

## **PILOT TESTING A COMMUNITY-BASED INDEPENDENT REPORTING PLATFORM WITH A MOBILE APP LINK AT LAKE BOSOMTWE BIOSPHERE RESERVE, GHANA**

### **Progress Report**

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Lake Bosomtwe in Ghana's Ashanti Region is one of the world's six major meteoric lakes and believed to be around 1.3 million years old. The area is rich in biodiversity including several species endemic to the lake. There is also a major forest reserve and several sacred groves, the latter being are protected by local taboos based on traditional spiritual beliefs or historical events that have impacted on the lives of local people. These traditional management systems protected the sacred groves for centuries and prevented encroachment into these areas.

FIDEP Foundation is implementing the Community-based Independent Reporting Project which seeks to pilot test a community-based independent reporting platform using a mobile app-link as a means of connecting 21 buffer communities within the Biosphere Reserve to monitor and report, learn and share, and co-develop assertive actions for Integrated Biodiversity Conservation.

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## LEARNING WITH LOCAL COMMUNITIES IN LAKE BOSOMTWE

### 1. Background of the Activity

The theoretical premise of this activity is effective participation. In watershed management, local communities are often the primary stakeholders provisioned by their constant interaction with the basin/catchment area, their valuable knowledge and experience that makes them the best managers of the watersheds<sup>1</sup>. In this regard, studies have recommended the active involvement of local communities along with all other stakeholders i.e., professionals, scientific experts, the public at large, civil society groups in dealing with especially with conservation concerns of a basin.

Given its ecological, economic and social importance, Lake Bosomtwe was designated as a biosphere reserve by UNESCO in 2016. The lake Bosomtwe is rich in aquatic biodiversity of national and global significance. Because the lake has no outlet, it has a high degree of endemism among the flora and fauna. The limited taxonomic work that has been undertaken in the lake points to a high degree of richness among the fish species, particularly in the Cichlidae family. The most important species described to date is an endemic fish, *Tilapia busumana*. The fish species include *sarotherodon Galilaeus multifasciatus*, *Tilapia busumana*, *T. discolour*, and *T. zilli*. The other known fish of importance is the catfish of genus *Claria*<sup>2</sup>.

While Lake Bosomtwe has been declared a Biosphere Reserve, ground evidence show that the core zones (riparian vegetation and aquatic) remain under serious threat from socio-economic activities and climate change. In response to this, FIDEP Foundation is implementing the Community-based Independent Reporting Project which seeks to pilot test a community-based independent reporting platform using a mobile app-link as a means of connecting 21 buffer communities within the Biosphere Reserve to monitor and report, learn and share, and co-develop assertive actions for Integrated Biodiversity Conservation.

Given the complex set of interventions that have already taken place within the Lake Bosomtwe Biosphere Reserve, this engagement had to start with a combination of content analysis and primary factor analysis to provide a contextual base information for a better deconstruction of the current trends at the Biosphere Reserve. In this activity, the project set out for an exploratory engagement with 4 local communities. Broadly, this engagement was intended to be a learning field visit, with the primary objective of learning with and learning from local communities with regard to the role of local communities in reducing biodiversity loss within a Biosphere Reserve. This exploratory visit also intended to appraise local commitment towards biosphere value integration at the community level, and to mobilize a Resident Sustainability Team (RST) which will co-develop independent reporting protocols for data sharing.

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<sup>1</sup> Engaging Riparian Communities in Biomonitoring of Agro-Ecological Vulnerabilities within Critical Micro-Catchments: A Case of Lake Bosomtwe Biosphere Reserve, Friends of the Earth-Ghana.

<sup>2</sup> <https://en.unesco.org/biosphere/africa/lake-bosomtwe>

## 2. Brief Profile of Communities Visited

Four (4) local communities, namely: Abono Anyinatease, Abaase and Pipie were engaged. Below is a brief profile of these communities:

**Anyinatease community:** This village is under the Bosomtwi District. The majority of the population belong to the Agona clan who migrated from Denkyira in the Central region of Ghana. The main source of livelihood for the community members is fishing and small-scale farming. The Anyinatease community use to depend on a stream called Obiribo for drinking water.<sup>3</sup> However, this stream has now completely dried up which has made access to drinking water a major challenge for the community members. The community also use to have a rich biodiversity. However, community members have noticed a drastic decline in the biodiversity status from the gradual decline in animal species such as antelopes, porcupine and even crabs which use to be highly prevalent in recent history. According to community members these drying up of the Obiribo river and the decline in biodiversity composition in the community is mostly attributable to changing land uses.

**Pipie community:** Historically threatened by the expansion in the lake so the inhabitants had to migrate to the new site (current Pipie community). Pipie currently has an estimated population of 2000 people<sup>4</sup>. The main source of livelihoods for the majority of the community members is fishing and cultivation of food crops. The village was also known for its ecologically rich forest, which was a habitat for lions, pigmy, the Pelican. According to community members, most of these species can no longer be found in the forests due to land use changes and deforestation.

**Abaase community:** situated in the North-Eastern part of the lake, under the Abooso traditional council. With an estimated population of 1000, the village is traditionally ruled by the Asona Clan<sup>5</sup>. The Abaase community is a typical example of how traditional customs and practices can play a significant role in conservation of nature. In Abaase, the traditional authority has placed a ban on Farming activities in a locality called Asonyeso. This place is believed to be a traditional worship area and so community members are not allowed to farm close to this area. As a result, the place has been preserved for several years.

**Abono community:** regarded as the central community to the 22 communities around the lake. Historically, the 22 communities had to travel to Abono to attend communal labour including during the construction of a feeder road from the lake to Kuntanasi, linking the lake to Kumasi. Abono has an estimated population of 2500<sup>6</sup>. Until today, the Abono community still observe the traditional custom of Akwasidei where community members are not allowed to fish on Sundays. The majority of the community members are into fishing and the cultivation of crops like cocoa and plantain.

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<sup>3</sup> Ofosu E. P., (2019)., Lake Bosomtwi, Our Community Heritage, Kunatansai, Ghana.

<sup>4</sup> Ofosu E. P., (2019)., Lake Bosomtwi, Our Community Heritage, Kunatansai, Ghana.

<sup>5</sup> Ofosu E. P., (2019)., Lake Bosomtwi, Our Community Heritage, Kunatansai, Ghana.

<sup>6</sup> Ofosu E. P., (2019)., Lake Bosomtwi, Our Community Heritage, Kunatansai, Ghana.

In this learning engagements, certain common themes emerged with relevance to biodiversity conservation. These common themes which formed the central highlights of this report are as follows:

1. Cultural Motivation for Biodiversity conservation
2. Community-based Monitoring Capacities
3. Low-to-medium commitment towards biosphere value integration at the community level

### **2.1. Cultural Motivation for Biodiversity conservation**

From recent historical events to current development of events around the lake, local communities are observing a decrease in certain species which use to be prevalent in the past years. In this regard, the community members made mention of the Weaver bird, Kite, King Fisher and the Pigmy Crocodile. They noted with particular concern that the declining prevalence in these species is an indication of the changing biological make up of Lake Bosomtwe. Community members suggested that this problem can be addressed through the traditional chiefs. According to the community members, the local chiefs are highly regarded in their communities. Therefore, if the chiefs institute a local decree that prohibits certain activities that undermine the biological integrity of the Biosphere Reserve, it will be adhered to by all the 22 communities. According to communities, these local chiefs have their local courts with the authority to try cases including violation of local traditions. This local court system includes imposition of fines if anyone is found guilty of breaching any local laws or traditions. Therefore, the same system could be used to promote conservation values around the Biosphere Reserve.

### **2.2. Community-based Monitoring Capacities**

Community members recognize a recent increase in illegal mining activities and sporadic expansion of farmlands in within the Biosphere Reserve. These activities are extremely difficult to monitor or control. Such uncontrolled farming, illegal mining and other developmental activities have resulted in serious forest fragmentation, which in turn impedes the functional ecological connectivity of the Biosphere Reserve. It is well-established that increased forest fragmentation results in habitat loss and degradation, and constrains movements by species in terms of foraging, breeding, migration and dispersal. Further fragmentation is likely to result in reduced resilience of species habitats and species populations. From the field observations it appears that the scale and intensity of this effect is still vague to local stakeholders, particularly communities engaging directly with riparian landscapes. Without visible demonstration of the benefits of ecological connectivity, this protected landscape is set on course to lose the primary purpose for which was reserved.

Recognizing the importance of local communities in the conservation efforts, CSOs like FoE Ghana initiated a project with the aim of conserving the globally significant flora and fauna of the lake's basin by supporting traditional conservation practices and a community-based conservation. This project included a Community-based Biodiversity Assessment and Monitoring element<sup>7</sup>. In this project, school children from 24 schools were trained in assessment and monitoring of biodiversity in and around the lake, including

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<sup>7</sup> Friends of the Earth-Ghana; <https://foe-ghana.org/lake-bosomtwe/>

water quality monitoring. They were given portable science kits and computers to help collect and store the data. Two manuals on assessment and monitoring protocols were written. The school children met regularly to discuss results and share findings with their communities. The schools also benefited from a programme of local environmental management studies to complement their science studies.



Figure 1: School children engaged in community-based biodiversity assessment and monitoring. Source: FoE-Ghana, 2014

While the FOE monitoring was considered most novel and community-based, it was largely based on the prevalence of benthic macroinvertebrates.

	BENTHIC MACROINVERTEBRATES			PHYSICAL PARAMETERS
	GROUP 1 POLLUTION INTOLERANT ORGANISMS	GROUP 2 ORGANISMS EXISTING IN A WIDE RANGE OF CONDITIONS	GROUP 3 POLLUTION TOLERANT ORGANISMS	
ORGANISMS	Caddisfly nymph	Dragonfly nymph	Pouch (and other snails)	Air temperature
	Stonefly nymph	Crayfish	Leeches	Water temperature
	Mayfly nymph	Scud	Aquatic worms	Turbidity
	Dobsonfly larva	Clams	Blackfly larva	Rainfall
	Riffle beetle adult	Damselfly nymph	Midge larva	
	Water penny beetle larvae	Beetle larva		
		Sowbug		
		Crane fly larva		
SUPPLEMENTARY VARIABLES	SURVEY CONDITIONS	LOCAL LANDUSE/FACILITIES/VEGETATION	SHORELINE CONDITIONS	
	SUNNY	Crop farming	No Erosion	
	PARTLY CLOUDY	Piggery farm	Partial Erosion	
	CLOUDY	Refuse Dump	Severe Erosion	
	RAINY	Hotel	Boulders	
		Public Toilets	Gravel	
		Trees	Clay/Muddy	
		Grass	Sandy	
	Forest	Silt		

Figure 2: Monitoring framework illustrating the core and supplementary variables for a Community-based Biodiversity Assessment and Monitoring by school children. Source: FoE-Ghana, 2014

The conservation status of other indicators such as habitat conservation driven by illegal mining and illegal forest operations could not be effectively monitored by this model. Based on evidence from AROCHA Project ("Community Collective Action for Food Security, Climate Mitigation and Conservation of the Newly Designated Lake Bosomtwe Biosphere Reserve project)<sup>8</sup>, several illegalities abound and are mostly difficult to control. In order to address this, independent community-based monitoring and reporting could be tested as a viable alternative model in a more integrative sense of biodiversity conservation at the Biosphere Reserve based on recent independent forest monitoring platforms led by FoE-Ghana, Civic Response-Ghana, Ecocare-Ghana and Tropenbos-Ghana.

On the other hand, it was further noted that the monitoring capacity which was built by FoE-Ghana is still present in local communities like Abono. However, the continuous application of this capacity to the conservation of the Biosphere Reserve requires commitment, not just from the school children but the communities as a whole. The commitment to utilizing this capacity seems to have been undermined by over-prioritization of economic benefits at the district level. Civil society see a competing priority at play in the management of the Biosphere Reserve. In general terms, the Biosphere Reserve may be described as a common good as it is shared and beneficial for all or most members of a given community, and its sustainability is achieved by collective action, and active participation from all stakeholders. Through this project, FIDEP Foundation has established a Community-based Resource Person, who has been tasked to revitalize the independent monitoring process by mobilizing a Resident Sustainability Team (RST) to monitor, verify and report on the conservation practices in order to provide timely data for improving the management of the Biosphere Reserve.

### **2.3. Low to medium commitment towards biosphere value integration at the community level**

Political commitment, both at the district and community levels, was identified as a closely linked theme to community-based monitoring. This was cited in respect of its demonstrated potential to undermine the monitoring and reporting, especially of illegal activities within the basin. Political commitment is not something that simply exists or emerges accidentally; it can be created and strengthened over time through strategic action. Successfully generating commitment will likely require a core set of actions with some context-dependent adaptations. Ultimately, it will necessitate strategic actions by cohesive, resourced and strongly led local actor networks that are responsive to the multifactorial, multilevel and dynamic political systems in which they operate and attempt to influence.

Lake Bosomtwe is seen as a sacred site for the residents of the Ashanti region. Studies show that due to high population growth rates and various unplanned development activities, fish stocks have come under intense pressure and have been found to be decreasing at an alarming rate. Also, intensification of agricultural activities in the Lake Basin and a sudden rise in the chain of hotels and other tourism facilities has resulted in

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<sup>8</sup> Arocha Ghana; <https://ghana.arocha.org/news/a-rocha-ghana-launches-special-initiative-to-serve-lake-bosomtwe/>

an increase in the pollution of the lake. In this visit we noticed other hospitality facilities like restaurants and bars are sprouting around the lake.



*Figure 3: A picture of a hotel in Abono community. Source: FIDEP Foundation Community Visit, 2021*

However, the key stakeholders believe the tourism potential of the lake has not been fully developed due to low infrastructure provision to and within the basin. In the early 1900s, there were no roads leading to the lake. Therefore, the youth from Abono community had to carry tourists on their backs to take them to visit the lake side. Currently, a feeder road has been constructed from Abono to Adwafo, Abaase, Anyinatease, Assase, Defieso, Apew, Bansa and Hantaase communities around the lake. This has boosted tourism to an extent. However, the current state of the road is deplorable. During our recent visit, we met youth voluntarily working on the portions of the road to enable cars to use the road. The communities see this as a major setback to the tourism development in the district and by extension their economic development. Yet, the latent potential which has yet to receive proper attention is eco-tourism.

It was quite explicit from the 4 communities that owing to the importance of tourism and the ecological value of the Biosphere Reserve, community level stakeholders have a medium to strong commitment towards biosphere conservation in the basin. This commitment is not purely motivated by conservation values but rather economic values and to some extent socio-cultural values. This presents multiple challenges.

Tourism is increasingly being promoted by government agencies with the notion of reducing pressure on the lake and its natural environment. Lake Bosomtwi, being a hydrological closed basin, is supposed to be very sensitive to these effects. However, the nature of tourism in the Biosphere Reserve is characterized by overcrowding, misuse of natural resources, insensitive tourist behaviour, mismanagement of waste disposal and uncontrolled infrastructure development, can have negative impacts not only on the natural environment but also on the social and cultural values of the local communities. Based on this observation our intention is to further explore the question of local and political commitment to the conservation of the Lake Bosomtwe Biosphere Reserve.

We adopt a definition of political commitment as 'the intent and sustained actions over time by societal actors to achieve the objective of reducing and eliminating the manifestations and causes of (watershed degradation)'.<sup>9</sup> From this perspective, achieving political commitment is more than generating attention to watershed conservation or getting it onto a government agenda as in the case of the Buffer Zone policy of Ghana. Commitment to conservation involves the mobilisation of political systems and institutions, adopting policies, allocating resources and coordinating responses for as long as necessary to ensure results.

Recent studies on the subject of political commitment identified five categories of commitment, namely: actors; institutions; political and societal contexts; knowledge, evidence and framing; and capacities and resources. Some studies report that in low-income and middle-income country the following categories may be critical: international actors, empowered institutions, vertical coordination and capacities and resources. Others have argued that irrespective of country-context, effective local actor networks, strong leadership, civil society mobilisation, supportive political administrations, societal change and focusing events, cohesive and resonant framing, and robust data systems and available evidence were commitment drivers.

In our engagement with stakeholders including local communities, civil societies and local government authorities around the Biosphere Reserve, there is still a broad consensus on most of these categories. However, there is also a broad lack of consensus on the adequacy of political commitment to conservation of the Biosphere Reserve both at the local community level and national level.

Civil societies pointed out the fact that fishing practices by community members is a problem, which has led to dwindling fish stocks and therefore community members who use to rely on fishing as a source of livelihood are now looking for alternative livelihood sources. The sustainability of these alternative sources of livelihood is yet another emerging problem for the Management authorities to address. There are reports that in communities such as Ankaase, Esaase, Detieso among others, some community members are now going into illegal mining as a source of livelihood. This constitute a

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<sup>9</sup> Lintelo DJH, Lakshman RWD, (2015). Equate and Conflate: Political Commitment to Hunger and Undernutrition Reduction in Five High-Burden Countries. World Dev 2015.

major driver of environmental degradation in Ghana as a whole and for a sensitive closed basin, the impacts are most likely going to be catastrophic.

The key challenge identified at this stage is how to build up the conservation values at the community level to a significant level so as to translate it into a strong commitment to protecting the biosphere. This seems to indicate an urgent need for value integration (economic, social, environmental). In this study we have noted preferably that a multi-actor process that promotes ecotourism may have the potential to minimise the threats posed by conventional mass tourism and could provide several socio-economic benefits to the local communities. This will be a subject of further inquiry as this project proceeds.

### **3. Key Observations During the Community Tour Within the Lake Bosomtwe Biosphere Reserve**

Below are images of key observations during a transect walk through communities within the biosphere reserve.



*Figure 4: Food crop farming activities at Pipie community. Source: FIDEP Foundation Community Visit, 2021*



Figure 5: Food crop farming activities at Abaase community. Source: FIDEP Foundation Community Visit, 2021



Figure 6: Plastic pollution at the Abonno Community. Source: FIDEP Foundation Community Visit, 2021



Figure 7: Fish from Lake Bosomtwe being processed at Abono community. Source: FIDEP Foundation Community Visit, 2021



Figure 8: Woman washing clothing in the lake at Abono community. Source: FIDEP Foundation Community Visit, 2021



Figure 9: Polluted water from household washing. Source: FIDEP Foundation Community Visit, 2021



Figure 10: Tourism boat at Abono community. Source: FIDEP Foundation Community Visit, 2021

## Conclusion

In this activity, the project set out to engage 4 local communities in the Lake Bosomtwe Biosphere Reserve. Making use of an exploratory approach, this engagement was intended to be a learning field visit, with the main objective being to learn from and with

local communities on the role of local communities in reducing biodiversity loss within the Biosphere Reserve. It was also intended to appraise local commitment towards biosphere value integration at the community level. The visit was also set to mobilize local community members establish a Resident Sustainability Teams (RST) consisting of 6 community members who will co-develop sustainability reporting protocols for data sharing.

In this community engagement, it was noted that expansion in economic activities in the Biosphere reserve can be difficult to monitor or control since most of them are done illegally. Increasing uncontrolled farming, illegal logging activities and other developmental activities have resulted in serious forest fragmentation, which in turn impedes the functional ecological connectivity of the Biosphere Reserve. Recognising the importance of local communities in the conservation efforts, CSOs like FoE-Ghana initiated a project with the aim of conserving the globally significant flora and fauna of the lake's basin by supporting traditional conservation practices and a community-based conservation. The conservation status of other indicators such as habitat conservation driven by illegal mining and illegal forest operations could not be effectively monitored by this model. Based on evidence from recent civil society engagements, several illegalities abound and are mostly difficult to identify and manage. In this regard, independent community-based monitoring and reporting could be tested as a viable alternative model in a more integrative sense of biodiversity conservation at the Biosphere Reserve.

Therefore, in theory, the effective management of the Biosphere Reserve will depend to a large extent on the ability of the management authority to apply and enforce collective decision rules. However, from this this learning exercise and given that the Biosphere Reserve is already regarded as a common good, it cannot be ruled out that in some form or in many forms, private interests affect the management activities and outcomes of the Biosphere Reserve. This also need to be addressed at the basin level with effective community participation.

Early suggestions at the community level point to the need to strengthen the application of the management provisions of the IUCN Protected Area Management Categories V and VI through connective dialogues to highlight both the scale and intensity of increasing economic activity on ecological connectivity within the Lake Bosomtwe MAB landscape.

However, it is important to recognize at this early stage that commitment-building is essential. And that the successful management of the Biosphere Reserve at this point will be underpinned by the deliberate actions of conservation actor networks. It will require individuals and organisations operating within the biosphere reserve jurisdiction to act collectively with the objective of ensuring integration of values (social, cultural, economic and environmental values). We believe by doing so, there is a real chance of leveraging embedded commitments to ultimately achieving a basin-wide independent reporting system including reporting on social, economic, ecological, gender risks as well as human right abuses and law enforcement, in order to create a complete platform for behavioural change.

Subsequent field visits will delve deeper into the internal strands of commitment including the roles of actors; institutions; political and societal contexts; local knowledge, evidence gathering; and capacities and resources required.