

Final Project Report on Greater Amanzule Wetland Conservation



Prepared for United States Forest Service

Implementing Partner - Hɛn Mpoano

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Hɛn Mpoano

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Acronyms/Abbreviations

CCC	community wetland conservation committees
CREMA	Community Resource Management area
CSA	Climate Smart Agriculture
CSLP	Coastal Sustainable Landscapes Project
DBH	Diameter at Breast Height
DFA-UCC	University of Cape Coast's Department of Fisheries and Aquaculture
EPA	Environmental Protection Agency
GAW	Greater Amanzule Wetlands
GGV	Goshen Global Vision
HM	Hen Mpoano
IPM	Integrated Pest Management
JHS	Junior High School

MA	Municipal/Metropolitan Assembly
MMDAs	Metropolitan, Municipal and District Assemblies
PhD	Doctor of Philosophy
USAID	United State Agency for International Developmeny
USFS	United States Forest Service, International Programs
VA	Village Agent
VSLA	Village Savings and Loan Association
WD	Wildlife Division

1.0 Introduction

Greater Amanzule Wetlands (GAW) conservation project is a collaborative effort between Hen Mpoano (HM) and the United States Forest Service. The project aims to establish a formal co-management process and improve management planning for the GAW in Ghana's Western Region. It contributes to the achievement of the overarching goals of improved natural resources management and increased capacity for low greenhouse gas emissions development.

The month of March 2020, marked the end of implementation of activities under the small grant support HM to consolidate the gains made during the ended US Forest Service - managed Coastal Sustainable Landscapes Project (CSLP). During the implementation phase of the project, Hen Mpoano undertook several activities that resulted in enhanced natural resource management and improved livelihood opportunities for inhabitants in the GAW area, in line with the objectives of the project.

These objectives were;

- ✚ Strengthening governance within GAW communities.
- ✚ Strengthening VSLAs and support ecosystem-based livelihood development.
- ✚ Pilot approaches for long-term monitoring of mangrove ecosystems.

1.0 STRENGTHENING GOVERNANCE WITHIN GAW COMMUNITIES

1.1 Monitoring on-going GAW CCC activities

Building communities' awareness, interest and capacity is an important part of sustainable wetland planning and management. During the project reporting period, HM paid a monitoring visit to all community wetland conservation committees (CCC) in the 24 GAW communities. The purpose was to assess the activities of members of the CCCs towards wetland conservation. Furthermore, the visit provided the opportunity to provide advice to committee members regarding their role as conservation agents. It was highlighted during the discussions, that land degradation has halted in many of the wetland communities, except Sanwoma, Alloakpoke, Ebonloa and Azuleloanu, where some deforestation activities are happening. Members of the committees reported that plans are underway to undertake joint patrols of community wetland areas.



Figure 1: Photos showing CCC engagement at Sanwoma

1.2 Monitor compliance of community-initiated rules with CCCs

During FY 18, community rules and regulations for GAW conservation were endorsed by traditional authorities. Building on the CSLP FY18 achievement of drafting community rules and regulations for GAW conservation, some of the rules and regulations were grafted into the Nzema East Municipal Assembly's gazetted district bye-laws. HM facilitated the incorporation of aspects of these rules into the Nzema East Municipal Assembly's bye-laws. Series of meetings were also held with the Ellebelle and Jomoro district assemblies to also integrate community-initiated wetland rules into their bye-laws.

The bye-laws and sanctions have created the enabling legal environment and backing for local communities to manage their wetland resources. The laws also give legal backing to the community norms developed in FY18 as well as committing the District Assemblies to ensure sustainability of the gains made relative to GAW conservation.

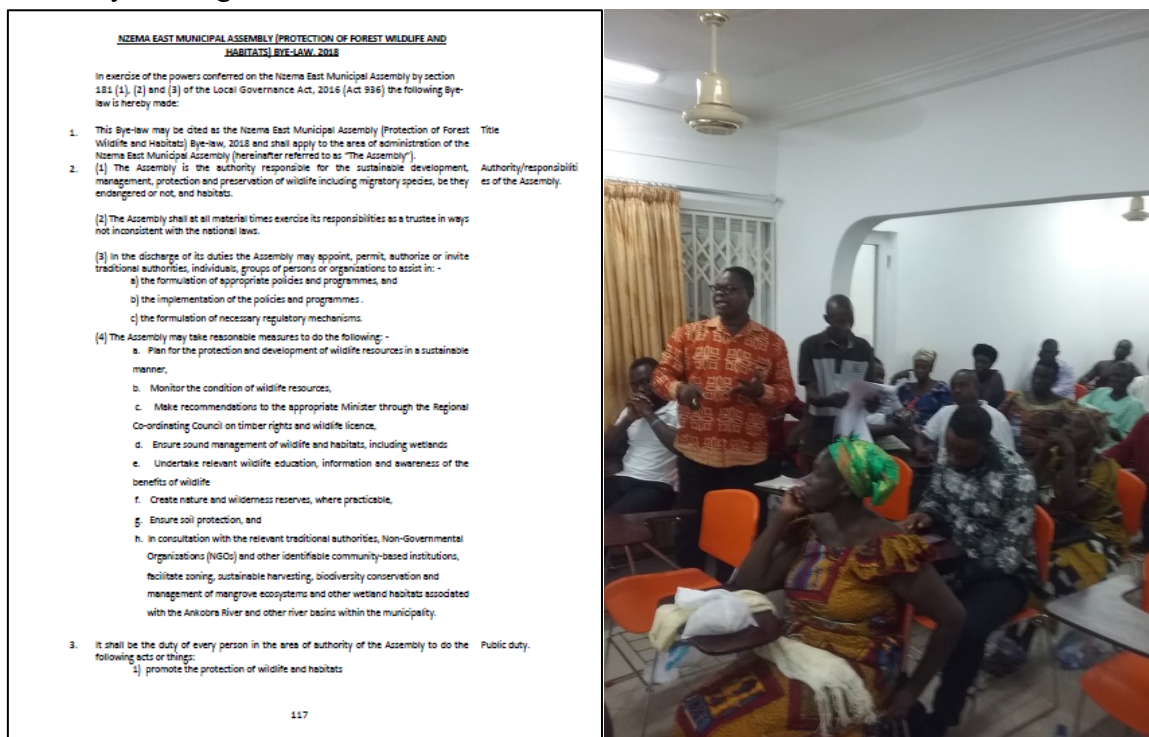


Figure 2: A page of the NEMA bye-law and a cross section of stakeholders at a district assembly dialogue meeting

	Nzema East Municipal Assembly (Protection and Conservation of Coastal Environment) Bye-law, 2018	
	In exercise of the powers conferred on the Nzema East Municipal Assembly, by section 181 (1), (2) and (3) of the Local Governance Act, 2016 (Act 936) the following Bye-law is hereby made:	
1.	This Bye-law may be cited as the Nzema East Municipal Assembly (Protection and Conservation of Coastal Environment) Bye-law, 2018 and shall apply to the area of administration of the Nzema East Municipal Assembly (hereinafter referred to as "The Assembly")	Title
2.	The Assembly is the body responsible for matters related to the coastal environment in its area of authority and is under a duty, limited only by national laws, to do what it can to avoid grave and irreversible loss and damage to the coastal environment.	Responsibility of the Assembly.
3.	The Natural Resources Conservation Department of the Assembly shall:- a) be responsible for the sustainable development of the coastal wildlife resources and protected areas, b) responsible for the formulation of policies for the conservation of coastal natural resources within the framework of national policy c) advice on the prohibition, restriction or regulation of the hunting, capture,	

Figure 3: A section of the NEMA bye-laws

1.3 Radio education and sensitization on community agreed rules for wetland management

A synopsis (see annex for details) for GAW by-laws radio sensitization was developed and run on three major radio stations operating within the GAW area. The programs were organized to communicate and educate resource users and the general public on the community initiated by-laws. Selected CCC members were trained as communicators and radio panelists in disseminating and discussing the bye-laws on radio. There was an opportunity for call-in session for listeners to contribute, make comments and ask questions during the program.



Figure 4: Radio program sections at New Day, West End and Ankobra FM

Images and information communicating GAW bye-laws and good practices were designed, and printed on A2 poster. These were then distributed and mounted within GAW communities. It is expected that, these posters will serve as education material for folks who cannot read and write but can relate easily with photos and images.

1.4 Scaling up communication at national level to enhance policy change

Planning and management decisions for the GAW are often uncoordinated and taken disparately by multiple actors including community inhabitants, district authorities, private land developers, traditional authorities and also by planning institutions at the national level. During the implementing of the project, series of meetings were held with the Acting Regional Manager of the Wildlife Division of the Forestry Commission to strategize how to move forward proposals to attain an official conservation status for the Greater Amanzule Wetland. The discussions were focused on existing mechanisms for conferring official designation such as Ramsar, biosphere reserve and community resource management areas (CREMA). These meetings contributed to the development of a clear roadmap to advocate official designation of the GAW landscape as a conservation area. An official conservation status for the GAW landscape will ensure that decisions of land use actors at all levels reinforce conservation goals.

Following up on this, an effort was made to improve national level communications about the importance and benefits of the Greater Amanzule Wetlands and to advocate its official designation as conservation area. Hen Mpoano and GGV (Goshen Global Vision) organized a meeting with the Wildlife Division of the Forestry Commission. This meeting, which was hosted by the Wildlife Division in Accra, discussed among others, evolution of the GAW conservation experience over the past decade and how the partnership with the Forest Service is supporting local level actions aimed at strengthening governance, wetland management and livelihood development in local communities. At the end of the meeting, officials of the Wildlife Division shared useful insights regarding alignment of ongoing activities with existing government policies on natural resources management. Against this background, officials of the WD recommended that the community conservation committees (CCC) be morphed into community resource management area (CREMA) associations which will in turn benefit from the authority provided by the natural resources management policies and legislations that establish them. This way, officials of the WD noted that the wetland conservation activities will better align with and contribute to implementation of government policies. It was concluded that Hen Mpoano and GGV will initiate steps to implement recommendations from the meeting through developing a strategic communication plan around CREMA establishment in the GAW area and interlinked terrestrial forest areas in southwestern Ghana.



Figure 5: Hen Mpoano and GGV staff in a meeting with WD officials

1.5 Package and disseminate information products on GAW conservation

Barriers to quality wetland communications are many. Wetlands are often poorly understood and complicated in terms of science, how they are regulated and their value to humans and the environment. National and district resources for developing wetland communications are usually limited. During the year under review, Hen Mpoano designed an atlas for the GAW. The atlas is a pictorial representation of the wetland and its attribute. At a glance, communities and individuals are able to know the wetland and the extent it has been degraded. There were informal discussions with District planners of Ellemabelle, Jomoro and Nzema East to discuss how the draft atlas can be improved and made useful for effective communication and decision making. The atlas has been finalized, printed and copies made available to key stakeholders including the wildlife division of the forestry commission, traditional authorities and the district planning units.

2.0 STRENGTHEN VSLAS AND SUPPORT ECOSYSTEM-BASED LIVELIHOOD DEVELOPMENT

2.1. Provide market access and linkages for beneficiaries of livelihood interventions

Millions of smallholder farmers in developing countries face incredible challenges marketing their farm produce. During the year under review, a stakeholder engagement was organized with the aim of linking enterprise group members and farmers who have benefitted from CSLP/HM's livelihood interventions to service providers and market. This activity improved the knowledge of enterprise group members and farmers about where they could access products/ services related to vegetable and honey and have market linkages with potential buyers. The engagement brought together stakeholders such as ATS, Na weh catering services, Watampa hotel, Aya community center, Market Queens, Ankobra Beach and Farms, farmers, enterprise groups, seed dealers among others.



Figure 6: Organic vegetable brought by farmers to sell during meeting

The potential buyers highlighted some of the challenges they encounter with their transactions with farmers and why they prefer to deal with some farmers and not others. There were highlights on the need for organizations to purchase vegetable from organic farmers. There were also concerns on the small-scale production currently being done by farmers in the project catchment. This is therefore a call to farmers in the project catchment to scale up efforts to be able to meet the market demand. Aggregators bemoaned how farms are scattered in the Nzema East, Ellembelle and Jomoro districts.



Figure 7: Sections of market linkage meeting

This they said makes it difficult to buy produce because they have to travel long distances to be able to buy farm produce. They called for more investors and middle men to work with such farmers to aggregate the produce for more marketing opportunities. Farmers were also encouraged to form associations to be able to address some of the challenges highlighted. Farmers were advised to produce organic product under hygienic conditions because buyers are very particular with that and prefer visiting farms for inspection before they deal with farmers. There were exchanges of contact details among participants. This networking opportunity if encouraged will lead to increased access to market for farmers in the project catchment. A total of 56 farmers (m: 14; f: 42) attended the program.

2.2 Organize workshop on using VSLA as a platform for Natural Resources Management

VSLAs have been an effective tool in bringing people together to manage their resources and build community capital to improve livelihoods. As a strategy to further strengthen conservation of the GAW, a five-hour workshop was organized for a total of 52 (m:29 f:23) VSLA members from 14 wetland communities in natural resources management. Specifically, the workshop focussed on the importance and benefits of wetlands, natural and human-induced threats to wetland ecosystems and wetland management best practices. The VSLA members now have a better understanding of how healthy wetlands contribute to their livelihoods and are therefore motivated to support ongoing wetland conservation actions. It is expected that, issues related to wetland conservation will be discussed and challenges addressed during VSLA meetings within each community. Hen Mpoano will continue to monitor progress on this initiative during periodic VSLA monitoring visits and document lessons, successes and challenges.



Figure 8: Section of training on VSLAs as platform for NRM

2.3 Pilot wetland ecosystem livelihood initiative

The ecosystem-based livelihood initiative seeks to support the development of best practices for conserving wetland ecosystem functions while ensuring sustainable harvesting of wetland products. Hen Mpoano organized training sessions for Periwinkle Harvesters Association in the GAW area to introduce them to periwinkle value addition and related business management. A total of 40 (m:16 f:24) participants attended the training and gained knowledge about record and book keeping, marketing and product branding. The end goal for the association is to attain/derive goods and services such as shell fish harvesting opportunities offered by the mangrove ecosystem and in turn, protect this unique mangrove forest. There is a total protection of community mangrove forests by these two communities, namely Old Kablensuazo and Egbazo due to the benefit they derive from this ecosystem.

To further enhance the operationalization of this goal, Hen Mpoano has put the 30 Periwinkle Harvesters Association members together to form one VSLA. The idea is to help them mobilize the financial resources needed to drive their business; foster unity as well as to create a platform where issues relative to their business can be discussed and ideas shared. The VSLA meetings was used as a platform to exchange ideas with the association members on some best practices of wetland eco-system business enterprise. At the core of this conversation was sustainable management of the mangroves to ensure the sustainability of the business.



Figure 9: Section of training materials

In order for the Periwinkle Harvesters Association to effectively manage their business while ensuring the sustainable management of the mangroves in the area, Hen Mpoano donated a canoe to the association. The donation was a response to a plea of the association to support their business. A seven-member committee chaired by the chief of the community was formed to ensure the effective management of the canoe. The membership of the committee includes 2 members from the periwinkle harvesters association, 2 members from the VSLA committees, 2 members from the community conservation committee and the chief of the community.



Figure 10: Donation of canoe to CCC and Ecosystem based Livelihood Association at Old Kablensuazo

The committee is expected to open an account where proceeds from the renting of the canoe will be kept. The proceeds is expected to be used for the maintenance of the canoe. The Periwinkle harvesters can also use the canoe for their harvesting at a minimal fee. The committee will also supervise the use of the canoe by the community conservation committee during monitoring and patrol of the wetland which is supposed to be at no cost to the conservation committee.

2.4 Formation and Training of new Village Savings and Loan Association (VSLA)

The Village Savings and loan concept has been applied under the CSLP to mobilize community members to develop the habit of saving while managing their natural resources. The VSLA has been very instrumental and improved livelihoods the GAW communities, providing members with means to cope with emergencies, build capital and re-create social dynamics that support genuine self-reliance. During the year under review, one new VSLA was formed at Bobrama, making a total of thirteen (13) VSLAs formed by Hen Mpoano on the GAW landscape. The group is made up of 25 females and 2 males. The total VSLA under the supervision of Hen Mpoano have a membership of 352, with 102M and 252F. The group has been introduced into training modules on “*Group naming and Election, Policy formulation, Development of constitution and first share purchase*”, loan disbursement and repayment, conflict management and group dynamics in order to strengthen the group and help them in their activities. It is noteworthy that this group was formed and trained by a village assistant (VA) and financed by an already existing VSLA, including supply of materials. This money will be repaid from the social fund of the new group with a 20% interest after one year. The internal arrangements by these groups present an interesting opportunity to make the VSLA initiative self-sustaining. The Bobrama situation goes to emphasis the importance of VSLA village agents.

2.5 Monitoring of old and newly formed VSLAs

Four of the old VSLA groups successfully shared-out their VSLA Loan funds during this quarter. The VLSA enable members of the groups to save and invest in their livelihood activities to support their families and reduce the pressure on their natural resources and also build community cohesion towards the management of their natural resources.

The groups included the Bobrama Koyele, Egbazo Nyame Nsa wo mu, Efaso Koyele and Anyanzinli Onza Nyamenle VSLA groups. (See table 1 below for details).

Table 1: Table showing the money Share-out for the Bobrama, Egbazo, Efaso and Anyanzinli VSLA groups

Community	Group Name	Total no.	Males	Females	Total Amt contributed (GHC)	Interest accrued (GHC)	Total Loan Fund shared (GHC)	Highest contributor (GHC)	Amt Received (GHC)
Bobrama	Koyele	30	7	23	14,188.00	2580.00	16,768.00	520.00	614.00
Egbazo	Nyame nsa wo mu	30	8	22	15,260.00	5664.00	20,924.00	520.00	712.00

Efaso	Koyele	34	9	25	16798.00	3212.00	20,015.00	550.00	655.00
Anyanzinli	Onza Nyamenle	29	9	20	17534.00	3566.00	21,100.00	795.00	954.00

The field officer advised members of the various groups to use the money received to invest in their livelihood activities in order to reduce the financial burdens on their household and also to ease the pressure on natural resources.

“I am a fish processor; I will invest this money in buying fish to preserve so that I can sell it off during the lean season to help support the family upkeep.”

Aunty Susanna Bewieka, Bobrama community VSLA member

Table 2: VSLA Management Information System (MIS) Data

District	Community	Association name	Total members	m	f	Date savings started	Total savings(Cedis)	Loan outstanding	Cash in box
Nzema East	Apataim	Koyele	30	9	21	17-05-19	5300.00	6205.00	600.00
	Asanta	Yesu mo	30	3	27	10-07-18	3960.00	3200.00	920.00
	Bobrama	Koyele	30	2	28	30-11-18	9920.00	8760.00	2466.50
Ellembelle	Anyanzinli	Onza Nyamenle	30	7	23	22-11-18	14,228.00	8600.00	6289.00
	Azuleloanu	Boeyele	21	8	13	26-04-19	4929.00	2600.00	557.00
	Alloakpoke	Elole	21	7	14	06-03-19	5914.00	5600.00	866.00
	Kamgbuli	Koyele	25	3	22	27-01-19	7940.00	8,700.00	1,149.50
Jomorro	Egbazo	Nyame Nsa wom	30	7	23		8730.00	10,975.00	328.00
	Egbazo	Moale Eku	40	8	32		8464.00	8430.00	304.00
	Metika	Korye	31	11	20	14-05-19	5700.00	5900.00	17.00
TOTAL							75,085.00	68970.00	13,497

Members of the various groups were advised to use the money received to invest in their livelihood activities so as to reduce the financial burdens on their household and also to ease the pressure on natural resources.

“I am a fish processor; I will invest this money in buying fish to preserve so that I can sell it off during the lean season to help support the family upkeep.”

Aunty Susanna Bewieka, Bobrama



Figure 11: Share-out of the Bobrama Koyele group

The social funds are not shared since it is mostly used for welfare activities for the group members and also support with startup materials for new groups . This also ensures the sustainability of the VSLA groups. Members do not have access to this fund, even if they opt out of the group. At the end of the cycle, the various groups agreed to invest their social funds in some kind of business, particularly canopy and chair rental. This is to help sustain the groups and to generate more funds for the group. Canopy and chair rental have been seen to be a very lucrative business within these communities.



Figure 12: Share-out at Effaso and Egbazo respectively

The old and newly formed VSLA groups within the three districts (Ellembelle, Jomorro and Nzema East) were also monitored during the quarter. During the monitoring visits, the books of the various VSLA groups were checked to ensure they are complying with the procedures. The new groups have already started accruing profits from the service charges on loans.



Figure 13: The new group conducting their first share-purchase meeting

The VSLA is being used as a tool in mobilizing community members to develop the habit of saving while managing their natural resources. The VSLAs has been a very useful tool in bringing community cohesion and promoting savings, however, there is still a gap in linking it directly to natural resource management. Although some of the Community Conservation Committee (CCC) members double as members of at least, one VSLA group, past efforts have not committed enough time and resources to take advantage of the VSLA as platform for natural resources management dialogues. Going forward, more CCC members will be encouraged to join the VSLA groups. Consequently, the VSLA will then become the platform where conservation activities and sensitization programs will be planned and initiated.

3.0 PILOT APPROACHES FOR LONG-TERM MONITORING OF MANGROVE ECOSYSTEMS

3.1 Ecological Health Monitoring of Mangroves

This activity builds on the training provided by Dr. Rupesh Bhomia on wetland monitoring to staff of Hen Mpoano. It also dovetails into PhD studies of Hen Mpoano staff (Daniel Nortey) at the University of Cape Coast's Department of Fisheries and Aquatic Sciences. Following training by Dr. Bhomia, Hen Mpoano staff, led by Daniel Nortey organized a training on ecological sampling and monitoring for selected CCCs members. The training involved, measurement of height and diameter at breast height (DBH), laying of transect, setting of quadrants. This was followed by actual field measurements with selected trained CCCs members to test the protocols.



Figure 14: Ecological sampling and data collection training for CCC members at Ayanzinli

The aim of the exercise was to help obtain adequate scientific data to make informed decisions on the GAW. Three communities were selected as sampling sites to pilot this data gathering exercise. The communities are Ankobra and Anyanzinli in the Ellembele District Assembly and Metika in the Jomoro Municipal Assembly.



Figure 15: Ecological sampling and data collection training for CCC members at Ankobra

A total of 36 quadrants have been set for the data collection. To help facilitate and effectively monitor this important exercise, a field officer was assigned to directly work with the data collectors in the field.



Figure 16: Ecological sampling and data collection training for CCC members at Metika

This pilot monitoring is to set the stage for scientific data collection under the Sustainable Wetlands Adaptation and Mitigation Program (SWAMP) funded project. Indicators monitored include tree Diameter at Breast Height (DBH), and biodiversity (presence of mudskippers, crabs, periwinkles, birds, mammals) within the mangrove ecosystem. Data collection was focused on three selected sites (Ankpbra, Anyanzinli and Metika) and led by trained CCC members from these communities on data collection instruments and facilitated by HM staff with the support of a field assistant. Measurements were done in already established 5 x 5m quadrant plots on laid 100m transect. Droppings of mammals were used as a sign of their presence in the area.

Table 3: Table showing result from citizen science data collection within GAW mangrove ecosystems

Indicators	Ankobra			Anyanzinli			Metika		
	Degraded	Planted	Intact	Degraded	Planted	Intact	Degraded	Planted	Intact
DBH	2.11	0.76	3.74	1.23	0.6	3.81		0.73	3.62
Birds	N/A	Nest/ Present	Nest/ Present	N/a	Nest/ Present	Nest/ Present	N/A	Nest/ Present	Nest/ Present
Mammals	Present	Present	Present	Present	Present	Present	N/A	Present	Present
Periwinkles	Dead shell	Present	Present	Dead shell	Present	Present	N/A	Present	Present
Crabs	Few	Present	Present	Few	Present	Present	N/A	Present	Present
Mud skippers	N/A	Present	Present	N/A	Present	Present	N/A	Present	Present

3.2 Organize Lessons Learned Workshop on Mangrove Monitoring and Utilization of Monitoring Data

Following up on the training on ecological sampling and monitoring and subsequent data collection on mangroves, a workshop was organized for selected community conservaton committee (CCC) members to share lessons and challenges in undertaking this activity. The workshop which took place from the 21st to the 22nd of November brought together 50 participants (m:22 f:28) from Ankobra, Anyanzinli and Metika. Community members now appreciate the importance of monitoring, data collection and proper record keeping of citizen science data. It was evident at the workshop that, even though monitoring the ecological health of mangrove ecosystems required additional efforts, members were ready and willing to help the progress because of the importance they attached to the ecosystem and the enormous benefits this unique system provide to their lives.

“I now harvest a lot of big sized periwinkles from the restored mangrove sites. In the past, I would not get them there. The replanting of mangroves in the degraded areas have really helped we the women. The men also get big fish these days.”

Dorcas Kwofie – Shell fish harvester and Organizer of Anyanzinli CCC

Community members now appreciate the fact that the number of surviving seedlings can be estimated through this exercise. The exercise also helped to identify areas where planted mangroves were doing well. The presence of fry, fingerlings and juvenile fish in replanted areas confirmed to community members the role mangroves play as breeding, spawning and feeding grounds for fish. It was very clear that, with the right mind set, team work and dedication, the mangroves ecosystem of the GAW will be sustainably utilized to harness the ecological, socio-cultural and economic benefits.



Figure 17: Trained CCCs members from Anyanzini

“I have been harvesting mangrove trees since age 15. I’m now 40 years old and I never knew we can plant mangroves. Thank you Hen Mpoano and US Forest Service.”

Anthony k. Duah – Mangrove harvester and Chairman of Ankobra CCC

3.3 Donation of Wetland Monitoring Equipment to School Environmental Clubs

A field visit was made to both the Yabiw and Akwadie Junior High School (JHS) climate change clubs. The headmaster and teachers welcomed the team. A brief introduction was made and a Refractometer which was sent from the US forest service to help the club members to measure salt content in the water bodies were presented to the climate change clubs. Students were then quizzed orally to test their knowledge on wetland education. The responses from the students indicated they had learned a lot about wetland and climate change and took their lessons seriously. Students were able to link the benefit of planting more mangroves to protect coastal water bodies and the environment and how this mitigates the effect of climate change.



Figure 18: Donation of scientific instrument to Climate Change Club member at Yabiw

The head teacher thanked the Forest service for the gesture and appealed for modern scientific equipment to broaden the knowledge of the students and enrich their studies, since they have inadequate facilities.



Figure 19: Donation of scientific instrument to Climate Change Club member at Akwidia

3.4 Weeding and Tendering of Saplings at Planted Sites

During quarterly monitoring activities, it was observed that acrosticum species are taking over planted mangrove sites and competing with saplings. Following this, a 3-day weeding and tendering of planted mangroves (Saplings) was planned and undertaken by the 45 (m:26; f:19) member Ankobra Community Conservation committee. This was necessary to allow saplings to growth healthier.



Figure 20: Weeding of Acrosticum species from planted mangrove sites

4.0 TECHNICAL SUPPORT FROM USFS

4.1 Field Visit By USFS Technical Advisor

Hen Mpoano worked with Dr. Rupesh Bhomia (a technical advisor from the US Forest service) to develop a tool for mangrove ecosystem monitoring. Using the tool will help formalize on-going mangrove monitoring by CCCs and make available scientific data that will serve as the basis for any future mangrove monitoring activities or initiatives. The data will also help to monitor seedling survival of replanted mangrove areas. Hen Mpoano took advantage of Dr. Rupesh Bhomia’s visit to engage UCC, Department of Fisheries and Aquatic Sciences students and scientists as well as representatives from FoN and GGV on potential collaboration that will enhance mangrove conservation effort and likely catalyze a long-term programme for mangrove ecosystem monitoring in the GAW. Issues discussed include knowledge and technical skills transfer for development of training materials for carbon accounting based on documentation and methodology from SWAMP and other internationally recognized protocols (i.e. Verified Carbon Standard Program). Specifically, the discussion focused on field methods to measure and monitor forest productivity and carbon storage suitable for the needs and conditions of the Western Region.



Figure 21 Female CCC member and other team members taking measuring the DBH and height of a Rhizophora

4.2 Field Visit By USFS West Africa Regional Specialist

A five-day field visit and stakeholder engagement meeting was organized and facilitated by Hen Mpoano for the West Africa regional specialist of the USFS. This provided her the opportunity to learn at first hand, activities of Hen Mpoano, regarding the conservation of the GAW, interact with beneficiaries of the GAW conservation project and engage with other stakeholders at the University of Cape Coast's Center for Coastal Management.

The groups she interacted with include the Community Conservation Committees and VSLA members of Ankobra and Ayanzinli. A field visit to a replanted mangrove site at Ayanzinli was also undertaken. She was very impressed on work done and was happy to see birds inhabiting the young mangrove plants. There were a lot of nest on the replanted mangrove indicating that the ecosystem which once was degraded is coming back to life.



Figure 22: Field visit with Destina Samani at Ankobra and Ayanzinli

Challenges faced by members of both the CCCs and the VSLAs were brought forward and attempts are being made to address those challenges. The challenges highlighted include logistics for monitoring and patrols of wetlands and poor record keeping among some VSLAs.

5.0 WORKING VISITS BY FAO/USAID

A team comprising officials from USAID, FAO and community members from the Greater Accra and the Volta regions, visited Ankobra on October 29, 2019 to learn good practices in resource management. The group met with the community conservation committee which was established by Hen Mpoano with support from United States Forest Service with funding from USAID. The group selected GAW as a pilot site for exchange and learning best practices for co-management of coastal ecosystems and its resources. The purpose of the visit was to learn the successes of the GAW and to replicate in the Volta Region of Ghana. Participants took notes of good practices of

resources management in the Western Region to help them replicate and adapt similar practices elsewhere in Ghana.

6.0 SUPPORT FOR GGV

HM continued to provide technical support to Goshen Global Vision in the area of spatial analysis and GIS mapping. The GIS officer of Hen Mpoano was instrumental in conducting basic spatial analysis and GIS mapping as a contribution to the ongoing urban forestry project. HM was also involved in the stakeholder consultations with Municipal officers on site selection for general landscaping and tree planting under the urban forestry project..

7.0 PARTICIPATING IN NATIONAL AND INTERNATIONAL CONFERENCE

As part of efforts to increase communication on activities within the GAW and to present GAW conservation during important global conservation events, workshops and conferences, Hen Mpoano took advantage to participate in the Global Landscapes Forum organized by the Center for International Forestry Research (CIFOR) from October 29 to 30, 2019 in Accra, Ghana. This event brought together, academics, practitioners, industries, governments and traditional authorities around the globe to discuss and share good practices in the field of landscapes restoration. The two-day event looked at issues of;

- ❖ Landscapes and jurisdictional approaches to sustainable land management
- ❖ Operationalizing landscape approaches for nature, development and sustainability
- ❖ Forest landscape restoration
- ❖ Fire ecology and dynamics

The conference was attended by more than 600 hundred participants on site and 17,000,000 people online through social media handles. Knowledge in forest management practices was gained and will be applied to enhance conservation of the GAW. Hen Mpoano shared with participants, ongoing efforts to conserve the GAW during a plenary session. It was clear that conservation work around the world is being complemented with livelihood enhancement programs to reduce dependency on natural resources.



Figure 23: Section of Global Landscape forum participants

8.0 CHALLENGES

Laying of transect and setting of quadrants in the mangrove forest posed challenges but with support and enthusiasm from the CCC members the exercise was carried out. Timing of the high and low tide also restricted the hours used for the field work.

From the CCC monitoring exercise it came to light that illegal timber harvesting and chain saw operations are still happening at areas such as Ebonloa and Alloakpoke. Some people are also illegally harvesting mangroves at Azuleloanu. At Half-Assin it came to light some people are also using wetlands as refuse disposal sites. It was also revealed that mangrove and tree harvesters in these communities have begun to violate community rules against wetland harvesting by indulging in mangrove harvesting in the night.

9.0 LESSONS LEARNED

VSLA has proven to be a very useful livelihood intervention and critical for successful conservation of the GAW. Hen Mpoano has established innovative financing mechanism where existing VSLA groups train and finance the purchase of the VSLA equipment for new groups. This was piloted at Bobrama which proved successful. The approach is now being replicated in other GAW communities. The presence of invasive species (*Accrostichum aureum*) taking over some degraded areas was a great concern to all. Destruction of some planted mangroves by flood was also a big setback for the restoration exercise. Anthropogenic disturbances through shellfish harvesting was of great concern. Community conservation committee members will intensify their sensitization and education campaign on local/community radio to avert the problem in the affected communities.

Accrostichum aureum is an invasive species taking over cleared/degraded mangrove areas when left for longer periods without replanting.



10.0 CONCLUSION

The Greater Amanzule Wetland Conservation Project is aimed at establishing a formal co-management process and improving management planning for the Amanzule wetlands in the Nezema East, Ellembelle and Jomoro Districts. HM's approach to conservation of the GAW gives consideration to governance, management and livelihood development, with each aspect having strong community engagement component. During the project reporting period, sections of the community rules and regulations developed as part of the CSLP was adopted into the bye-laws of the Nzema East Municipal Assembly. This creates the legal framework for the enforcement of the rules and regulations at the community level. The bye-law is to guide, regulate or control the conduct or behavior of communities fringing the GAW. They are meant to regulate the exploitation of the wetland resources which will promote sustainability of livelihoods. Against the background of depleting wetland and fisheries resources, the rules and regulations also seek to promote behavior change. On improved management, GIS data and shapefiles gathered over the lifetime of the CSLP were shared with planners at the district assemblies in support of land-use planning and decision-making.

Hen Mpoano will encourage establishment of VSLAs in communities where CCCs are absent. More emphasis will also be laid on wetland monitoring spearheaded by community conservation committees. Additional monitoring protocols using scientific approaches (through the PhD of Daniel Nortey) will also be established to help address pertinent wetland management questions such as effectiveness of mangrove restoration actions and health of GAW mangroves. These will improve decision making at the district, regional and national level for long-term protection of the GAW.

Capacities of members of Village Savings and Loan Association (VSLA) have been built to use the association as a good platform to discuss conservation issues and to address them with support from the CCCs and traditional authorities. Trainings were organized for newly formed VSLAs on loan and proper documentation of records and book keeping to enhance their work. It is evident that the work by Hen Mpoano and the United States Forest Service has been recognized as a good model to be replicated and upscaled in other parts of Ghana by the FAO and USAID.

8.0 Summary of Activities Implemented

The table below summarizes the activities carried out during the lifespan of the project

Table 4: The summary of activities carried out during the lifespan of the project

Event/Activity	Activity #	Lead & Support staff	Participants	Indicator	Comments & Notes
Monitoring of old and newly formed VSLAs.	2.5	HM	VSLA members	C-2	New and old VSLA groups monitored to check books, assess effectiveness and collect MIS data
Ecological Health Monitoring of Mangroves	3.3	HM	GAW CCC members from Metika, Anyanzinli and Ankobra	4.8.1-29	Ecological monitoring and data collection on mangroves ecosystems was piloted at three planted mangrove sites.
Establishment of market linkages for organic vegetable and bee keeping farmers	2.1	HM	Organic vegetable and bee keeping farmers		
Communicating of GAW by-laws	1.1	HM	Selected Community conservation Committee members		Three radio programs organized to community community initiated by-laws. A2 poster communicating by-laws and good practices designed, printed, distributed and mounted within GAW communities
Weeding and tendering of saplings at replanted sites	3.3	HM	45 GAW CCC members from Ankobra	4.8.1-29	

Event/Activity	Activity #	Lead & Support staff	Participants	Indicator	Comments & Notes
Scaling up communication at national level to enhance policy change	1.1	HM	HM, Goshen Global Vision, Wildlife Division and Forest Division of the Forestry Commission of Ghana.		National level communication of GAW to enhance policy direction
VSLA Formation and Monitoring (12 VSLA Groups)	1.3.1	HM	VSLA members	C-1	VSLAs in Egbazo, Effasu, Metika, Sawoma, Bobrama, Apataim, Azuleloanu, Anyanzinli, Alloakpoke, Old Kablesuazo and Asanta are monitored. One new VSLA is formed at Bobrama
Ecosystem-Based Livelihood Intervention: Enterprise Group Registration	1.3	HM	AzuleDumnli Periwinkle Harvesters Association	EG 3.2-4	Old Kablesuazo Periwinkle Association with registration Number CG231742018 and TIN Number C0019202172 have started a VSLA group
CCC Monitoring (24 Communities)	2.4.5	HM	GAW Community conservation committee (CCC)	C-2	VSLA can be a useful tool to get all the CCCs active
Adoption of sections of community –agreed rules for the conservation of wetlands into the bye-laws of NEMA	2.4.5	HM	Stakeholders (HM, WD, TA, CCCs, Communities, DCC)	4.8.1-26, C-2	One of the important contributions HM made state clearly that <i>“In consultation with the relevant traditional authorities, Non-Governmental, Organizations (NGOs) and other identifiable community-based institutions, the municipal assembly will facilitate zoning, sustainable harvesting, biodiversity conservation and management of mangrove ecosystems and other wetland</i>

Event/Activity	Activity #	Lead & Support staff	Participants	Indicator	Comments & Notes
					<i>habitats associated with the Ankobra River and other river basins within the municipality”.</i>
USFS Technical Assistant (Rupesh) Visit	Develop simplified indicators and monitor success of re-planted seedlings with CCCs Explore collaboration with USFS, UCC scientist on mangrove carbon accounting methodologies	HM	Sanwoma, Anyanzinli, Old Kabenlasuazo Kamgbunli	Prog	
National level communication		HM	HM, WD		WD is committed to the push for a formal conservation status for the GAW.
Share GIS data and maps with district planners		HM	HM, district assembly officials of the TCPD		The three district assemblies now have detailed information and maps on the GAW.

Event/Activity	Activity #	Lead & Support staff	Participants	Indicator	Comments & Notes
					These maps and shape files will help in zoning and planning land-use decisions on the landscape.
VSLA Formation and Monitoring (12 VSLA Groups)	1.3.1	HM	VSLA members	C-1	VSLAs in Asanta, Apateim, Alloakpoke, Egbazo, and Old Kablensuazo are monitored. One new VSLA is formed at Azuleloanu
District assembly bye-laws on wetland conservation and adopted and gazetted in the Ellembele and Nzema East District assemblies	2.4.5	HM	Stakeholders (HM, WD, TA, CCCs, Communities, DCC)	4.8.1-26, C-2	One of the important contributions HM made state clearly that <i>“In consultation with the relevant traditional authorities, Non-Governmental, Organizations (NGOs) and other identifiable community-based institutions, the municipal assembly will facilitate zoning, sustainable harvesting, biodiversity conservation and management of mangrove ecosystems and other wetland habitats associated with the Ankobra River and other river basins within the municipality”.</i>
VSLA Formation and Monitoring (12 VSLA Groups)	1.3.1	HM	VSLA members	C-1	Three (3) new VSLA is formed at Apataim and Dadwen
CCC Monitoring (24 Communities)	2.4.5	HM	GAW Community conservation committee (CCC)	C-2	CCCs are acting as watch dogs to ensure sustainable wetland management.
Donation of wetland monitoring equipment to school environmental clubs	Prog	HM	Climate Change Club members at Yabiw and Akwadia	Prog	Refractometer have been presented to climate change club members to help in their wetland monitoring exercise.

Event/Activity	Activity #	Lead & Support staff	Participants	Indicator	Comments & Notes
Ecological Health Monitoring of Mangroves	3.2	HM	Trained GAW Community conservation committee (CCC) members		A total of 24 quadrants set to begin data collection. Additional 12 needed for this exercise
Ecosystem-Based Livelihood Intervention: Enterprise Group Registration	1.3	HM	AzuleDumnli Periwinkle Harvesters Association	EG 3.2-4	Canoe donated to the association
Field visit by USFS West Africa Regional Specialist	Prog	HM	GAW Community conservation committee (CCC)	Prog	The USFS West and Central African point person now has a practical field experience of what happens within GAW.
Training of new Village Savings and Loan Association (VSLA)	2.4	HM	VSLA members	C-1	Newly formed VSLAs groups receive training on team building, conflict resolution and loan disbursement
Monitoring of old and newly formed VSLAs	2.5	HM	VSLA members	C-2	New and old VSLA groups monitored to check books, assess effectiveness and collect MIS data
Deploying VSLAs to enable improved natural resources management	2.2	HM	VSLA members from Metika, Anyanzinli and Ankobra	C-2	VSLA members receive training to use the VSLAs a platform for natural resources management
Ecosystem-based livelihood initiative	2.6	HM	AzuleDumnli Periwinkle Harvesters Association	EG 3.2-4	Ecosystem Based Livelihood Group of the GAW trained on Business Management

Event/Activity	Activity #	Lead & Support staff	Participants	Indicator	Comments & Notes
Joint FAO/USAID visit to the GAW area	Prog	HM	FAO, USAID and co-management committee members from Greater Accra and Volta regions	Prog	FAO, USAID and co-management committee members from Greater Accra and Volta regions visit GAW as successful pilot site for co-managemnet.
Ecological Health Monitoring of Mangroves	3.3	HM	GAW CCC members from Metika, Anyanzinli and Ankobra	4.8.1-29	Workshop organized for selected CCC members to share lessons and challenges on ecological sampling and monitoring and data collection on mangroves ecosystems.
Participation in international forest research workshop	Prog	HM	HM	Prog	HM participates in Global Landscapes forum

APPENDIX I

NZEMA EAST MUNICIPAL ASSEMBLY (PROTECTION OF FOREST WILDLIFE AND HABITATS) BYE-LAW, 2018

(1) In the discharge of its duties the Assembly may appoint, permit, authorize or invite traditional authorities, individuals, groups of persons or organizations to assist in the formulation and implementation of appropriate policies and programmes, and the formulation of necessary regulatory mechanisms.

(4) The Assembly may take reasonable measures to do the following: -

- a. Plan for the protection and development of wildlife resources in a sustainable manner,
- b. Monitor the condition of wildlife resources,
- d. Ensure sound management of wildlife and habitats, including wetlands
- e. Undertake relevant wildlife education, information and awareness for the benefits of wildlife
- g. In consultation with the relevant traditional authorities, Non-Governmental Organizations (NGOs) and other identifiable community-based institutions, facilitate zoning, sustainable harvesting, biodiversity conservation and management of mangrove ecosystems and other wetland habitats associated with the Ankobra River and other river basins within the municipality.

Any person or body of persons who desires to undertake advocacy or voluntary activities related to wildlife and habitats shall: -

- 1) submit a licence permit obtained in support of application for free licence,
- 2) seek and obtain appropriate certificates without charge
- 3) have an Executive Committee duly registered as such by the Assembly, and
- 4) have a constitution approved by the Department of National Resources Conservation of the Assembly.
- 5) satisfied any other conditions that the Assembly may deem fit.

Any authorized individuals or groups shall accept, or be seen to have accepted that:

- 1) they are obliged to operate as trustees of wildlife for present and future generations, expectation
- 2) Wildlife and their habitat belong to the community.
- 3) Traditional laws, norms and taboos have important roles to play in the protection of wildlife,

Any person who contravenes any of the provisions of this Bye-law commits an offence and shall be liable on summary conviction to a fine not less than one hundred (100) penalty units and not more than two hundred and fifty (250) penalty units or a term of imprisonment not less than six months and not more than twelve months or to both the fine and imprisonment.

The sanctions and penalties in respect of breach of any of the bye-laws shall vary by reference to the gravity of the offence or default but will include: -

- 1) Sanctions recommended by a traditional authority approved by the Justice and Security Sub-Committee who shall seek a resolution of the Assembly to give enforceable effect.