

## **ASANTE INDIGENOUS KNOWLEDGE SYSTEMS: REPOSITORIES OF CONSERVATION ETHICS FOR GHANA'S BIODIVERSITY**

**DICKSON ADOM**

*(Department of General Art Studies, Kwame Nkrumah University of Science and Technology,  
Ghana)*

---

### **Abstract:**

*The indigenous knowledge systems of the Asantes handed down to them by their past but active forebears carries a lot of weight in biodiversity conservation discussions. This is promulgated by the numerous conservation ethics hidden in the cultural and artistic practices of the people. Using the Asante Bekwai Traditional Area and its Protected Areas as a case study, the researcher accentuates the enormous conservation ethics in the Asante indigenous knowledge particularly cosmological beliefs, taboos and totems. Data analysis spiral was implemented for the interpretation of the data accrued via focus group interviews and non-participant observations. The study revealed that the Asante indigenous knowledge systems were and is still instrumental in conserving the biodiversity resources by regulating the residents' behaviours towards the biodiversity resources in the environment. The research contends that the conservation ethics of Asante indigenous knowledge transcends time and must be utilized in contemporary conservation strategies for biodiversity. The study advocates for a renaissance and factorization of Asante indigenous knowledge in various developmental projects in Ghana. It tasks developers of conservation strategies and projects in Ghana to tactfully synergize the Asante indigenous knowledge with the Western scientific knowledge to aid in conserving and arresting the deficiencies in Ghana's biodiversity.*

**Keywords:** *Asantes, Biodiversity, Conservation Ethics, Cosmological beliefs, Indigenous Knowledge, Protected Areas, Totems, Taboos*

---

### **Introduction**

Biodiversity is a valuable asset that sustains life on earth (Cho, 2011). It offers indispensable provisional services to man such as food, clothing, shelter, medicine etc. (Bradley, Emmet & Gonzalez, 2012). This makes it imperative that humans conserve the biodiversity resources in the environment. Thus, nature's resources must be used judiciously so as to keep them in constant supply to the present generation and the future progeny. However, it is sad to gleam from various reports that the numbers of biodiversity resources globally are reducing at a very alarming rate with most species at the threshold of extinction. Vaughan (2015) recently reported that there has been an unprecedented rate in the earth's biodiversity species loss which is hundred times higher than its normal rate

since the 4.5 billion years of the planet's existence. These great extinctions and decline in the biodiversity species are to the peril of humans and at an ascending cost. For instance, it is estimated that Ghana's economy loses over GH¢ 42 million annually as a result of her biodiversity depletion (Ghana News Agency, 2012). There are high concerns by international and local bodies for pragmatic solutions to salvage this high deteriorating rate of the biodiversity resources in the environment.

A critical analysis and comparison of the biodiversity numbers of the past human forebears, the deteriorating rates and strategies that were implemented to regulate the usage of the biodiversity resources with the modern biodiversity numbers, deteriorating rates and conservation strategies shows significant margins. What caused this huge gap? Some scholars attribute it to the advancement in human population and industrialization (Shah, 2014). This may be true to a certain degree since humans keeps increasing in population and thus puts great pressure on the biodiversity resources in the environment. This notwithstanding, others like Diawuo and Issifu (2015) as well as Adu Gyamfi (2011) and Bonye (2008) associate the rapid loss of Ghana's biodiversity to the relegation and/or abandonment of the indigenous knowledge enshrined in the cultural practices of the people such as taboos, totems, cosmological belief systems, myths, proverbs, folklores, festivals and the like. These repositories of indigenous knowledge systems proved resilient in monitoring the judicious usage of Ghana's biodiversity resources (Awedora, 2002). The indigenous knowledge of the Asantes appealed to the moral of the Asantes and helped in shunning negative behavioural patterns that caused massive wrecks to the biodiversity resources in the environment. Appiah-Opoku and Hyma (1999) contends that the cosmological belief systems of the Asantes instilled discipline among the Asante people while cautioning them not to abuse the biodiversity resources in the environment so as not to incur the wrath of the gods and ancestors. The indigenous knowledge systems of the Asantes were the sole traditional institutions that helped in averting the depletion of the biodiversity resources in the environment. It is however sad that today most of these indigenous knowledge systems have been totally abandoned for the Western scientific knowledge in modern biodiversity conservation discussions, projects and strategies (Ngara & Mangzivo, 2013). This worrying situation exists in Ghana, a nation coloured in numerous time-tested and proactive indigenous knowledge systems. The full swing to the Western scientific knowledge by conservation bodies and agencies has been the sole cause of the biodiversity depletion in Ashanti and Ghana as a whole. Golo and Yaro (2013) argue that these Western scientific models of conservation used singlehandedly have significantly failed because they do not give room for the Ghanaian indigenous knowledge.

Owing to the huge impact of Asante indigenous knowledge systems in biodiversity conservation in the past, several scholars have advocated for a renaissance as well as the factorization of the conservation ethics that underpins the indigenous knowledge of the Asantes in the light of proverbs, totems, cosmological beliefs, taboos etc. in the modern

biodiversity conservation strategies (Soini & Dessein, 2016; Gadzekpo, 2013). The researcher believes that a synergy of the two forms of knowledge thus the Asante indigenous knowledge with the Western scientific knowledge can pave a pragmatic journey in our quest to salvage the remnant of the biodiversity resources in Ghana. This study highlights the significant conservation ethics in the Asante indigenous knowledge and how these valuable repositories of conservation values can be utilised in conserving Ghana's biodiversity which is now in wanton depletion. The proceeds of the paper would be a powerful tool to conservationists and developers of conservation strategies in Ghana and other sub-Saharan African states in coming out with the sure antidote to halt the abysmal retrogression of the biodiversity resources in nature. It will aid in beefing up the sensitization of the wealth of ecological wisdom in the indigenous knowledge systems of the Asantes. This action will greatly ensure the preservation, transmission and propagation of the Asante indigenous knowledge systems which are now under constant threat of eradication. More importantly, it will help regulate the moral attitudes of Ghanaians and change the decadency in their attitudes towards the biodiversity resources in the environment which to this researcher has been the cardinal cause of Ghana's biodiversity depletion.

### **Definition of Indigenous Knowledge**

Indigenous knowledge has been branded other names by various scholars. Some of these are folk knowledge, local knowledge, non-formal knowledge and traditional knowledge (Battiste, 2002; G'Nece, 2012). These other names assigned to indigenous knowledge add up to the description and nature of the form of knowledge. Its informal because it is not acquired through formal institutions but rather informally through observations from cultural and artistic practices and gleaned through experiences or experimentations as purported by Materer, Valdivia and Gilles (2002). Wilder, O'meara, Monti and Nabhan (2016) concurs that indigenous knowledge is informal because it is transmitted orally by elders to very conscientious and respectful youngsters by the experienced elders who are well versed in the cultural heritage of the people. Also, it is traditional in that the knowledge is peculiar to a specific group of people or ethnic society within a cultural context and is transferred from one generation to another generation (Battiste, 2002). However, Materer et al (2002) opines that indigenous knowledge accommodates for slight changes to suit current needs and circumstances. This explains why they argued strongly against scholars who view indigenous knowledge as immobile and static. The researcher is of the same opinion that culture is dynamic and thus indigenous knowledge can be modified to a degree to cater for other relevant contemporary developmental elements that would heighten the ideals of the cultural heritage of a people. Elements of indigenous knowledge that is not progressive can be altered to ensure the socio-economic furtherance of a particular ethnic society. Simultaneously, Ajani, Mgbenka and Okeke (2013) reaffirm

this train of thought that it's not all the indigenous knowledge and its practices that ensure sustainability or can provide remedies to a contemporary problem. These indigenous knowledge systems can be adapted to advance contemporary developmental agenda.

Indigenous knowledge has been given various definitions by many scholars and agencies. For instance, Ajani et al (2013) defined indigenous knowledge as an institutionalized local knowledge that is built upon and passed on from one generation to the other by word of mouth. Battiste (2002) views indigenous knowledge as all the forms of knowledge such as scientific, agricultural, technical and ecological knowledge about a specific local people and ethnic culture passed on from one generation to the generation. Gbolonyo (2009) opines of indigenous knowledge as the experiential knowledge born out of the experiences and experimentations of the elders to the younger generations. Grenier (1998) defines indigenous knowledge as a special traditional knowledge that exists within a cultural setup in a society. The United Nations Conference on Environment and Development (UNCED) defines indigenous knowledge as:

'the holistic traditional scientific knowledge of a people's lands, natural resources and environment developed over many generations as a result of their interrelationship with the natural environment towards cultural, social, economic and physical wellbeing of the indigenous people (Chapter 16)'.

These definitions enlighten us about the scope and nature of indigenous knowledge. It is born from experimentations and observation about life and its challenges. It is given orally by the experienced elders in the society. It is passed on from one generation to the other. The knowledge is gradually built upon to suit the current developmental needs.

Based on these definitions, the researcher prefers to define indigenous knowledge as the well seasoned, dynamic and adaptable knowledge embedded in cultural and artistic practices creatively developed by the forebears out of the numerous experiences of life, keen observation of life and constant experimentations necessitated by their quest to arrest the challenges of life transmitted through oral tradition by the old folks to generations. This working definition formulated by the researcher clearly describes the nature of indigenous knowledge and clears doubts in the other formulated definitions by some scholars. It underscores why cultural and artistic practices must be rigorously researched to unveil the indigenous knowledge passed on to us as a parting legacy by our forebears which must be periodically pruned to rid it of any inconsistencies and discrepancies while nourishing it to a time-tested, reliable form of knowledge suitable to today's contemporary developmental settings.

### **Characteristics of Indigenous Knowledge**

The ongoing discussions have cleared the path for having a thorough description of indigenous knowledge. Materer et al (2002) mentions that indigenous knowledge is characterized by knowledge combed from past generations, by the deceased but still living

forebears in local communities who are believed to be constantly policing and monitoring activities in the society. These genius forebears cleverly developed this knowledge system from personal experiences and observations in life through the spirit of analyzing, trying, failing, succeeding and never giving up spirit of finding solutions to life's relentless maladies (Ajani et al, 2013; G'Nece, 2012). This underscores the researcher's firm assertion that indigenous knowledge is time-tested, reliable, proactive and indispensable in humans' effort to salvage his problems; very worrying is the accelerating rate of the world's biodiversity resources. Moreover, this form of knowledge is relayed to the young ones in local communities by the eloquent elders who act as instructors in informal settings such as family gatherings, community members, traditional courts and other societal meetings. It is carried out orally by mouth with no system of writing as it's done with the Western scientific knowledge (Battiste, 2002).

Materer et al (2002) reveals that indigenous knowledge is embedded in the cultural and artistic practices of the local people such as proverbs, myths, folklores, totems, festivals, cosmological beliefs etc. This sheds another light on why indigenous knowledge is said to be dispatched informally. As young societal members partake in the observance and commemoration of these practices with all seriousness, critically observing how the elders explain the meanings and rolls out interpretations behind the cultural values in the local communities, they become knowledgeable as they drink from the receptacles of wealth of indigenous knowledge transmitted from one age bracket to the other.

Indigenous knowledge is not isolated from the everyday life of the local people. Materer et al used the term 'intertwined' thus the indigenous knowledge permeates in every sphere of the life of the people. Indigenous knowledge is disseminated during evening gatherings, family meetings, commemoration of events and ceremonies, undertaking occupational responsibilities, religion etc. These practices which are containers of the indigenous knowledge are artistically expressed in all aspects of life. This takes us back to the commonplace saying that 'Art is life' (Adom, 2011). The unique features of indigenous knowledge discussed stress its usability and effectiveness in remedying contemporary problems such as the menace of biodiversity conservation.

### **Misconceptions about Indigenous Knowledge**

Indigenous knowledge has been misconstrued by many scholars. The researcher is of the view that these misconceptions about indigenous knowledge is as a result of misinformation, ignorance or sheer prejudice against this viable knowledge system. Battiste (2002) noticed that due to the fact that indigenous knowledge reaffirms the knowledge of our past forebears, some scholars hastily conclude that it rests in the past and is incapable of projecting into the future. Thus, in humans search to find solutions to curtail future problems, indigenous knowledge is handicapped because instead of moving forward in developmental agenda it rather retrogresses backwards.

Moreover, because most of the indigenous knowledge systems in Africa as a whole dwell on spiritual variables some scholars feel that they satanic, primitive, uncivilized and even inferior when compared with the Western or academic science (Wilder et al, 2016; Gbolonyo, 2009). Nganga and Mangzivo (2013) note that the indigenous knowledge systems are now been unjustly negated though they have time and again proved very effective in conserving biodiversity. This has been the cause of the sidelining of indigenous knowledge in several contemporary developmental projects around the world. For instance in Ghana, biodiversity conservation strategies look more to the Western scientific knowledge (Golo & Yaro, 2013). Abdullahi, Usman, Samaila and Zuni (2013) also noticed among some states in Nigeria that indigenous knowledge does not receive much attention in modern forest management theories and practices, though Boateng (1998) as well as Iyoro and Ogungbo (2013) noticed that it was the resiliency of indigenous knowledge that singlehandedly conserved the biodiversity resources in the past. Battiste (2002) even realized that indigenous knowledge which contains wealth of wisdom has been taken out of the instructional curriculum in most educational institutions paving the way for full swing to Eurocentric or scientific knowledge.

Do these misconceptions about indigenous knowledge carry any weight? Certainly not! Indigenous knowledge does not live in the past and thus unworthy of consideration in modern developmental projects. It is rather on the contrary because conservation projects that failed to factorize indigenous knowledge systems have significantly failed. Materer et al (2002) as well as Abdullahi et al (2013) posit that due to the failure on the part of agencies and bodies to incorporate indigenous knowledge and practices in funded conservation strategies or projects failed and didn't achieve any successes. If they were irrelevant to current developmental projects why did those projects trail due to their absence? Indeed, indigenous knowledge is indispensable in our fight to combat the woes of humanity especially the huge canker of biodiversity degradation.

What about the issue of indigenous knowledge wrongly labeled as satanic, barbaric or uncivilized because they dwell on spiritual variables? Some trained experts and developmental planners feel that that are superstitious and thus totally neglect them in their developmental agendas. This view is also a farce owing to the fact that indigenous knowledge has been proven as scientifically reliable and accurate (G'Nece, 2012). The worldviews of the indigenous knowledge and its addiction to religious beliefs has aided in their survival or preservation to this age. Notwithstanding, Iyoro and Ogungbo (2013) point out that today serious academicians, researchers and scholars who have rigorously and patiently analyzed the indigenous knowledge systems have gained the enlightenment that indigenous knowledge forms have an adaptive integrity and are thus valid for usability. Also, they are result-oriented today as they were in times past. G'Nece even feels that modern technical experts' expertise and knowledge which is basically scientific does not come anywhere close to the insight found in the indigenous knowledge systems.



Therefore, scholars who have misunderstandings concerning the nature, scope and relevance of indigenous knowledge are advised by the researcher to rigorously analyse their impacts as well as their scientific and philosophical underpinnings rather than bracketing them as superstitious nonsense. This critical evaluation and analysis of this high form of ancient knowledge will change their misconstrued views and even heighten their interest and campaign for it in humans search for solutions to the problems of the world such as biodiversity decline. If researchers systematically look into the ways that the past forebears cleverly developed this form of knowledge, they will unearth timeless and effective conservation values that can help save the biodiversity resources in the environment.

### **Importance of Indigenous Knowledge**

The relevance of indigenous knowledge systems cannot be overemphasized. Its positive impacts can be seen in every developmental aspect of life. However, since this paper gears to biodiversity conservation, the benefits of indigenous knowledge systems will be discussed in this light. Indigenous knowledge always focus on the development of the behavioural patterns of people which the view of changing the way they react to the biodiversity resources in nature. It bestows a moral obligation on applicators of it and thus helps in creating 'moral economy' (Materer et al, 2002). Indeed, indigenous knowledge is a great form of wealth since it helps governmental agencies in saving billions of money to curtail the pungent aftermath of moral decadency that raids off the environment of its precious biodiversity resources that supports life.

Ajani et al (2013) highlight that indigenous knowledge systems can be very beneficial to conservationists and planners of biodiversity conservation strategies. They mention the cost-effective nature of indigenous knowledge, its participatory as well as sustainable values. It is participatory in that it is the foundation for making decisions in local communities. In addition, indigenous knowledge promotes the spirit of communalism or social work making the implementation of developed conservation strategies developed from them workable (Battiste, 2002). Ajani et al adds that this participatory nature of indigenous knowledge systems advocates for the highest level of local participation helping in the sustenance of conservation projects. Every compact society enjoys the food prepared from their own pots and certainly will wholeheartedly support in its implementation. That is why Wilder et al (2016) recommends to scientists and conservation planners of projects to incorporate indigenous knowledge systems in biodiversity conservation policies and strategies while teaming up with the local people in its planning or development. This will ensure the smooth implementation and success rather than declining their involvement and having failures and losses of revenue (Golo & Yaro, 2013).

Furthermore, G'Nece (2012) elaborates on the cost-effectiveness and faster implementation of indigenous knowledge. He says that hiring scientific experts on biodiversity projects is

expensive because they are paid on hourly basis making their services very expensive. On the other hand, indigenous knowledge is easily tapped from the local people. This would attract less or no monetary reward. He cites how indigenous farmers through the observation of the ratio of clay to sand and moisture as well as the level of decayed matter can easily determine the level of soil fertility which would be carried out by technical experts for months at a very high cost.

Culturally relevant species of flora and fauna as well as their habitats have been conserved using indigenous knowledge systems. This is because these species have been are culturally intertwined with the customs and beliefs of the people (Wilder et al, 2016). For instance, Diawuo and Issifu (2015) noticed that the Sankana community in the Upper West region of Ghana does not kill pythons because it is their totem. It is an oral tradition believed among the local people in the Sankana community that it was a huge python turned itself into a log and help their ancestors in crossing a river that severed them from their enemies. Owing to this, the area is populated with different species of patterns with diverse genetic makeup. This myth which is an indigenous knowledge system has helped in conserving the great diversities of pythons.

Another significance of indigenous knowledge is that it serves as a checker for the scientific analysis carried out in local communities (G'Nece, 2012). This is important because sometimes a scientific analysis may be wrong in its application to a particular local community. In this light, the local people's indigenous knowledge can provide a pool of rich information and insight to correct the deficiency of the scientific analysis which when applied universally cannot remedy the distinct characteristics of each ethnic society.

It is due to the immense value of indigenous knowledge that is why international bodies and agencies who are big wits responsible for biodiversity conservation have advised national conservation planners to critical consider them in the planning and formulation of national biodiversity conservation strategies and policies. For instance, the United Nations Convention on Biological Diversity (CBD) article 8 of Chapter 10 urged each contracting party to 'respect, preserve and maintain knowledge, innovations of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.'

Simultaneously, the strategic plan for biodiversity 2011-2020 and the Aichi biodiversity targets, target 18 said 'By 2020, the traditional knowledge, innovations and practices of indigenous and local communities and their customary use are respected'. In the same intent, the Rio Declaration on Environment and Development, principle 10 states that 'environmental issues are best handled with the participation of all concerned citizens at the relevant level'. These global biodiversity agencies who have funded numerous conservation projects and experimented with various strategies have reckoned the huge impact that indigenous knowledge and their people brings to the biodiversity discussions table. The extent of valuable insight of indigenous knowledge systems makes their



factorization in biodiversity conservation planning and formulation of biodiversity conservation strategies obligatory. However, it's not all the sides of the coin of every form of knowledge that is beneficial to advance contemporary developmental agenda. The good aspects of all forms that promote sustainable development can be merged. This will heighten, enrich and enhance both forms of knowledge to achieve the much yearned for global biodiversity vision of conserving the biodiversity resources for the usage of the present and future generations (Gbolonyo, 2009).

### **A Synergy of Indigenous Knowledge Systems with Western Scientific Knowledge**

A blend of diverse form of knowledge is suggested by many as the best approach in coming out with pragmatic conservation strategies for biodiversity. However, other scholars dissuade the idea of synergizing the two forms of knowledge. Attuquayefio and Fobil (2005) realized that many scholars vehemently deny the possibility of linking the two main streams of knowledge thus the indigenous knowledge and the Western scientific knowledge. This condition is also prevalent among policy makers and conservationists from Ghana who fail to envision a possible fusion of the two systems of knowledge (Awuah-Nyamekye, 2013). Unveiling the cause of this impossibility of merging the two forms of knowledge systems, Sinclair, Tuke and Opiang (2010) says that these scholars are ill-informed about the successes of such a synergy of different knowledge systems. Others are incredulous that the two systems of knowledge will be efficient since both of them have divergent concepts and implementations. Is this actually the case? Indigenous knowledge and the western scientific knowledge are not significantly different from each other. Awuah-Nyamekye (2013) concurs that the indigenous knowledge has scientific underpinnings that are comparable and agreeable to the scientific strategies for biodiversity conservation.

Golo and Yaro (2013) posits that a very pragmatic, constructive and sustainable biodiversity conservation strategy is the one that succinctly blends the indigenous knowledge systems which reflects the beliefs, hopes and aspirations of the people with the scientific knowledge and technological innovation to solve contemporary biodiversity depletion. This is true because just a one-faced approach cannot fully combat the biodiversity decline today. This same sentiment is expressed by Moller, Berkes, Lyver and Kislalioglu (2004), Sinclair et al (2010) as well as Johnson (1992) that indigenous knowledge or scientific knowledge when used in isolation may not be enough, in fact, cannot combat the biodiversity menace. This is due to the weaknesses associated with each of the knowledge systems. It is not every indigenous knowledge or scientific knowledge that may be reliable to provide solution to peculiar biodiversity depletion canker in a jurisdiction. It will be prudent as Johnson (1992) opines, to build on the strengths of both systems of knowledge so that we can fully tackle the biodiversity depletion canker. A pluralistic action would aid in developing very durable and efficient biodiversity

conservation strategies (Wilder et al, 2016). Sinclair et al (2010) passionately said that it makes sense to integrate both forms of knowledge since this is likely to yield better results. Such a multidisciplinary approach as against the truncated approach of looking into one lens widens the prospects of the biodiversity conservation strategy, making it more flexible and holistic to address the divergent phases of the biodiversity crisis in our environment (Attuquayefio & Fobil, 2005).

Scientific advancement makes it imperative to search for answers using the strictly analytical methods of finding answers to life's untold problems such as biodiversity degradation. However, as Boersema and Reijnder (2009) as cited in Awuah-Nyamekye (2013) argue that environmental problems are more of social issues and thus a truncated approach to only scientific knowledge cannot entirely provide the breakthrough that we earnestly seek to avert the biodiversity degradation problem. Changing the behavioural patterns of people is the perfect key to help in the implementation and realizing the successes of every biodiversity conservation strategy or policy formulated. Rim-Rukeh, Ierhievwie and Agbozu (2013) concur that indigenous knowledge has been the sole behavioural guide for the rural folks. Indigenous knowledge is culturally enshrined with behavioural corrective elements that can change the outlook towards the biodiversity resources in nature (Soini & Dessein, 2016). In this stream of thinking, Mapira and Mazambara (2013) rhetorically asked that 'How can we understand and preserve the natural environment without taking into account the human cultures that have shaped it since the dawn of time?' Certainly, no proactive conservation strategy developed to curb biodiversity decline can effectively function if it is void of indigenous knowledge which reflects the culture of the indigenous people. Also, in developing countries like Ghana that is pulverized by the high economic heat, it will be a wise course to consider a fusion of the two forms of knowledge which makes any biodiversity conservation strategy propounded from it cost effective (Sinclair et al, 2010).

However, to undertake such a synergistic approach, they have to be a very mutual understanding between the two systems of knowledge (Iyoro & Ogunbo, 2013). Indigenous knowledge should not be rated higher than western scientific knowledge and vice versa. Policy makers and conservation developers must be weary against such knowledge factorization nepotism as they formulate policies and strategies barring against biodiversity depletion. Ajani et al (2013) cautions against the temptation of incorporating more of either the indigenous knowledge systems or the western scientific knowledge system in any biodiversity conservation strategy propounded. The researcher however suggests that the ratios of the two knowledge systems must be based on the culture and unique biodiversity depletion problem in a particular area, community or nation. Even in doing this, very strict measures must be taken so that the biodiversity conservation strategy developed would not suggest any biases or devaluing of any of the forms of knowledge. Both of them must be seen as complements or coequals (Berkes, 2012; Msuya &

Kideghesho, 2009). Conservation planners must show in the biodiversity conservation document they produce that they highly respect and recognize the distinct creative elements or values in each of the systems of knowledge as Wilder et al (2016) suggested.

A very thoughtful, systematic synergy of indigenous knowledge systems with western scientific systems will aid in formulating time-tested and reliable biodiversity conservation strategies that can holistically address the biodiversity degradation menace.

### **Asante Indigenous Knowledge**

The Asantes is part of the Akan people who reside in the southern part of Ghana. It is the largest and most influential ethnic culture in Ghana (Boateng, 1998). The Asantes has a high standard of administrative body and staunch cultural practices which is an outlet for their highly crafted indigenous knowledge. The indigenous knowledge of the Asantes share the most significant commonalities evident in the diverse ethnic cultures in Ghana (Gyekye, 1996). This indigenous knowledge systems of the Asantes, as Attuquayefio and Gyampoh (2010) admitted, is seen in the complex and compact religious and cultural belief systems of the Asante people which were targeted at conserving the biodiversity resources in nature to promote the communal interest. This communal interest is not that of the present living community but also that of the unborn as well as the spiritual beings who were viewed as active members of the community by the Asantes.

Awuah-Nyamekye (2013) noticed about the Asante indigenous knowledge that they have scientific, philosophical underpinnings and conservation values that when implemented can help in conserving the biodiversity resources in the environment. It is behind the high taxas of the biodiversity resources in most of the areas in the Ashanti region of Ghana. These indigenous knowledge systems of the Asantes are very resilient and pragmatic in curtailing biodiversity depletion. They include cosmological beliefs, taboos, totems, myths, folklores, proverbs, festivals, songs etc. These indigenous knowledge systems have been the anchor preventing resource exploitation in Ashanti and Ghana as a whole (Bonye, 2008). The Asante forebears intentionally created the proverbs, folklores, myths and others which constitute the Asante indigenous systems with the view of conserving the biodiversity resources in nature that serve as life support. Adu Gyamfi (2013) agrees that the indigenous Asante indigenous knowledge systems are affable with the environment and its conservation. This explains why heeding to the inclinations of the Asante indigenous knowledge has a high pitched voice in biodiversity conservation. However, the Asante indigenous knowledge discussed in this paper will be limited to cosmological beliefs, taboos, and totems.

### **Components and Importance of Asante Indigenous Knowledge in Biodiversity Conservation**

#### **Cosmological Beliefs**

Adom (2011) says of the Asantes that they believe that the cosmos or universe is full of spirits. These beliefs in connection with the distinct spirits in the cosmos is said to be the 'cosmological beliefs'. These spirits believed to be existing in the universe are arranged in hierarchical order based on the potency level of their power. For instance, the supreme deity (God) is at the top, followed by the ancestors, lesser spirits, animism, sorcery and witchcraft. Twumasi (1975) says of the cosmological belief systems as shaping and controlling the behavioural patterns of the Asantes while providing sanctions for social cooperation and organization. This section of the discussion looks at each of the belief systems and how they assist in biodiversity conservation.

The Asantes believe that the supreme deity and the ancestors will hold them accountable if they abuse the biodiversity resources in the environment which they are to conserve them in their pristine form and even better than how they came to meet it (Danquah, 1968). This idea of accountability imposed on the Asantes served as a check to regulate the attitudes of the Asantes toward the biodiversity resources in the environment. It was absurd to see a typical Asante wantonly destroying or abusing things in nature. Also, after their physical passing, the ancestors will only give them a safe passage to the metaphysical world and treat them with dignity or disrepute and even disdain if they abused the biodiversity resources the environment. Pondering over the success of their afterlife, a typical Asante will endeavour to respect the biodiversity resources, judiciously using only those that would cater for the sustenance of himself and the family. The punishments that were given to culprits instantaneously from the ancestors and deities were very severe and thus regulated the morals of the Asantes vis-à-vis the biodiversity resources in nature. Awuah-Nyamekye (2013) posits of the supreme deity, the ancestors and the lesser spirits that they constantly police the activities of man and as such show their displeasure to culprits defiling the environment with drought, sicknesses, famine and other distressing problems. Individuals can sometimes face sudden death or be struck with grievous ailments like leprosy, epilepsy and the like (Gyekye, 1996; Adom, 2011). Not wanting to incur the wrath of the supreme deity, ancestors and lesser gods and its untold repercussions, the Asantes carefully utilised the biodiversity resources in the environment. G'Nece (2012) noticed that about the Asante hunters that they refrained from bad hunting practice such as grossly killing of without thinking of food security or the future generation would incur the anger of the ancestors who would interpret it as a failure in honoring their sacred obligations. The indigenous Asante thus never wanted to step on that threshold.

The belief in animism from the Asante perspective is the belief that God has given special powers to some animate and inanimate objects like plants, animals, stones, woodlands, water points, mountains and so on. These objects were viewed as sacred and as such was not to be abused Diawuo and Issifu (2015) Also, these animate and inanimate objects are believed to have souls or spirits inherent in them and as such if wantonly destroyed would incur the wrath of the soul of the tree or animal (Rattray, 1927). Opoku (1978) even

mentioned that pacification rites are carried out before a tree is felled for personal or societal use. These elaborate rites as well as the notice of members of the traditional court highly monitored and regulated the usage of the biodiversity resources in the environment. This has saved most of the biodiversity resources in the Ashanti region of Ghana.

### **Totem**

A totem is a special animal, bird, plant or object which an ethnic society, family or clan revere as sacred because it might have provided a special assistance to that particular ethnic society or clan that ensured its survival. The word's origin buttresses this explanation. Awuah-Nyamekye (2013) traces it to the North American Ojibwa word '*ototomen*' which means 'maternal relatives'. Awedora (2002) expresses his view that some ethnic culture traces their beginning to the totemic plant or animal which is seen as an ancestor or ancestress. This sounds perplexing and is said to be a myth among the people. In another view, Diawuo and Issifu (2015) opine that the totemic animal, plant or bird may have special attributes which societal members would want to be identified with. For instance, the Bretuo clan views the leopard as its totemic animal because they want their societal or clan members to be associated with qualities such as power, might and bravery. Another reason for adopting a particular animal, plant or object as a totem by a family or clan is due to the assistance rendered to the people by that totem. Conservation International (2003) said that the totemic animal might have revealed the secret of defeating an enemy or the cure to a strange disease that caused a plague among the ethnic society. Therefore to show their appreciation, the totemic animal is revered and societal members do not kill it. Still, the totemic animal might have offered some sought of enlightenment or even tutorial to the first ancestor or ancestress of the family or clan. This assertion coincides with what Adom (2011) learnt of the Asantes that it was the python that taught them the art of conception. Such animals, plants or objects are shown appreciation by members of the clan or family as counseled by the ancient but popular Asante proverb '*Obi ye ade a js3 ayeyie*' (When one undertakes a good deed he must be praised or shown appreciation).

Adom realized among the Asantes that extravagant funerals are organized for totemic animal, bird or plant as if it were human. When a hunter or any societal member chance on the totemic object in pain or injured, a swift aid is offered it. That is why in some indigenous communities, some indigenous totemic plant species that are uprooted by unfortunate natural disasters are re-planted or assisted to stand on their feet with a stick that serves as a support to it. It is even tabooed in some Asante communities to deliberately step on a totemic plant seedling or kill a totemic animal. For the offender to be at peace with his or her totemic animal or plant that was accidentally killed, special ritualistic and pacification rites are performed by the traditional priest on behalf of the culprit.

However, the hidden values in the idea of totemizing some objects in nature might transcend just their mythical explanations given by the old sages in the society. Ecologically, the idea of conserving the totemic animal, plant or object as well as their habitats has ensured the preservation of them in high taxes and great diversities in the Ashanti region of Ghana.

### **Taboos**

The etymology of taboo is traced by Adu-Gyamfi (2011) to the Polynesian word 'tabu' which means 'forbidden'. Thus, taboos are the dos and don'ts in the society which a breach could incense the traditional authorities who are the custodians of such social form of regulations and more importantly the ancestors and deities who gave out such prohibitions. These prohibitions, laws and regulations were orally passed on to younger generations by the seasoned elders in the community. Boateng (1998) shed light on the reasons for such prohibitions. He said that taboos were used as a ploy for protecting the earth who is believed by the Asantes as a goddess or mother to enable her fully perform her duties as a mother, constantly supplying resources to cater for the needs of her human children. Viewed as regulations from the deities and ancestors, taboos are highly revered by the indigenous Asantes. A breach of any of these taboos will welcome the displeasure of the ancestors and deities whose sanctions or penalties are really huge to culprits. Eshun (2012) noticed that some Asantes who abused taboos related to the felling down of some trees with powerful spirits believed to be inherent in them were stricken with infertility. Ormsby (2013) adds that culprits could experience very distressing sickness such as seizures, culprits not being able to eat or drink, as well as seeing strange things at night. These were seen as evil attacks by stubborn infringers of the taboos by the ancestors and deities. The punishment given by the ancestors and deities sometimes could extend beyond the individual culprit to the entire society (Awuah-Nyamekye, 2013). This usually happens when the primary offender is not brought to book or not asked to perform the pacification rites to appease, subsidize and soften the wrath of the gods and ancestors. Msuya and Kideghesho (2009) admits that the items usually requested by the traditional priest and priestesses to pacify and soften the face of the offended ancestors and deities are usually expensive and sometimes hard to come by. Such items included rams, fowls, white clothes, white eggs, alcoholic drinks for libation performance etc. In order cases, the traditional authorities ask the culprit to pay huge monetary fines. These served as traditional checks deterring and regulating the moral conduct of Asantes against wantonly destroying the biodiversity resources in the environment.

Boateng (1998) states that among the Asantes, there were taboos against the cutting down of highly economic trees like Dawadawa plant (*Parkia clappertoniana*), Shea butter (*Butyrospermum parkii*), palm trees such as Betene (*Elaeis Guineensis*), Osese (*Funtumia sp.*), Odum (*Chlorophora excelsa*), and Mahogany (*Khaya ivorensis*), and other indigenous plant species. These were believed to house powerful, vengeful spirits and as such were



distasteful to cut down by indigenous Asantes. It was only to be cut down when granted permit by the traditional authorities and even with this, extravagant ritualistic performances were carried out before the cutting was carried out. This ensured the judicious use of these precious trees, conserving them for posterity reasons. Also, bad farming practices such as farming near watersheds, selling plots of land, destroying sacred forests and bushes were tabooed among the Asantes .

Osei (2006) knowing the high value of taboos, sees it as a powerful conservation tool in helping curb the biodiversity menace in Ghana. He admits that taboos can be overridden and is subject to metaphysical openness. That is, they can be adapted, revised and new ones can even be propounded to suit modern developmental trends.

### **Methodology**

The research utilised the qualitative research approach. The qualitative research design answers questions about the complex nature of phenomena, often with the purpose of describing and understanding the phenomena from the participant's point of view in naturalistic settings through instrumentations such as interviews and observations (Creswell, 2009; Witt, 2011). Thorough descriptions on how Asante indigenous knowledge in the light of cosmological beliefs, totems and taboos as well as deep insight into their conservation ethics were generated from the accrued data. This assisted the researcher in evaluating the effectiveness of the Asante indigenous knowledge to ascertain how the hidden conservation ethics can be utilised in today's conservation policies and strategies for biodiversity (Leedy & Ormrod, 2013). The case study approach was also implemented for this study. Fraenkel et al. (2012, p.435) said of the case study approach that 'it seeks to understand a case in all its parts, including the inner workings because the researcher 'is primarily interested in understanding the specific situation in detail to shed more light on it'. The researcher realized that there was the need to carefully understand in great depth, how the Asante indigenous knowledge was used as a tool in the local communities in the Asante Bekwai traditional area in arresting biodiversity degradation crisis.

The study hinges on the interpretivist and transformative philosophical paradigms. Interpretivists assume that knowledge and meanings comes from the interpretations of those who experience the phenomena with the aim of understanding it (Cranford, 2016). Thus, the researcher looked at how the indigenous people in the Asante Bekwai traditional area craftily used these Asante indigenous knowledge systems in conserving biodiversity by putting himself in their shoes to deepen his comprehension of how the people used cosmological beliefs, taboos and totemic systems in conserving some biodiversity resources in their environment. Also, the goal of the transformative philosophical paradigm is to conduct a research that contributes to sustainable social change or transformation constructed and shaped by cultural values and ethical codes. It proposes for a respect and recognition that cultural values are a determinant of reality (Mertens, 2007).

Transformative researches are hinged on the precepts of community participation which is seen as crucial in effecting social change (Silka, 2005). The researcher adopted this philosophical paradigm because of the high conservation values in the Asante indigenous knowledge which radiates in the cultural practices of the indigenes in the Asante Bekwai traditional area as well as how the local people's involvement in developmental projects yield greater successes. The researcher thus adopted this philosophical paradigm that shares the same sentiments or thrust of the research.

The researcher had lengthy interview with the old and young indigenes, traditional authorities, and caretakers of the forest reserves in the Asante Bekwai traditional area. This broadened the scope of his understanding for the immense contribution of the Asante indigenous knowledge systems in biodiversity conservation from the viewpoints of the respondents. This underscores the implementation of the phenomenological and case study approaches for the research. The population for the study consisted of two chiefs, two queen mothers, one traditional priest, three two spokesmen, two caretakers of the forest reserves as well as twenty elders from the local community, fifteen old indigenes and nine youths were first purposively sampled after which they were randomly selected and interviewed. The chiefs, queen mothers, traditional priests and caretakers of the forest reserves were personally interviewed while the elders of the traditional council as well as the old indigenes in the selected local communities were interviewed using the Focus Group Discussion for long hours and in different occasions to understand the conservation ethics in the taboos, totems and cosmological beliefs of the local people. Direct observations of how members in the local community honored and highly esteemed their indigenous knowledge in their everyday life activities were observed. The direct observations aided the researcher in ascertaining how the taboos, totemic system and cosmological beliefs regulated their moral obligations toward the biodiversity resources like the river bodies, flora and fauna species that were viewed as sacred and how this in the long run ensured the conservation of the biodiversity resources. The Data Analysis spiral (Creswell, 1998) was used for analyzing the data for the study. The large units of data were carefully broken into smaller categories and themes. It was perused severally to deduce the sense in it while assigning initial interpretations. Finally, meanings were generated from the data concerning the conservation ethics enshrined in the Asante indigenous knowledge in the light of cosmological beliefs, taboos and totems in the Asante Bekwai Traditional Area.

## **Results and Discussions**

### **Profile and Brief History of Asante Bekwai Traditional Area**

Asante Bekwai is an agricultural mining town and the capital of the Bekwai Municipality District in the Southern part of the Ashanti region of Ghana. Currently, the town has a population of 14, 391 people. The population is dominated by Asantes who constitutes 89% with the remaining 11% been Ewes, Guans, Mande, Gurma, Grusi and Mole Dagbani. Famed

for agricultural activities, residents of Asante Bekwai cultivate crops such as oil palm, maize, cassava, pepper, garden egg, cocoa, citrus and cocoyam. The traditional settlers are from the Oyoko clan whose totem is the falcon like the Asantehene their overlord. The people originated from Asantemanso at the spot where the Pra and Offin rivers meet. Oral tradition told by the elders has it that the Oyoko clan people of Asante Bekwai migrated to Otikrom Juaben with the Dako clan with the greatest of their ancestress by name Abrewa Ampem who had two children, a male and a female named Ampoben Afra and Pimpimapo respectively. Her son Ampoben Afra ruled Otikrom Juaben who passed on after their second migration to Akrokoto. After capturing the Akrokoto village which was rich in palm trees, Abrewa Ampem's grandson, Nana Otutu Akate became the first Bekwai chief. His nephew Kofi Aguayebofo succeeded after his demise. The name of the village was changed from Akrokoto to Bekwai owing to the great abundance of oil palm trees, thus, *Abe*-oil palm, *Kwai*-Forest. Today, Asante Bekwai is ruled by Nana Karikari Appau II with the queen mother Nana Adwoa Pinaman II and a cabinet of experienced elders. The chief is famed in the jurisdiction as a peaceful paramount chief whose industriousness has brought immense developmental projects to the traditional area. He highly upholds the cultural traditions and customs of his ancestors. Owing to this, there is great dispensation of indigenous knowledge that has largely contributed to the conservation of the biodiversity resources in the environment. These include cosmological beliefs, taboos, totems, myths, folklores, and festivals. He however passed on recently in April 2016 leaving the stool vacant at the moment. A vibrant youth association was launched in January 2016 to spearhead development by engaging the youths in the traditional area.

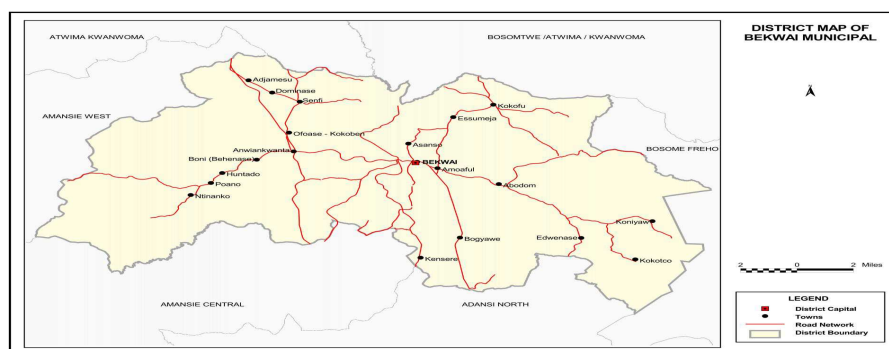


Fig. 1 The location of Asante Bekwai Traditional Area (Source: Ghana Statistical Service)

### **Asante Indigenous Knowledge in the Study Areas**

In the Bekwai traditional area where the research was carried out, there were two major forest reserves in the area. Asantemanso forest reserve (Essumeja) and Bosumtwe forest reserve (Abono). These forest tracts have been protected by the indigenous knowledge of the Asantes like the taboos, cosmological beliefs and totemic system.

### **Bosumtwe Forest Reserve**

This is a large forest tract around the Bosumtwe Lake. The name of the lake is as a result of a long standing oral history among the twelve towns around the lake. It talks of a hunter who stubbornly went hunting on a taboo day which was a Tuesday. On his hunting expedition, he saw an antelope known in the local language as 'Jtwe' which he shot. The wounded antelope was running away while the hunter was steadily following its blood trail on the ground in a thick dense forest. Gazing from a distance, the hunter saw the wounded antelope enter a small looped hole filled with water. The hunter couldn't trace the whereabouts of the antelope in it. Out of fear, the antelope reported the incident to the elders in the Abono community. An oracle performed by the then traditional priest revealed that the antelope was a deity in disguise. Pacification rites were performed around the small looped hole filled with water that gradually increased in size and became a lake. Since that incident in 1640, the large forest tract and the lake were treated as sacred and revered among the people. Scientific discovery today shows that it was a meteorite from the skies hit that spot of the forest and created the lake. However, to the local indigenes, the lake is not just an ordinary meteoritic creation but an abode of a powerful deity who took the form of an antelope thus 'Bosom Twe' (An antelope deity) named after the lake since its inception till date. Taboos and traditional beliefs govern the forest reserve. There are various taboos as told by the old indigenes governing the Bosumtwe forest reserve. An elderly woman said that it is a taboo for a woman in her menstruation period to fetch water from the lake or even look at it from a short distance, collect firewood from the forest tract. A woman in this state is mandated by the laws in the community to adorn herself in white kaolin. This was a deliberate attempt for any societal member to bar a woman in this state from defiling the deity residing in the forest reserve.

Moreover, items like bottles, refuse, filthy or foreign materials are not to be thrown in the lake or the forest tract. Bathing, washing, swimming in the lake as well as defecating in the lake or its forest tract was banned. Though fishing can be carried out in the lake, it has to be done in moderation and is banned on Tuesdays and Sundays. Vigorous farming activities around the reserve are banned except gathering of firewood for family use and not for commercial purposes. Hunting of the fauna species in the reserve though not banned has to be carried out by few hunters who are closely monitored by the traditional council of Abono. Every five days, rituals are performed around the lake and its surrounding forest tracts. A white fowl is first slaughtered and placed on the thresholds of the lake. If the back of the fowl falls on the ground with the belly pointing to the skies, it testifies that the offered sacrifices have been approved by the deity. Vice versa means the deity's displeasure and thus more white fowls will be slaughtered till an overturn is achieved. After that, a black dog or cow is slaughtered to appease the deity to bless them with bumper fish harvest. Black items are not supposed to be used around the lake other than for sacrifices.



Fetching of the water in the Bosumtwe Lake with black metal cooking pots is banned. Breaking any of the taboos would incur the wrath of the deity in the forest reserve. Demonstrations of this displeasure by the deity include reduction of the water levels making it difficult for local indigenes to benefit from the provisions by the river deity. For instance, most of the women in the local community complained to the researcher of the scarcity of fishes in the Bosumtwe Lake. They said the yield they previously had had reduced drastically due to various infringement on the taboos by residents and outsiders who tour the site. The taboos are weak today. The researcher noticed people bathing in the Lake, washing cooking utensils, swimming in the lake, defecating and even having sexual intercourse in and around the lake. These most of the old indigenes interviewed said has been the cause of the reduction in the provisions from the reserve which is a clear indication of the wrath of the deity. Visitors who tour the reserve also defile the lake and it's surrounding with foreign materials such as packages of drinks, biscuits, sachets and bottles of water etc.



Fig. 1 Scanty Fishes in the Lake    Fig. 2 Washing and throwing of refuse in and around the lake which is a taboo



Fig. 3 A section of the Bosumtwe Forest Reserve turned into a refuse dump  
The cosmological beliefs that the local people have include their belief in the supreme deity, belief in their ancestors, belief in lesser gods, belief in animism and belief in sorcery and witchcraft. For instance, three elders in the community hinted the researcher that the elders have left the forest reserve to them and they are mandated to protect it and leave it

even in a better state to future generations. This correspond with what Danquah (1968) said that the Asante elders always treat the environment well so that after their physical passing, their forebears would welcome them with dignity and not disrepute or even vent their wrath on them. The old indigenes and some youngsters interviewed said that out of the belief that one day they would account for the way they treated the biodiversity resources in the environment to the supreme deity. The researcher noticed through his observations that it was particularly the old indigenes who believed that the fauna and flora species in the reserves had souls in them and as such have to be treated with utmost care rather than wantonly destroying them. The youth were seen to take lightly some of these taboos and belief systems restricting bad practices in the reserve.

The researcher also noticed that the law enforcers who are primarily the elders in the community have been too lenient on infringers of the taboos. Thus, when the researcher questioned the elders how they will give their account to the supreme deity and the ancestors as well as the river deity, they were speechless. They however put the blame on the advent of Christianity and the influence of foreign culture as negating their efforts in maintaining these taboos that ensured the upkeep of the biodiversity resources in the locality. Some young women interviewed told me that it is mostly the visitors who tour the reserve who breach of the taboos. According to the women interviewed, the elders and caretakers take exorbitant monies from these tourists and as such, they fail to caution them of their bad practices that offend the river deity. In addition, instead of employing workers to tidy up the surrounding of the reserve, the researcher noticed that the head of the reserve who receives visitors engaged the services of his children and grandchildren who are of tender years to perform those duties. Owing to this, the cleaning of the reserve surroundings is not done properly sometimes leaving sections heavily trashed with refuse. Moreover, the researcher noticed that there are drinking bars constructed very close to the banks of the lake. Visitors when intoxicated exhibit the vile attitudes that bring disrepute to the deity of the river and destroying the forest reserve.

Furthermore, there is massive logging of timbers and other flora species in the forest reserve by local residents who carried out this activity at night. However, the residents told the researcher that some of the culprits were found dead one morning strangely. Many of them attributed it to the venting of the wrath of the river deity and the ancestors. Due to this, the remaining remnant of forest has not been disturbed for the past two years.

### 3.2.2 Asantemanso Forest Reserve

This is a dense forest reserve in the Essumeja town in the Asante Bekwai traditional area. The reserve is orally said and believed to be the the spot where the Asantes originated. It is a myth believed by the the Asantes that they came from a hole the ground in that dense forest tract.





Fig. 4 The Asantemanso Forest Reserve

The Asantehene and the people of Asante especially local residents of Essumeja police the forest tract so that no one would defile the Asante forebears believed to be residing in it. It is a taboo to engage in activities like farming, hunting, logging etc. at the premises. It is believed among the people that vindictive spirits in the forest tract will not spare the live of anyone who breach the taboo and finds himself or herself in the dense forest engaging in tabooed activities. The residents interviewed narrated various stories of persons mostly hunters and farmers who never returned or disappeared because of infringing upon the taboo governing the reserve which was tantamount to gross disrespect for the Asante forebears and the elders in the traditional area. These stories orally told by the old sages in the community to the younger generation have maintained the rich biodiversity resources in the forest tract for many generations. Tuesdays are set aside as taboo day for the forest tract and no one is supposed to enter it.

It is believed among the people that the resurfacing of the seven clans of the Akans that formed the Asante kingdom from a hole in the ground of the Asantemanso sacred forest was on Monday. Therefore there is an annual festival instituted by the Asantehene to commemorate this iconic event in the lives of the Asantes while paying homage and respect to the Asante forebears. The festival is referred to as the Nkyidwoo festival and it is performed every March annually by the Asantehene and the twelve chiefs in the Bekwai traditional area. Being Asantes from the Oyoko clan, the Asantes in the Bekwai traditional area reveres the falcon as its totemic bird. This is because the Asantes want to be identified with the wonderful traits of this bird such as focus, power, determination to succeed, strength and supremacy. Thus it is not to be killed together with other similar birds in the same family. This accounts for the numerous birds in the Bekwai traditional area. Hunters especially desist from the killing of these birds. It is interesting to know the peace that exists between the animal and human families. When the researcher entered the forest reserve with some elders and the traditional priest after the performance of some rituals, he saw countless fauna species particularly birds of different genetic codes, monkeys, butterflies of all kinds, and other mammalian. Also, there were many indigenous flora

species some of which are rare in other areas in the Ashanti region that have been conserved in their pristine forms. The Asante traditional knowledge systems have indeed aided in conserving these high taxa of biodiversity till this day. Today, there is modern legislation against engaging in any form of activities such as farming, hunting etc. in the forest reserve in addition to the Asante indigenous knowledge in the form of taboos, totemic system and cosmological beliefs. However, herbalists and medicine men utilize some of the provisions of the outer sections of the forest tract such as the leaves and twigs of the flora species for healing and medicinal purposes only.



Fig. 5 The Falcon – A totem of the Oyoko Clan of the Asantes

**3.2.3 The Conservation Ethics in the Asante Indigenous Knowledge for Ghana's Biodiversity**  
The Asante indigenous knowledge in the form of taboos, cosmological beliefs and totems have been the principal instruments used by the Asante forebears in regulating and monitoring the biodiversity resources in the Asante Bekwai traditional area. These indigenous knowledge systems of the Asantes were and are still resilient and proactive in addressing the biodiversity degradation in most of the forest reserves in Ashanti region (Diawuo & Issifu, 2015). Also, they are embedded with rich conservation values, philosophical and scientific insights that have conserved the biodiversity resources in the traditional area showing the wisdom of the Asante forebears (Osei, 2006).

The findings from the research buttress this truth. The taboos barring against the bathing and washing of utensils and clothes in the lake has scientific implications. The chemicals and soapy substance when they enter the lake adversely affect the purity of the water making it impossible to be consumed by the local residents. Even if they do, it would result in the contraction of some diseases. The Planetary Notions 2002 reports that these washing detergents and soaps contain harmful chemicals which when consumed can cause liver and kidney damage, gastrointestinal disorders as well as dangerous diseases such as Giardiasis, Amoebic dysentery and cholera. Moreover, the biodiversity resources in the forest reserve like the fauna and plant species rely on the provisions of the lake and thus, if the lake is

adversely affected, their life sustenance will also be threatened. In fact, the researcher noticed from the interviews that the forest reserves were formerly rich with fauna species in the form of birds, monkeys, antelopes etc. but most of these fauna species have evacuated the premises because they do not get the needed provisional services for their life sustenance. Local residents interviewed said that they no longer drink the water from the lake neither do they use it for preparing food because it is not health friendly.

The throwing of foreign materials is a taboo in the forest reserve. These bottles, cans, rubbers and plastic wastes are heaped in the lake and in the forest tracts by stubborn local residents and visitors. This is very dangerous to our health and life sustenance. Elliot (2016) noted that these plastics when ingested by fauna species especially cause internal organic failure and slow strangulation resulting in the death and extinction of many fauna species in the environment. The barring against the washing of metal cooking pots also has scientific implications. For instance, toxic materials often leak or leech out from the surfaces of these metals and enter directly into the water bodies posing threat to numerous endangered aquatic species in the water bodies. This probably accounts for the reduction in fish yield for the fishermen in the Abono town where the Bosumtwé forest reserve is situated. Thus, heeding to the Asante indigenous knowledge of not throwing refuse in forest tracts would have prevented these untold problems. The wise forebears of the Asantes who were scientists probably knew these health related dangers that is why they instituted taboos of this nature as part of the indigenous knowledge heritage for the younger generations. In the Asantemanso forest reserve where these Asante indigenous knowledge systems are very active and vibrant, the researcher noticed how the reserve is rich in biodiversity resources. Also, because of the cosmological beliefs, taboos and totemic systems, the entire Essumeja town is surrounded by interesting biodiversity resources that would have been rare or even extinct if it wasn't the Asante indigenous knowledge systems that are still in force.

#### **4. Summary and Conclusion**

The fulcrum of the research was to accentuate the high conservation ethics in the Asante indigenous knowledge systems in the areas of cosmological beliefs, taboos and totemic systems and how they have promoted and conserved the biodiversity resources in Ghana. The research used the states of two forest reserves and the surrounding towns in the Asante Bekwai traditional area to highlight the essence of upholding and implementing the time tested wisdom in the Asante indigenous knowledge and the repercussions of not heeding to them. The findings from the study clearly reveals that the Asante indigenous knowledge systems have high conservation ethics values which when blended with the modern methods of conservation can help save the biodiversity resources in the environment. These Asante indigenous knowledge systems should not be brushed off as superstitious nonsense but must be part and parcel of modern conservation policies and

strategies to make it easy for the local indigenes to implement them. After all, it will show that these technical experts highly respect their cultural heritage, a pride of every Asante. These indigenous knowledge systems have preserved most of the biodiversity resources as have been seen in the two cardinal examples in this research. This makes it imperative for their factorization in modern conservation policies and strategies for biodiversity conservation in Ghana. These recommendations have been put forward by the researcher to help in saving the rich biodiversity resources in the forest reserves used for the study as well as showing how indigenous knowledge can be relayed and factored in Ghana's biodiversity conservation policies and strategies.

1. Conservation bodies and technical experts must factorize the viable Asante indigenous knowledge in the modern biodiversity conservation policies and strategies that they develop. Cultural experts must be included in the team that draws the conservation policies so that they would advise on which forms of the Asante indigenous knowledge systems are viable for contemporary settings in Ghana and show how the synergy of the Western scientific knowledge and Asante indigenous knowledge can be effectively carried out.

2. The chiefs and elders in the traditional area must institute communal meeting days where Asante indigenous knowledge will be relayed and instructed the youth seem not to know much about the taboos and cosmological beliefs governing the biodiversity resources in the environment. They must be enlightened on the need to protect and promote the biodiversity resources in nature especially those in the forest reserves that have been the sole source of revenue for the surrounding villages and towns in Ghana.

3. Orientation sessions must be organized for visitors to alert them on the dos and don'ts at the forest reserves that are used for ecotourism. Strict sanctions must be imposed to punish offenders of the taboos and cosmological beliefs protecting the reserves. These traditional institutions must be backed by the modern legislation so as to punish any person, local resident or visitor who defiles the premises.

4. Recreational sites must not be constructed closer to the banks and thresholds of the forest reserves since this causes the abuse of the biodiversity resources in the environment. The recreational sites already constructed very close in proximity to the forest reserves must be desolated with immediate effect.

5. Tree planting exercise must be carried out to replace the cut or logged trees in forest reserves such as the Bosumtwé forest reserve and other similar forest reserves in Ghana. This would help in averting disasters like flooding, hurricanes, bush fires and the like.

6. Well trained personnel must be employed to take care of the forest reserves and tourist attraction sites. Refuse bins must be available and situated at vantage points around the reserve so that tourists would put all waste substances in them. Cleaning and tidying up of the premises should be done by trained persons. Local communities must revamp the cleaning exercises carried out on agreed days in the month to help save the biodiversity resources in Ghana.

### **5. Acknowledgement**

The researcher is highly indebted to the chiefs, elders, traditional priests and local residents in the Bekwai traditional area for their immeasurable support in undertaking the research. Also, the researcher would like to thank Ophelia Addai Frimpong and Akwasi Yeboah for their assistance in the carrying out of the interviews and observations. The researcher will like to show his appreciation to the caretakers and workers of the Bosomtwe forest reserve and Asantemanso sacred forest reserve for their cooperation for this research.

### **References**

- Abdullahi, J., Usman, I., Sumaila, G. and Zuni, A. (2013). Importance of Indigenous Knowledge in Biodiversity Conservation: A case study of communities surrounding Kpashimi Forest Reserve, Niger State, Nigeria. *IOSR Journal of Environmental Science, Toxicology and Food Technology*. e-ISSN: 2319-2902, p-ISSN: 2319-2399 Volume 5, Issue 6 pp. 10-17
- Adom, D. (2011). *General Knowledge in Art for Senior High Schools*. Kumasi: Adom Series Publications.
- Adu-Gyamfi, M. (2011). Indigenous Beliefs and Practices in Ecosystem Conservation: Response of the Church. *Scriptura* 107. Pp 145-155
- Ajani, E.N., Mgbenka, R.N. and Okeke, M.N. (2013). Use of Indigenous Knowledge as a Strategy for Climate Change Adaptation Among Farmers in Sub-Saharan Africa: Implication for Policy. *Asian Journal of Agricultural Extension, Economics and Sociology* 2(1): 23-40, 2013; Article No. AJAEES.2013.003 <http://www.sciencedomain.org>
- Appiah-Opoku, S. & Hyma, B. (1999). Indigenous Institutions and Resource Management in Ghana. *Indigenous Knowledge and Development Monitor*, Vol. 7 Issue. 3
- Attuquayefio, D.K. & Fobil, J.N. (2005). An overview of Biodiversity Conservation in Ghana: Challenges and prospects. *West African Journal of Applied Ecology*, 7, pp. 1-18
- Attuquayefio, D.K. & Gyampoh, S. (2010). The Boabeng-Fiema Monkey Sanctuary, Ghana: A Case for Blending Traditional and Introduced Wildlife Conservation Systems. *West African Journal of Applied Ecology* Vol. 17 pp.1-10 ref. 22 ISSN 0855-4307



- Awedora, A.K. (2002). *Cultural and Development in Africa with special reference to Ghana*. Legon, Accra: Institute of African Studies, University of Ghana
- Awuah-Nyamekye, S. (2013). *Managing the Environmental Crisis in Ghana: The Role of African Traditional Religion and Culture- A Case Study of Berekum Traditional Area* (Doctoral Thesis, University of Leeds, United Kingdom). <http://etheses.whiterose.ac.uk/5780/1> (accessed 2015 October 17)
- Battiste, M. (2002). Indigenous Knowledge and Pedagogy in First Nations Education. A Literature Review with Recommendations. National Working Group on Education. Canada: Indian and Northern Affairs
- Berkes, F. (2012). *Sacred Ecology*. London: Routledge Publishing, Taylor and Francis Group
- Boateng, B.A. (1998). Traditional conservation practices: Ghana's Example. *Institute of African Studies Research Review* 14(1):42-51
- Bonye, Z. S. (2008). *Harnessing Synergies: The Role of Traditional Institutions in Natural Resource Management in the Tallensi/Nabdam District, Upper East Region*. (Masters thesis, University of Development Studies, Tamale, Ghana). Retrieved from <http://www.udsspace.edu.gh> (accessed 2015 October 26)
- Bradley, C., Emmet, D.J., & Gonzalez, A. (2012). Biodiversity Loss and its Impact on Humanity. *Nature* 486 (7401): 59-67 Bib code: 2012Natur.486...59C. doi:10.1038/nature11148. PMID 22678280
- Cho, R. (2011). *What You Can Do Protect Biodiversity*. Columbia: Earth Institute, Columbia University. <http://www.earth.columbia.edu> (accessed 2015 October 12)
- Cranford, N. (2016). *Difference Between Positivist, Interpretive and Critical Sociology*. Hearst Seattle Media, LLC. [Http://newmedia@seattlepi.com](http://newmedia@seattlepi.com) (accessed 2016 February 28)
- Creswell, J.W. (2009). *Research Design* (3rd ed.). United States of America: SAGE Publications, Inc.
- Creswell, J.W. (1998). *Qualitative Inquiry and Research Design: Choosing among five traditions*. London: SAGE publications, Inc.
- Danquah, J.B. (1968). *The Akan Doctrine of God*. London: Frank Cass & Co. Ltd.
- Diawuo, F. & Issifu, A.K. (2015). Exploring the African Traditional Belief Systems in Natural Resource Conservation and Management in Ghana. *The Journal of Pan Africn Studies*, Vol. 8, no. 9
- Elliot, R. (2016). Pollution of Streams by Garbage and Trash. Water Encyclopedia Science and Issues. <http://www.waterencyclopedia.com> (accessed 2016 June 28)
- Eshun, E.K. (2011). *Religion and Nature in Akan Culture: A Case Study of Okyeman Environment Foundation*. Ontario, Canada: Queens University Kingston
- Fraenkel, J., Wallen, N. & Hyun, H. (2012). *How to Design and Evaluate Research in Education* (8th ed.). New York: Mc Graw-Hill Companies



- G'Nece, J. (March, 2012). The Importance of Indigenous Knowledge and Good Governance to Ensuring Effective Public Participation in Environmental Impact Assessments. Maryland, USA: ISTF News
- Gadzekpo, A. (2013). *Cultural Innovation for Sustainability in Ghana: Back to Proverbial wisdom*. Dubrovnik: Inter University Centre. <http://www.ceres21.org> (accessed 2015 October 17)
- Gbolonyo, J.S.K. (2009). *Indigenous Knowledge and Cultural Values in Ewe Musical Practice: Their Traditional Roles and Place in Modern Society*. PhD Thesis. U.S.A.: University of Pittsburgh
- Golo, B.K. & Yaro, J.A. (August 26, 2013). Religion and climate change in Ghana: Religious Actor perspectives and sustainable climate change policy. *Nature and Culture, Vol. 8, Number 3, 282-300 (19). Berghahn Journals*
- Grenier, L. (1998). *Working with Indigenous Knowledge: A Guide for Researchers*. Ottawa: International Development Centre
- Gyekye, K. (1996). *African Cultural Values*. Accra: Sankofa Publishing Company
- Iyoro, A.O. and Ogungbo, W.O. (2013). Management of Indigenous Knowledge as a Catalyst Towards Improved Information Accessibility to Local Communities: *A Literature Review. Chinese Librarianship: An International Electronic Journal, 35*. URL: <http://www.iclc.us/cliej/cl3510.pdf>
- Johnson, M. 1992. Research on traditional knowledge: Its development and its role. In Johnson, M. (ed.). *Lore: Capturing traditional environmental knowledge*. International Development Research Centre (IDRC), Ottawa. Pp3-27.
- Kumekpor, K. B. (2002). *Research Methods & Techniques of Social Research*. Ghana: SonLife Printing Press and Services
- Lamb, R. (22 September, 2010). The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets. UNEP The Secretariat of the Convention on Biological Diversity. [www.cbd.int/sp/sp2010p](http://www.cbd.int/sp/sp2010p)
- Leedy, P.D., & Ormrod, J.E. (2013). *Practical research: Planning and design*. (11<sup>th</sup> e.d). New Jersey: Pearson Publishing
- Mapira, J. and Mazambara, P. (2013). Indigenous Knowledge Systems and their implications for Sustainable Development in Zimbabwe. *Journal of Sustainable Development in Africa Volume 15, No.5*
- Materer, S., Valdivia, C., and Gilles, J. (2002). *Indigenous Knowledge Systems: Characteristics and Importance to Climatic Uncertainty*. Department of Agricultural Economics Working Paper No. AEWP 2001-2003. Columbia: University of Missouri
- Mertens, D.M. (2007). Transformative Paradigm: Mixed Methods and Social Justice. *Journal of Mixed Methods Research 1(2), 212-225*

Moller, H., Berkes, F., Lyver, P.O. and Kislalioglu, M. (2004). Combining Science and Traditional Ecological Knowledge: Monitoring Populations for Co-management. *Ecology and Society*, Vol. 9 [www.ecologyandsociety.org/vol.9/issue3/art2](http://www.ecologyandsociety.org/vol.9/issue3/art2)

Msuya, T.S. & Kideghesho, J.R. (2009). The Role of Traditional Management Practices in Enhancing Sustainable Use and Conservation of Medicinal plants in West Usambara Mountains, Tanzania. *Tropical Conservation Science* Vol. 2(1):88-105, 2009. ISSN 1940-0829 [tropicalconservationscience.org](http://tropicalconservationscience.org)

Ngara, R. and Mangizvo, R.V. (2013). Indigenous Knowledge Systems and the Conservation of Natural Resources in the Shangwe Community in Gokwe District, Zimbabwe.

*International Journal of Asian Social Science*, 2013,3(1):20-28

Opoku, K.A. (1978). *West African Traditional Religion*. Singapore: FEP International Private Ltd.

Ormsby, A. (2013). *Analysis of Local Attitudes toward the Sacred groves of Mehalaya and Karnataka, India*. St. Petersburg, U.S.A.: Department of Environmental Studies, Eckerd College. <http://www.conservationandsociety.org.2013> 11(2):187-197

Osei, J. (2006) The Value of African Taboos for Biodiversity and Sustainable Development. *Journal of Sustainable Development in Africa* 8(3): 42-61

Planetary Notions 2002. Effects of Dumping of Sewage Water Directly into the Sea. A Project by Students in Saida, Lebanon. <http://www.gobiidae.com>

Rattray, R.S. (1927). *Religion and Art in Ashanti*. London: Clarendon Press.

Rim-Rukeh, A., Irerhievwie, G. and Agbozu, I.E. (2013). Traditional Beliefs and Conservation of Natural Resources: Evidences from Selected Communities in Delta State, Nigeria.

*International Journal of Biodiversity Conservation* Vol. 5(7), pp.426-432 doi: 10:5897/IJBC2013.0576 ISSN 2141-243X

Shah, A. (2014). *World's Biodiversity Crisis*. <http://www.globalissues.org>. (accessed 2016 June3)

Silka, L. (2005, August). *Building Culturally Competent Research Partnerships*. Paper presented at the annual meeting of the American Psychological Association, Washington, DC.

Sinclair, J.R., Tuke, L., & Opiang, M. (2010). *What the Local Know: Comparing Traditional and Scientific Knowledge of Megapodes in Melanesia*. In: Tidemann S., Gosler, A., and Gosford, R. (eds). *Ethno-ornithology: Global Studies in Indigenous Ornithology: Culture, Society and Conservation*. London: Earthscan

Soini, K. and Dessein, J. (2016). Culture-Sustainability Relation: Towards a Conceptual Framework. *Sustainability* 2016, 8, 167; doi: 10.3390/su8020167

[www.mdpi.com/journal/sustainability](http://www.mdpi.com/journal/sustainability)

Twumasi, P.A. (1975). *Medical Systems in Ghana*. Ghana: Tema Publishing Corporation

UNCED, Agenda 21, Chapter 26: Recognizing and Strengthening the Role of Indigenous People and their Communities. United Nations Conference on Environment and Development, June 3-14, 1992. Rio de Janeiro, Brazil

Vaughan, A. (Friday, 19 June, 2015). Humans are creating the Sixth Great Extinction of Species, says scientist. The Guardian newspaper

Wilder, B.T., O'meara, C., Monti, L. and Nabhan, G.P. (2016). The Importance of Indigenous Knowledge in Curbing the Loss of Language and Biodiversity. *Bioscience* 66:449-509.

*doi:10.1093/biosci/biw026 Vol. 66 No. 6*

Witt, J. (2011). *SOC 2011*. New York, NY: McGraw-Hill