliated. Similarly, Diawuo and Issifu (2015) realized the effectiveness of taboos in ensuring the abundance of crocodiles in the Tongo-Tenzuk community in the Upper East Region of Ghana due to their totemic affiliation to the people. On the other hand, among the Sankana community in the Upper West Region of Ghana, he again noted that the eating of pythons and frogs are tabooed. The taboos have ensured the conservation and abundance of these fauna species as the researcher equally observed.

While 95% of the respondents saw the imposition of taboos on these ecologically important flora species in the environment, 5% of the informants felt that the taboo on these tree species was counter-productive. They insisted that these species could have boosted the local economies if they were cut and used as timber logs instead of their perpetual conservation.

In addition, the researchers realized that taboos were set on particular sacred areas that are not supposed to be encroached, entered and/or its biodiversity resources taken. These gazette areas had historical bonds to the great ancestors of their communities. The *Asantemanso* sacred grove is a gazette area in Essumeja in the Ashanti Region is said to have the hole where the Asantes are believed to have emanated from. The sacred grove arrangements have conserved many plant and animal species in their environments. The huge promulgation of taboos has carefully guarded the gazette areas that are abundant with a great diversity of flora and fauna species. It has also conserved the uncensored harvesting of the biodiversity species and promoted the purity of the water bodies within the gazette areas. All the respondents agreed in unison that the deliberate demarcation of these areas as sacred have conserved the biodiversity in the environment.

Moreover, there were specific days referred to as 'taboo days' in the study areas where no work or entry is allowed in the forests, farms and water bodies. Among the local people, these days are referred to as *Nnabone* (bad days). The interviews revealed that the days are viewed as bad days because when a resident in the society flout the taboo day, s/he is likely to encounter the angry deities and spirits who would definitely inflict the culprits with untold repercussions. Such days are rest days for the local people who engage in agricultural activities. The researcher asked the elderly respondents of the importance of the taboo days in relation to biodiversity use and conservation. One of the traditional chiefs in the study area informed the researcher that there are twenty seven (27) rest days or taboo days annually. He explained that:

We commemorate nine (9) *Awukudae* [Special Wednesdays viewed as taboo days in the Asante forty-day month], nine (9) *Akwasidae* [Special Sundays viewed as taboo days in the Asante forty-day month] and nine (9) *Benabone* [Special Sundays viewed as taboo days in the Asante forty-day month]. Personally, these taboo days allow the plants, animals, and water bodies [biodiversity resources] to rest, as it were, to replenish their strengths for them to continually supply the ecological services to human beings that sustain life. It brings harmony and purity in the ecosystem (ES-PII, Personal Communication, 6/11/2016).

Twelve (12) out of the fifteen (15) constituting 80% of the conservationists agreed that the taboo days helped the biodiversity resources in the environment to perform their self-healing and restoration activities to better offer the residents in the town crucial services to life sustenance. Likewise, all the culturists concurred with the ecological relevance gleaned from the rest days. They added that the taboo days which were used for communal meetings assisted in reiterating the norms and values in the society that heightened their resolve to live in harmony with the biodiversity in their environment.

The researchers noticed the observation of many of these taboos in the study areas. The taboos advocate the engagement in environmentally friendly activities that enhanced and/or conserved the biodiversity resources in the study areas. Some of these taboos, some of which were recounted to the researchers and many others observed during the research period have been outlined below. In the *Asantemanso* sacred grove, it is a taboo to pick dead wood from the Protected Areas. Also, bathing, washing and swimming in all river bodies are tabooed. No resident is supposed to defecate in the river bodies. It is equally tabooed to pour anything such as domestic or industrial effluent into all river bodies and forests in the study areas. All defied trees are not to be cut. It is a taboo in the study areas for residents to leave their livestock to walk about in the communities destroying farmlands and water bodies. It is a taboo for farmers to farm close to water bodies. They are expected to leave a forest vegetation of ten yards all around water bodies and rivers closer to their farmlands which are not to be encroached. It is a taboo to have sexual intercourse in the sacred area and around the premises.

The informants were very optimistic that the taboos were indeed helping in the conservation of biodiversity in the area. About 97% of the respondents believed that they had scientific significance related to the health of the people and the biodiversity resources.

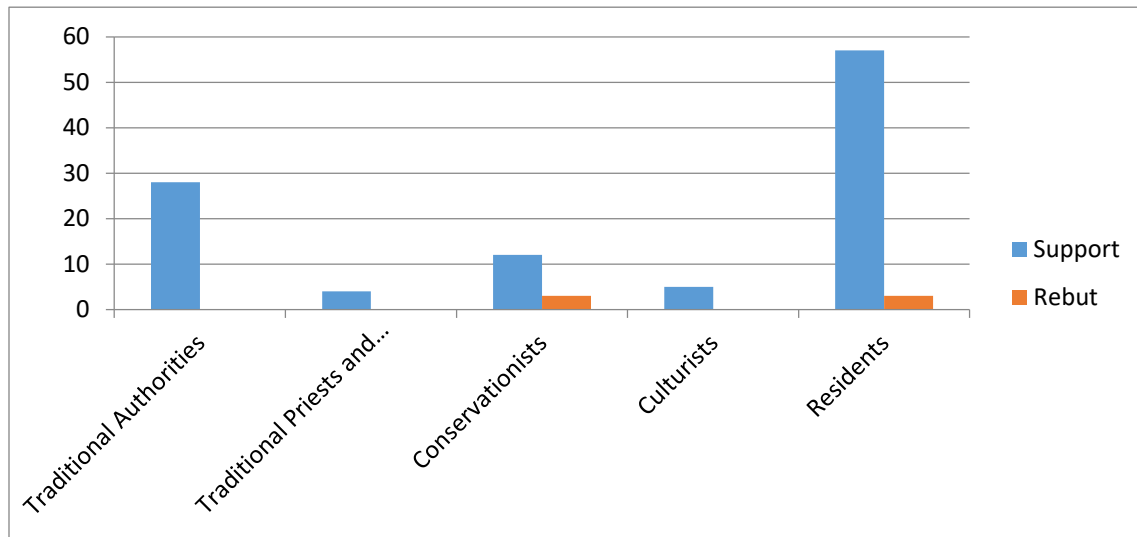


Figure 4: Taboos help in the Conservation of Biodiversity
Source: Field Work, 2017 (Researchers' Construct)

3.4 Festivals and Biodiversity Conservation

The researchers noticed that festivals played very significant roles in biodiversity conservation. They realized that the head waters of many of the water bodies and rivers in the study area were located in the sacred grove. Before, during and after the festival celebration, the researchers noticed that massive environmental activities were undertaken by the people. These included environmental cleansing activities such as weeding, removal of debris from gutters and other canals in the community. The elderly women swept the entire community in all the one-week long festival observance. The men in the community engaged in tree planting exercises while the children picked up all forms of refuse from all the nooks and crannies in the community. The researcher inquired from the informants in the community why they engage in all these environmental activities during the eve of the festival.

Thus, the celebration of the personality of their warrior placed on them an obligation to protect the resources in the community he was born. Also, the festival event reminded them to imitate the exemplary life of their great ancestors whom they believed conserved and sustainably used the biodiversity resources in the community. The *Nkyiridwo* festival was used in recalling the good deeds of the first ancestors of the Asantes who were believed to have appeared from the ground on Monday (*Dwoada*). Thus, the environmental activities are undertaken to enhance the environment by those in the study area to please the ancestors. These findings agree with the notification of Bonye (2007) regarding the *Yerepra Yadeɛ* (sweeping sicknesses) traditional festival of the people of Berekum in the Brong Ahafo Region of Ghana cited earlier in the chapter two. The people also used the festive occasion to heighten environmental activities that would have posed serious threats to the health of the people.

Moreover, the celebrants of the festival in the study area believe that the ancestors visit the local communities they left in the care of the present generation. Therefore, as guest visitors, the ancestors are accorded the great respect due them by the celebrants by engaging in environmentally friendly activities that protects the biodiversity in the environment.

The Asantemanso sacred grove and its rich biodiversity resources are protected because it is tied to the festival event. Similar examples in other Regions of Ghana have been cited by other scholars to affirm the findings made by the researchers. For instance, the researchers in another study at Techiman and Bouyem all in the Brong Ahafo Region of Ghana, noted that the resources in particular sacred groves such as the *Ameyaw Akumfi I* sacred grove and the Mprisi sacred grove have been protected because they are tied to the *Apoo* festival (Asante, Adom & Arthur 2017).

In addition, as already hinted in the chapter two, Avenorgbo (2008) contend that the utilization of the bushbuck (*Tragelaphus scriptus*) fauna species in the *Aboakyir* festival commemorated by the people of the Effutu Traditional Area in Winneba, Central Region of Ghana, has aided in their conservation. Likewise, in the Northern Region of Ghana, among the Talensi-Nabdam district in the Upper East Region, Bonye (2004) mentions of the traditional hunting festival called *Gospe* that prohibits the killing of young and pregnant fauna species. The festival events in the study areas served as platforms for educating the local people and the visitors about the cultural values, norms and taboos in the society. The researchers observed that the elderly members used the occasion to remember the members of their families about the accepted code of conduct acceptable in the society. It is indeed a family funfair where the elders act as instructors of the traditional knowledge systems in the community, including the need to treat nature’s resources with gentleness as if they were part of the human family. The adaptation of festivals as events for biodiversity conservation was not contested as statistically all the informants strongly affirmed its potentials (See Figure 4).

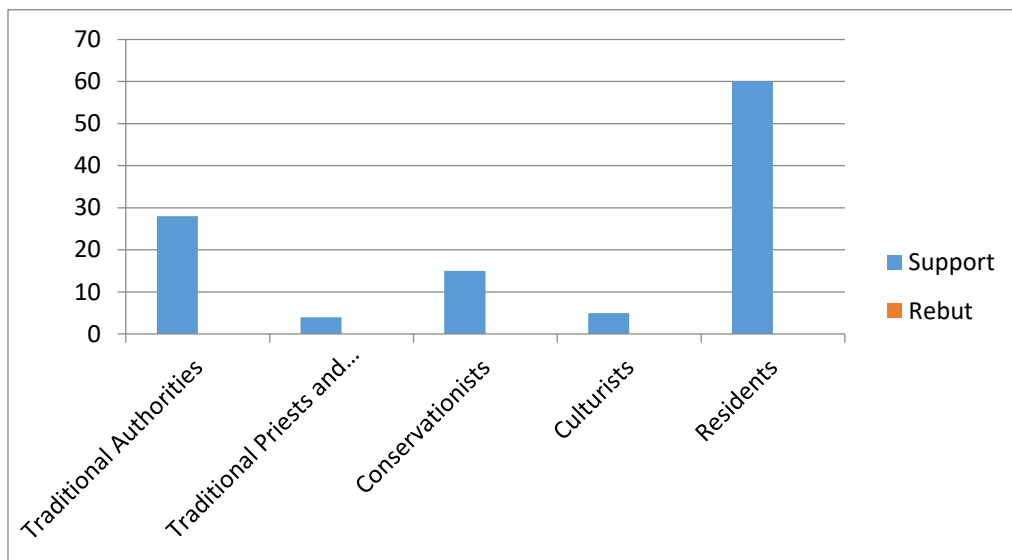


Figure 5: Festivals help in the Conservation of Biodiversity
 Source: Field Work, 2017 (Researchers’ Construct)

4. Discussions

The findings from the study have confirmed that some Asante cultural and artistic elements are pertinent to biodiversity conservation. It was identified that four main Asante cultural and artistic elements, namely, cosmological belief systems, taboo systems, proverbs and festivals play quintessential roles in biodiversity conservation. The researchers used the Conservation Value Analysis criteria for ascertaining whether a particular traditional knowledge system has conservation ethos for biodiversity conservation (Alvard 1998; Smith & Wishnie 2000). This was done to philosophically justify the great worth of conservation ethos latent in the Asante cultural and artistic elements (Cosmological Belief Systems, Taboo Systems, Proverbs, Traditional Festivals) proven to be pertinent to biodiversity conservation.

4.1 Ensuring Harvesting Restraints

The cosmological belief systems propagate the ideology that the spirits abhor persons who greedily and unsustainably use the biodiversity resources in the environment. The study revealed that those who live in harmony with nature earn the favour and goodwill of the benevolent spirits (the Supreme Deity, Ancestors, Deities and Good Spirits) who would shield them against any evil spirits (such as witches and sorcerers). Thus, in harvesting plants and animals in the environment, individuals whose conduct is governed by the Asante cosmology which is akin to the general traditional African perspective always ensure that they leave greater portions of the resources for the future progeny as noted by Asante, Adom and Arthur (2017).

In a like manner, the taboo systems advocate a restraint on harvesting of biodiversity. For instance, the taboo days and closed seasons observed in the study areas, restrained harvesting. There is a general cessation of harvesting during taboo days and closed seasons as it has already been established. This indicates that the taboo systems serve as traditional check and balances (Diawuo & Issifu 2015) in the harvesting of trees, animals and in ensuring the judicious use of biodiversity. This justifies the assertions of Rim-Rukeh, Ierhievwie and Agbozu (2013) that the taboo system averts unbridled harvesting of the biodiversity resources in the environment. The imposition of spiritual and physical sanctions or penalties in the breach of these resilient prohibitions (Adom, Kquofi & Asante 2016; Boamah 2015) makes them a potent traditional knowledge system that promotes the ideals of conservation.

Moreover, the wise Asante maxims or proverbs also espouse the concept of harvesting in restraints. The Asante proverbs generated from the findings of the study indicates that they have been cleverly woven to imbibe the ideals of sustainability and the thinking of the future progeny while using biodiversity in Ghanaian citizens. For instance, the Asante proverb, '*Adidi daa ye sen adidi preko*' (It is better to think of eating daily than eating all you have at once) stress on the need to restrain harvesting of biodiversity with the future progeny in mind. This Asante proverb, and many others like it, promote and inculcate the judicious use of biodiversity in those who are well nurtured in their epistemological thoughts. This authenticates the theory of Sanauddin (2015) who indicated that proverbs scowl on selfish expeditions such as unrestrained harvesting of nature's resources.

In addition, traditional festivals in Ghana, though, are cultural events, promotes the ideals of sustainability. As noted from the findings, the traditional festival in the study area, the *Nkyiridwo* festival is used in honoring iconic ancestors of the celebrant communities who set the precepts in the sustainable use of the biodiversity in their societies, jealously protecting their unbridled use and wanton destruction for the future progeny of their kinsmen. Thus, it is seen as act of gross respect to the ancestors (Adom 2016a) who are extolled for their bravery in maintaining good place identity of the festival host communities, if any resident or visitor greedily harvests the biodiversity in the area. This validates the views of Crespi and Richards (2007) who argued that the maintenance of good place identities that honors the early kinsmen of the celebrant community is a powerful force that conserves the environmental resources in their societies.

4.2 Protecting Resource Species from Exploitation

The Asante cultural and artistic elements ensure the protection of biodiversity species from possible exploitation. The findings from the study have shown that specific trees and water bodies as well as sacred forests have been deified or dedicated to some vindictive spirits and deities to ensure their protection or conservation. For instance, the researchers noticed that particular river bodies were named after vengeful spirits to aid in avoiding their wanton abuse or exploitation. Classic examples are the *Abenasuo* and *Anakosu* Rivers of Kumawu, the *Sumpi* and *Kaakawere* Rivers of Anyinam- Kokofu as well as the *Bosomtwe* Lake of Abono were all named after known and fearful deities in the community. Due to the great reverence that the people have for these deities believed to reside in the water bodies, they do not engage in any unfriendly environmental activity to defile their purity. Thus, the cosmological beliefs that spirits or deities inhabit the water bodies have protected the numerous water bodies from exploitation or unguarded use by the people. Also, the researcher observed that particular spots in the study areas were equally dedicated to the respected Asante ancestors and as such were gazetted and protected from any encroachment and/or exploitation. This was noticed in the *Essemeja* (*Asantemanso* Sacred Grove). The deification and dedication of particular forests and water bodies to particular ancestors, spirits and deities have ensured their protection from exploitation. This confirms the views of Kehinde (2013) and Awuah-Nyamekye (2013) who theorized that the dedication or affiliation of particular biodiversity species and areas in the society to specific ancestors, spirits and deities have protected many biological diversities in their pristine state, devoid of any encroachment or exploitation.

In addition, some biodiversity species were observed as tabooed in the study areas. Others were also tagged as totemic objects in the community. This taboo system also ensured the exploitation and extinction of specific biodiversity resources in the communities. The researcher observed that some tree species were tabooed in the study area. There were allowed to be cut on rare cases and only after permission is granted by the traditional authorities where special sacrifices by the traditional priest are performed. These tree species included the Nufutene plant (*Kigelia africana*), Kakapenpen (*Rauvolfia vomitoria* Afzel), Betene (*Elaeis guineensis*), Nyankyerenee (*Ficus exasperate* Vahl), Osese (*Funtumia* sp.), Odum (*Chlorophora excelsa*), and Mahogany (*Khaya ivorensis*).

These findings corroborate the views of Eshun (2011) and Falconer (1992) who also realized that the tabooing of particular flora species in Ghana has helped in their conservation and prevention from exploitation. The maintenance of the resources via the taboo system has aided in ensuring species richness of the tabooed species in their Regions.

Some proverbs educate on the need to ensure the protection of biodiversity resources from possible exploitation. One of such proverbs noted in the study area is the Asante proverb 'Wo sum borɔde a sum kwadu' (When you support the plantain plant, do same for the banana plant) that exemplifies the need to keep in perpetual supply, the resource species in the environment, never compromising on any of them. This is painted by the imagery 'support for the plantain as well as the banana'. Exploiting biodiversity species is seen as a weak demonstration of behavior.

4.3 Avoiding Harmful Habitat Destruction and/or Modification

The habitats of the diversities of biological species in many of the gazette areas at where the study was undertaken have been prevented from habitat destruction or modifications due to the strict observance of cultural and artistic elements. For instance, the dedication of particular areas to specific known deities and ancestors while viewing the spot as sacred has ensured their preservation in their pristine forms. There has been not been modifications in the landmass such as encroachment of the *Asantemanso* Sacred Grove. Residents fear being punished by the ancestors and deities those sacred places have been dedicated. This has maintained the buoyancy of the habitats ensuring species richness or abundance.

Also, the linking of traditional festival to the sacred site has directly resulted in the renewal of the communities' resolve to respect the sacrilege of the gazette areas. The numerous taboos that are strictly observed in the study areas have been the driving force behind the avoidance of any threat that would destroy the habitations of the rich biodiversity. The researchers observed that residents in the study area were supposed to leave intact, the vegetation bank of not less than thirty metres around the water bodies. Also, no refuse, domestic or industrial waste is to be thrown into water bodies or forests neither are fisher folks allowed to fish in water bodies using chemicals. Likewise, it is tabooed for any resident to defecate in and around water bodies. In addition, washing or bathing into or around all water bodies are tabooed. This has prevented any destruction of the habitats of both terrestrial and aquatic biodiversity species.

Scientifically, the avoidance of encroachment of the landmass of the forests and water bodies in the communities through construction and other developmental projects would have destroyed water ways and led to serious erosions and flooding at nearby residential sites while reducing the volumes of the water bodies (Anim, Li, Agadzi & Nkrumah 2013). Likewise, the allowance of a large vegetation bank around the water bodies has prevented possible high levels of evaporation causing and destroying the habitats of many the aquatic species. The taboo against the throwing of refuse and all kind of debris into forests and water bodies have prevented the reductions of oxygen in the water bodies that would have made life unbearable for the aquatic species, particularly, fishes, who would have had to compete for oxygen with the domestic pollutant thrown into the water bodies resulting in high mortality rate of these aquatic species (Nketia et al. 2016). This unhealthy environmental activity would have resulted in habitat modification which would have resulted in massive migration or evacuation of the rich diversities of biological resources from the water bodies (Anim et al. 2013).

In addition, the taboo against the throwing of plastic, sewage and other industrial disposals into water bodies have prevented the introduction of organochlorines and other heavy metals into the water bodies (Orighabor 2016) which are very hazardous to the life of the aquatic species while increasing the acidity and poisoning of the water, making its consumption by humans and animals lethal. Adom et al. (2016) noted that the direct ingestion of the biodegradable pollutants causes slow Strangulation, Amoebic Dysentery and Giardiasis that kill many of the terrestrial and aquatic biodiversity in both the water bodies and forests. The taboo against farming close to farmlands and the use of chemicals for farming close to water bodies and the use of chemicals for fishing have great scientific benefits to the maintenance of the habitats of biodiversity. The feeding sites full of plankton and zooplankton at the shores of the water bodies fed on by the aquatic species would have been entirely destroyed (Orighabor 2016).

Furthermore, the taboo against the washing and bathing in and around water bodies have prevented the introduction of high quantities of nitrates and phosphates from the soaps and other washing detergents. This would have resulted in high levels of eutrophication and destruction of plankton that supports the lives of the aquatic species and increased the high acidity of the water, making the consumption of the water fatal (Nketia et al. 2016; Orighabor 2016). The scientific benefits of the implementation of cultural and artistic elements have indeed savored several habitats in the study areas from possible destructions and/or modifications.

4.4 Regulating the Onset or Duration of Harvests

The Asante cultural and artistic elements are very helpful in the monitoring of the harvesting of biodiversity resources. They aid in the regulation of when and how long the harvesting of the biodiversity species should be undertaken. For instance, the cosmological belief systems postulate that it is an act of cruelty to harvest the young ones of animals and young trees in society. It is equally sheer wickedness punishable by the deities and ancestors to kill a pregnant fauna species. Thus, in hunting sprees, society members are banned from killing young ones of all fauna species. These strict prohibitions the researchers observed in the study area have tactfully regulated the harvesting of biodiversity species. Boateng (1998) noticed that the closed season coincided with the times that the fishes in the water bodies laid their eggs while most of the fauna species in the forests engage in mating, get pregnant and nurse their young ones. Thus, the fallow taboo period have set parameters in regulating the duration when harvesting of the fauna species are supposed to be carried out. This has resulted in the sustainable supply of the biodiversity resources in the environment.

The wise maxims of the Asantes also educate on the need to regulate the duration for the harvesting of biodiversity. The Asante ancestors did set that precept which they have handed down to the current generation. Thus, the Asante proverb '*Aduane a wɔɔmmeto wo ni anaa wo se gya so no na yekyi* (The food you did not come to meet on the cooking fire of your parents is tabooed) advises the younger generation to mimic the sustainable lifestyles of their ancestors. Thus, they would endeavour to observe all the closed seasons that regulate the time span for the harvesting of biodiversity in the environment.

4.5 Patch-Switching to Maximize Overall Returns

The Asantes believe that the earth is a goddess and must not be abused. The residents in the study areas interviewed held the same view. As such, the farmers who tilt the land and use it for the cultivation of farm produce treat the landmass with great respect as if it were human. The people in the study area believe she is a graceful mother who generously gives the resources in her domains to the people who are considered by her as her children. This confirms the views of Boamah (2015) and Kehinde (2013) that the spirituality that the Africans associate to the earth imposes on them the high reverence for her. Thus, care is taken by Africans not to overly use the same portion of the earth for farming activities. Thus, the farmers in Essumeja utilize a land use system similar to shifting cultivation, where there is a yearly turn-over of the harvested land. Many of them utilized the long fallow periods for the soil to regain its nutrients and fertility. Some of the farmers have adopted other cultural agronomic agricultural practices such as mixed cropping, agroforestry, crop rotations and cover cropping. These agricultural practices that nourish the soil fertility are deliberately used by farmers in the study area primarily to renew the strengths of *Asaase Yaa* (Mother Earth) and not to overexploit her in their farming activities. Scientifically, these cultural agronomic agricultural practices such as cover cropping manage the soil erosion, soil quality, and soil fertility (Lui et al. 2000). The agroforestry practices similar to the Taungya system practiced by the farmers are all strategies used in enriching the replenished fertility potency of the Mother Earth. In terms of biodiversity conservation, these agronomic practices carried out by most farmers to appease the spirit of *Asaase Yaa* (Mother Earth) results in ecologically healthy and sustainable environment (Association for Temperate Agroforestry 2015). Cothren (2014) mentions that crop rotation practiced by farmers increases the nutrients of the soil, reduces the growth of pathogens and pests, adopt the while improving the soil structure and fertility. The belief in the earth being a goddess that must be enhanced by human operations have resulted in the embracement of agricultural activities that maximizes overall proceeds from biodiversity through patch switching procedures.

Indeed, the discussions of the findings from the study that have been subjected to the criteria in assessing the conservation value analysis of traditional knowledge systems have shown that the Asante cultural and artistic elements have great conservation worth. Thus, when they are well tailored into biodiversity management, they can offer a potent complementary knowledge to other knowledge systems in curtailing the biodiversity menace in Ghana.

5. Conclusions

The Asante cultural and artistic elements that were identified and described as pertinent to biodiversity conservation were subjected to the keys in the conservation value analysis of traditional knowledge systems set by Smith and Wishnie (2000) to vouch the worth of their conservation ethos for biodiversity conservation. Four main Asante cultural and artistic elements namely cosmological belief systems, taboos, festivals and proverbs were seen to possess resilient conservation ethos that are very relevant in Ghana's quest for the conservation of biodiversity.

The reverential fear propagated by the belief in cosmology, assists the majority of the Asantes in conserving the biodiversity in the environment. Moreover, the belief in future accountability of the stewardship toward the biodiversity in their environment after their physical passing imposes a sense of responsibility on a greater section of Asantes in judiciously using the biodiversity resources in their environment. Also, taboos are resilient prohibitions in the majority of Ghanaian communities' aid in the prevention of resource exploitation. Culprits are believed to receive spiritual punishments from the spirits and ancestors while the traditional authorities also ensure that they receive physical punishment in the form of paying fines and offering expensive, hard-to-find sacrificial items. Interestingly, the findings indicated that these taboo systems have scientific underwritings that inure to the conservation and healthy state of biodiversity in the environment. Many of the taboos ensure species richness and abundance of biodiversity in Ghanaian communities where their impacts are really high. The findings showed that festivals though are cultural events, directly or indirectly promote the conservation of biodiversity in the host and surrounding communities. The findings showed that festivals could be planned strategically to hone conservation efforts in many host and surrounding communities in Ghana. This included the innovative planning of festivals with biodiversity conservation activities and education in mind through the effective collaboration of between the conservation agencies and the festival host communities.

Proverbs are used as strong mediums for moral instruction of society members on the justifications for biodiversity conservation. The metaphoric use of flora and fauna species as the main characters in proverbs ingrain in the minds of listeners the special interrelationship that exists between humans and the biodiversity in nature. The findings showed that this education imprints on the hearts of learners, the need to conserve and ensure the perpetual supply of biodiversity to the present and future generations.

The following recommendations have been put forward by the researchers for policy implementation.

1. The religious teachers in the various churches, mosques and shrines must be tasked by the Ministry of Environment, Science, Technology and Innovation to exemplify teachings on biodiversity conservation as part of their religious teachings in their religious meetings and programs. During such teachings, the religious teachers must place emphasis on the reverential fear that their members have for the leaders of their religions as well as highlight their shining examples in spearheading campaigns for the conservation of biodiversity in the environment from their religious books, literature and/or oral traditions. This would ensure that the cosmological belief systems held by the Ghanaian people are cleverly utilized in heightening conservation efforts for biodiversity in the country.
2. Educational experts and curriculum planners in the Ministry of Education responsible for the development of teaching curriculum of subjects and courses to be taught in all the various educational levels in Ghana must introduce the teaching of the moral lessons in proverbs into the curriculum of affiliated courses such as environmental science, citizenship education, and so forth. This would imbibe sound conservation knowledge in Ghanaian students and exert a positive influence on their attitudes toward the use and management of the biodiversity in the country. Workshops and seminars must be organized by the Ministry of Environment, Science, Technology and Innovation in the various educational institutions in Ghana to educate the teachers on the educational imports of proverbs and other wise maxims on biodiversity conservation so that they can equally impart it to their students.
3. Productive taboos in the Ghanaian societies that promote and enhance the conservation of biodiversity must be strictly observed in areas where this traditional arrangement holds greater potentials. Culprits who breach them must be punished by the traditional councils in their jurisdiction. Societal gatherings and meetings must be organized by the traditional councils with the support of the Ministry of Environment, Science, Technology and Innovation in reiterating, reminding and educating the societal members on all the taboos relating to the use of biodiversity to ensure that they are not abused or wantonly destroyed.

4. The Forestry Commission must furnish the traditional council and/or festival organizing committee with enough information on the safety and friendly environmental practices that needs to be pursued during the festival eve. They must supply the seedlings of endemic species that are appropriate to be grown in the host communities during the festival eve and support community members with the technical knowhow and expert advice on how to plant the flora as an attempt in arresting the evading of the rich flora diversities in the region. This would assist in using the traditional festivals as platforms in greening the environment and conserving the biodiversity in the area.

6. Area for Further Research

The Visual Artforms can be tailored into the production of visual communication tools for biodiversity conservation campaigns by conservation agencies. A study in this area will be worthwhile and would intensify biodiversity conservation awareness and sensitization programs in Ghana.

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