

Final Evaluation Report

Your Details	
Full Name	Amos Yesutanbul Nkpeebo
Project Title	Expanding The Limits of Community-Led Biodiversity Monitoring of Anthropogenic Pressures in Key Biodiversity Areas in Ghana
Application ID	37509-2
Date of this Report	15th August, 2023

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Objective i. To create public awareness among 51 communities (15 in Mole National Park, 15 in Keta Ramsar Complex Site and 21 in Lake Bosomtwe) on community-led biodiversity monitoring of ecologically or biologically significant areas and the poverty risks of anthropogenic pressures on the Mole Landscape and the livelihood opportunities accruing from integrated biodiversity management (IBM)				This objective was successfully attained
Objective ii. To review and advance community-led biodiversity monitoring by conducting quantitative and qualitative evaluation of the historical, recent and current baselines using Outcome Mapping on biodiversity monitoring schemes sourced from several monitoring projects and programmes databases within the Mole National Park and the Keta Ramsar Complex Site				This objective was successfully attained
Objective iii. To involve 30 communities/local groups in community-led monitoring and reporting (15 in Mole National Park and 15 in Keta Ramsar Complex Site) on current drivers of biodiversity decline including unsustainable agricultural practices, illegal activities (poaching, bush burning, charcoal burning) habitat loss, pollution, invasive alien species introduction, drought, etc., using "Learning By Doing" Approach involving:				This objective was successfully attained

<ul style="list-style-type: none"> • Knowledge Co-generation: through understanding of forest fragmentation and benefits of ecological connectivity and to communicate that knowledge to the various stakeholders. • Knowledge Sharing: through social learning, socially relevant tools, methods and approaches that catalyse action • Informed Action: through knowledge generation and knowledge sharing amongst the various stakeholders 			
<p>Objective iv. To build a long-term capacity for real-time monitoring of the full impact of anthropogenic pressures on the Keta Lagoon Ramsar Complex Site, the Mole National Park and Lake Bosomtwe Biosphere Reserve using mobile applications like TIMBY.</p>			<p>This objective was successfully attained</p>

2. Describe the three most important outcomes of your project.

a). Based on the recommendations from the outcome mapping stage, it was essential to design and deploy community-based monitoring and reporting toolkit outlining a grid of anthropogenic factors and their impact dimensions (ecological, social, economic), as well as the “dos and don'ts” of community-based monitoring. We also established an online database for collating monitoring and reporting on current drivers of biodiversity decline in the Keta Lagoon Ramsar Complex Site, the Mole National Park and Lake Bosomtwe Biosphere Reserve (Figure 1 is an illustration of the TIMBY Mobile application monitoring and reporting platform).

Guided by the community-based monitoring and reporting toolkit, we organised community learning workshops and trained 30 resident community members to capture, store and share current drivers of biodiversity decline including unsustainable agricultural practices, illegal activities (poaching, bush burning, charcoal burning) habitat loss, pollution, invasive alien species introduction and the tools and platforms that they can use to properly mobilise, negotiate and advocate for systems change in the Keta Lagoon Ramsar Complex Site, the Mole National Park and Lake Bosomtwe Biosphere Reserve.

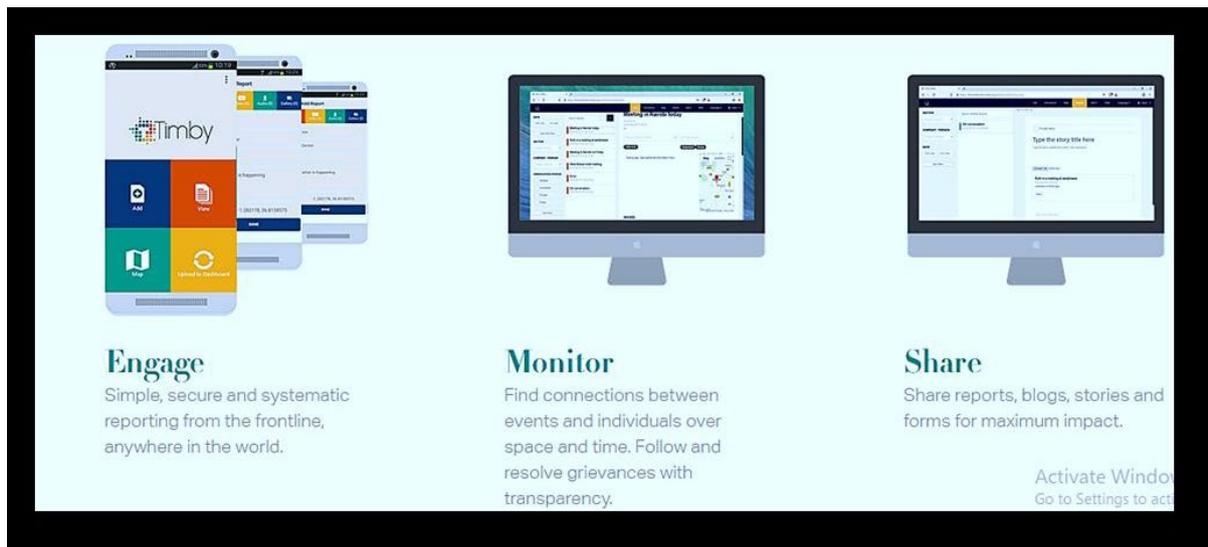


Figure 1: Illustration of the TIMBY Mobile application monitoring and reporting Platform. See: <https://fidep.timby.org/>

b). Through the field-based action workshops, the project tested the field applicability of TIMBY mobile application in delivering selected conservation actions (a combined agro-ecology and soil fertility advisory service) to small scale farming communities together with involving 30 community members within the Mole Ecological Landscape (MEL). Based on the observations in MEL, a conceptual framework was developed linking Participatory Integrated Climate Services for Agriculture (PICSA) and TIMBY Mobile Application to catalyse integrated biodiversity conservation. Within this conceptual framework, local communities can become change agents leading ecological restoration, ecological connectivity and climate resilience building in National Parks and Ramsar Sites in Ghana. Engagements with researchers from CIFOR-ICRAF indicates that they can be extremely congenial with TIMBY Mobile Application in promoting community-led restoration and resilience building in key biodiversity areas. We are currently planning to explore the potential of integrating the PICSA, particularly in semi-arid areas like the Mole and Bui National Parks towards advancing terrestrial biodiversity conservation restoring ecological connectivity and enhance traditional knowledge systems and practices as a means of building resilience.

c). Through community the radio programmes, we contributed to increasing public awareness of local communities on community-led monitoring of ecologically or biologically significant areas and the poverty risks of anthropogenic pressures within the Keta Lagoon Ramsar Complex Site, the Mole National Park and Lake Bosomtwe Biosphere Reserve.

d). We contributed to increasing the centrality of local communities in biodiversity policy dialogue through the publication of three policy papers, including:

- Policy Paper. 06-23: Updating Biodiversity Conservation Baselines; Tools, Practices and Opportunities for Leveraging Community Monitoring and Reporting Capacities Towards the Post-2020 Biodiversity Framework

- Policy Paper , 07-23: Testing the Long-Term Applicability of TIMBY Mobile Application to Deliver a Combined Agro-Ecology and Soil Fertility Advisory Service for Biodiversity Conservation Within Protected Landscapes
- Policy Paper - 08-23: Making Community-Led Biodiversity Monitoring Central to the Post-2020 Biodiversity Framework of the Convention on Biological Diversity

The project used field-based capacity building (a learning-by-doing approach) to co-define the community-led conservation actions that directly mitigate the observed drivers of biodiversity loss or correlates with a long term capacity required for real-time monitoring of the full impact of anthropogenic pressures in Keta Lagoon Ramsar Complex Site, the Mole National Park and Lake Bosomtwe Biosphere Reserve. Also, biodiversity data was co-generated by trained community-based Monitors working in collaboration with Park Managers, Range Officers and Agricultural Extension Service Officers to verify, validate and share the data in the form of written report, video or audio reports using a combination of the TIMBY mobile application lined to the online database.

Through the field-based action workshops, the project tested the field applicability of TIMBY mobile application in delivering selected conservation actions (a combined agro-ecology and soil fertility advisory service) to small scale farming communities together with involving 30 community members within the Mole Ecological Landscape (MEL).

Between August 2022 and April 2023, the monitoring team observed increased adoption of for crop-livestock integration, agroforestry practices (in shea landscapes), agro-waste valorisation, biointensive agriculture and integrated pest management. A total of 118 farm plots were observed. Out of the of the total observations, 39% practised crop-livestock integration, 29.7 % practised agroforestry, 19.5% practised agro-waste production and use, 4.2% practised biointensive agriculture of and 7.6% practised integrated pest management. However, it was noticed that most of these practices were still rudimentary, requiring technical guidance. It was further observed that 40% of farmers were already practising agroforestry by planting fruit trees on their farms. However, this was on a very small scale and the approach was quite rudimentary. The field-based testing of TIMBY with 30 participants from the seven communities in MEL observed that TIMBY mobile application is practically feasible in:

1. Facilitating remote monitoring and advisory services on soil fertility management technologies with high community relevance, high conservation value for landscapes.
2. Facilitate remote monitoring and advisory services on integration of livestock in food crop farming system with high community relevance, high conservation value for landscapes.
3. Facilitate remote monitoring and advisory services on conservation of soil moisture with medium community relevance, high conservation value for landscapes.

These farming systems will contribute to reducing the pressure on the environment (i.e., charcoal production and yearly burning of the vegetation to generate fresh grasses for livestock grazing). The recently added TIMBY analytics on dashboard will be useful in triaging on-farm micronised factors providing dual feedback between farmers and agriculture extension service officers.

Based on the observation that most of drivers of biodiversity decline is human driven, the real threat climate induced loss and damage particularly in the MEL, a conceptual framework was developed linking PICSA and TIMBY Mobile Application to catalyse integrated biodiversity conservation. Within this conceptual framework, local communities can become change agents leading ecological restoration, ecological connectivity and climate resilience building in national arks and Ramsar sites in Ghana (see figure 2 below).

PICSA is built on an experimental model where agriculture extension officers working with groups of farmers before the agricultural season to firstly analyse historical climate information, develop resource maps combined with participatory tools to develop and choose crop, livestock and livelihood options best suited to various ecological landscapes and farmer needs. We observed that combining the analytical and reporting functions of TIMBY with the seasonal and short-term forecasts component in PICSA will create an innovative platform for agriculture extension officers to advance a combined agro-ecology and soil fertility advisory service, with PICSA providing the technical knowledge while TIMBY mobile application provides a dual information exchange between farmers and agriculture extension officers. The TIMBY Analytics on Dashboard feature allows users to generate graphs and charts that provide better insight into the data displayed for end-users and policy makers. It also allows users to choose from a range of different options to customise the types of graphs and charts that are created and to tailor the analytics to meet the specific needs of stakeholders, thereby gaining deeper insights into the data captured. We are planning to explore the potential of integrating the PICSA towards advancing terrestrial biodiversity conservation restoring ecological connectivity and enhance traditional knowledge systems and practices as a means of building resilience.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

There were no major unforeseen difficulties during the implementation of this project. We noticed that mobile connectivity was slightly challenging in some remote areas especially for Community Monitors in Mole Ecological Landscape (MEL) which meant that data collected in some cases was not uploaded instantly. However, the TIMBY mobile application has an inbuilt capacity to store data internally, and then automatically upload the data when the Monitors move to a location with mobile connectivity. We were able to ensure that all data collected was uploaded to the online database by the close of each day and so it did not affect the project implementation, thereby establishing a real-time/near real-time monitoring and reporting platform for the three key biodiversity areas. Also, in some cases, we noticed that government authorities were reluctant to engage in the monitoring and reporting process due to inadequate motivation. However, following continuous

dialogue and sharing of field evidence of biodiversity loss, they became open to support the process in the long-term.

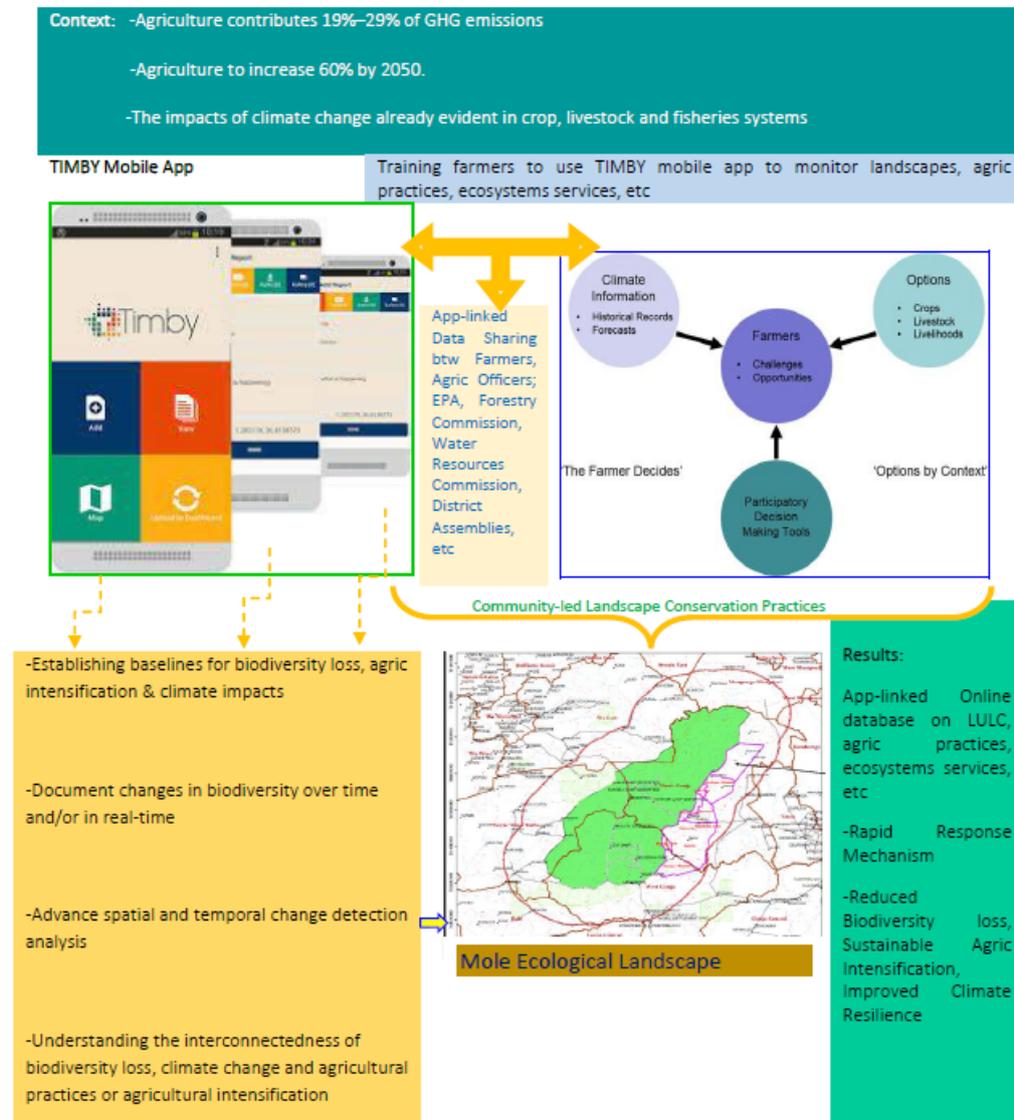


Fig. 2: Conceptual Framework for Innovation Platforms for Combined Agro-Ecology and Soil Fertility Advisory Service linking PICSA and TIMBY Mobile Application.

4. Describe the involvement of local communities and how they have benefited from the project.

1. Thirty community members from the seven selected communities were trained and equipped to test the selected conservation actions with direct boundary partners. The project trained and engaged 10 extension service officers to deliver accurate, personalised and easy-to-follow recommendations on Crop Livestock Integration in Organic Agriculture Practices and Compost Production and Nutrient (N, P) Enrichment to vegetable farmers (50% women farmers) based on data collected on the TIMBY platform. Between August 2022 and April 2023, the RST monitored the conservation practices in the MEL, observing building cases of crop-

livestock integration, agroforestry (in shea landscapes), agro-waste valorisation, biointensive agriculture² and integrated pest management.

2. Currently, 15 community members have been trained on community-based independent reporting using TIMBY mobile application in the Keta Lagoon Complex Ramsar Site in Ghana. This is providing various functionalities that enables stakeholders to instantly search various issues/reports and filter by date, sector, company and person and verification status. As a result of this project, there is increased media attention which has improved youth and community voices on the relationship between fossil fuels, climate change and sea level rise and its resultant impact on coastal communities in Ghana.

3. The project continued to improve public awareness among 51 communities on community-led biodiversity monitoring of ecologically or biologically significant areas and the poverty risks of anthropogenic pressures on key biodiversity areas and the livelihood opportunities accruing from integrated biodiversity management.

5. Are there any plans to continue this work?

There are plans to continue with this work in 2024, focussing on the following areas:

1. Strengthen Community-Led Approaches to Ecological Restoration, Resilience building as an approach to the conservation of terrestrial and marine biological diversity, sustain cultural diversity, traditional knowledge systems and practices while maintaining ecosystem services (including, water, soil, and carbon sequestration), in Ramsar sites and national parks. The project observed that most of the pressures on biodiversity in Ramsar sites and national parks are man-made and can therefore be reduced through a combination of transformative processes including ecological restoration, resilience building. Local communities will be highly instrumental in this transformation process.

2. Facilitate Experience sharing forum: facilitating an online forum for sharing experiences especially with civil societies will be needed to empower grassroots CSOs networks to adopt and promote community-led monitoring of biodiversity decline in other critical ecosystems, Ramsar sites, national parks and wetlands in Africa. FIDEP Foundation has already committed to supporting this process through connection to various CSO networks and partners in West Africa and East Africa. We believe that CSOs could learn from the experiences of this project and also share their experiences in other to improve biodiversity monitoring in Africa.

3. Increase policy engagement and advocacy: Given the observations from this project, it will be important to increasing policy engagement on the interconnections of biodiversity loss, climate change and agricultural practices in Post-2020 Biodiversity Framework, to stimulate a policy discussion and identify socially innovative approaches to addressing these interconnections. The intricate relationships between biodiversity loss, climate change and agricultural practices or agricultural intensification needs to be addressed holistically in order to ensure ecological connectivity.

6. How do you plan to share the results of your work with others?

The project has already shared the results of the work through the publication of three policy papers (See link: <https://www.rufford.org/projects/amos-nkpeebo/expanding-limits-community-led-biodiversity-monitoring-anthropogenic-pressures-3-key-biodiversity-areas-ghana/>), including:

- Policy Paper. 06-23: Updating Biodiversity Conservation Baselines; Tools, Practices and Opportunities for Leveraging Community Monitoring and Reporting Capacities Towards the Post-2020 Biodiversity Framework
- Policy Paper , 07-23: Testing the Long-Term Applicability of TIMBY Mobile Application to Deliver a Combined Agro-Ecology and Soil Fertility Advisory Service for Biodiversity Conservation Within Protected Landscapes
- Policy Paper - 08-23: Making Community-Led Biodiversity Monitoring Central to the Post-2020 Biodiversity Framework of the Convention on Biological Diversity

7. Looking ahead, what do you feel are the important next steps?

1. Recent observations show that the extraction of geological resources is emerging as a major threat to biodiversity conservation. Following the mining exploration rights government granted to a mining company in 2021 to explore gold near the Mole National Park, there are still threats and vested interest of gold prospecting near the Mole National Park. Mining gold near the Mole National Park will degrade the land after the minerals are extracted with toxic materials. In Keta Lagoon Complex Ramsar Site, the threat of a new oil and gas project called the Keta Delta Oil Block has become a massive threat to the ecologically or biologically significant values within the Keta Ramsar Complex Site and a livelihood threat for about 600,000 people within the affected districts. In Lake Bosomtwe Biosphere reserve, recent reports still indicated there are illegal small scale mining activities ongoing, with serious negative externalities on the riparian vegetation of the biosphere reserve. Ghana recently signed the contract with Atlantic Lithium for the lithium mining estimated to generate \$4.8 billion within an 11-year period. This lithium deposit is within the Muni Pomadze Ramsar Site. These recent resource discoveries, coupled with the high level of unsustainable human interaction with the Muni Pomadze Ramsar Site suggest that there is an urgent need strengthen participatory approaches to monitor the conservation of terrestrial and marine biological diversity, sustain cultural diversity, traditional knowledge systems and practices while maintaining ecosystem services (including, water, soil, and carbon sequestration) in Muni Pomadze Ramsar Site in Ghana.
2. Emerging evidence show that ecosystems with low biodiversity are less resilient and more vulnerable to the effects of climate change, and that agriculture is at the intersection of biodiversity loss and climate change. Using community-led approaches, local communities can become change agents for ecological restoration, resilience and ecological connectivity in Ramsar sites and national parks. This requires reinforcement of the existing community-based tools such as agro-forestry, establishment of woodlots, agroecology

and the combination of Remote Sensing/GIS technology with the TIMBY Mobile application to advance spatial and temporal change detection, ground verification, validation and analysis in Ramsar sites and national parks. Therefore, following the independent monitoring capacity already developed in the last 2 years, this project plans to reinforcing Community-led Approaches to Drive Ecological Restoration, Resilience and Connectivity in Ramsar Sites and National Park, specifically targeting the Muni Pomadzi Ramsar Site, the Bui National Park along with the Mole National Park, the Keta Lagoon Ramsar Complex Site and the Lake Bosomtwe Biosphere reserve in 2024. It will seek to integrate other approaches like PICSA and geo-ethical principles into advancing the conservation of terrestrial and marine biological diversity, sustain cultural diversity, traditional knowledge systems and practices while maintaining ecosystem services (including, water, soil, and carbon sequestration). This will include the restoration of degraded mangrove forests and nesting habitats using ecologically relevant native mangrove species in Keta Lagoon Ramsar Complex Site and 5 ha in Muni Pomadzi Ramsar Site.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

The project produced three publications (See link: <https://www.rufford.org/projects/amos-nkpeebo/expanding-limits-community-led-biodiversity-monitoring-anthropogenic-pressures-3-key-biodiversity-areas-ghana/>), including:

- Policy Paper. 06-23: Updating Biodiversity Conservation Baselines; Tools, Practices and Opportunities for Leveraging Community Monitoring and Reporting Capacities Towards the Post-2020 Biodiversity Framework
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All these materials had the Rufford Foundation logo on them.

9. Provide a full list of all the members of your team and their role in the project.

Amos Nkpeebo Yesutanbul: Research Director, FIDEP Foundation

Peter Ossei-Wusu: Programme Coordinator, Forest and Biodiversity, Southern Zone, FIDEP Foundation

Peter Offosu: Project Coordinator, Community—based Independent Reporting, Lake Bosomtwe Biosphere Reserve, FIDEP Foundation

10. Any other comments?

We want to use this opportunity to appreciate the support from The Rufford Foundation, allowing this work to be carried out for two years. We look forward to a continued partnership in the conservation of biodiversity areas in Ghana.