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MANGROVE RESTORATION REPORT- PRA (YABIW) AND AKWIDAI WETLANDS

Coastal Sustainable Landscapes Project

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Acronyms and Abbreviations

CSLP	Coastal Sustainable Landscapes Project
HM	Hen Mpoano
FoN	Friends of the Nation
GAW	Greater Amanzule Wetlands
CREMA	Community Resources and Area Management
VSLA	Village Savings and Loans Association
MoFA	Ministry of Food & Agriculture
NGO	Non- Governmental Organization

Executive Summary

Wetlands play a key role in ecosystem services providing diversified flora and fauna. Most people consider wetlands as wastelands without considering its ecological and economic significance. Wetlands are found in all six coastal districts of western region of Ghana but these valuable natural resources are under threat due to human behavior and activities. Key human activities include reclamation of land for expansion of extractive industries, human settlement and indiscriminate cutting of mangrove forest as fuel wood purposely for fish smoking.

It is within this context that CSLP in collaboration with key stakeholders initiated mangrove restoration intervention activities in three communities at Yabiw and Krobo in Shama district and Akwidai in Ahanta-West district of western region of Ghana. Purpose of restoration initiative is to sensitize catchment communities in wetland areas about ecological and economic importance of wetlands, support community nurseries to raise mangroves seedlings to replant portions of degraded mangrove sites under their jurisdiction, and facilitate development of community management action plans for restored areas.

From 2014 to date, CSLP has provided technical and logical support to four communities in Shama (Yabiw/ Krobo,/Anlo Beach) and Ahanta-west (Akwidai) districts . These community nurseries raised 22,536 mangrove and cassia seedlings that were replanted in portions of the degraded mangrove areas. Cassia seedlings were given to interested farmers to establish fuel wood plantations for domestic and commercial purpose. Out of 263.18 hectares CSLP mapped as areas under community management of wetlands and mangrove forest, 25.15 hectares have been replanted.

CSLP in collaboration with HM/FoN/SNV have built capacities of Volunteer group members to oversee and manage restored mangrove areas. Community management action plans have been developed to guide management activities. Key mangrove restoration challenges include raising of mangrove seedlings, nurturing and transporting of seedlings from nursery sites to restoration sites for replanting. Existing structures with responsibilities to lead in management of wetlands are weak and need to restructure as well as develop their capacities to champion wetlands and mangrove forest management. Donor support is needed in near future to reach out to more communities in the six coastal districts of western region to sustain the wetlands due to their ecological and economic significance.

1.0 Background

The Feed the Future Ghana Coastal Sustainable Landscapes Project (CSLP) is a United States Agency for International Development (USAID) funded and U.S. Forest Service-managed intervention being implemented in the six coastal districts¹ of Ghana's Western Region. The project, originally a three-year project (2013-2016) and non-Feed the Future funded, was extended another through September 2018 with Feed the Future funding, based on successes achieved within the initial phase. It works to promote low emissions development in Ghana's Western Region by strengthening community-based natural resource management and monitoring, and improving livelihoods in farming and fishing communities.

The project's second phase, under the U.S. government's Feed the Future Initiative, had a specific objective to reduce poverty and increase resiliency in the target communities through improved natural resource management, livelihood diversification, value chain development, and ecosystem conservation and restoration. Currently, the project interventions cover 43 core coastal communities with smallholder farmers and fisher folks as the main beneficiaries. In total, project actions of one sort or another have reached more than 82 communities as of the end May 2018.

The interventions of the CSLP are guided by two main outcomes: (i) increased incomes from livelihood diversification and, (ii) improved environment and natural resource management. Specific activities include agroforestry and forestry best practices, short- and medium- term livelihood improvement activities (e.g. beekeeping, climate smart agricultural –CSA vegetable production), on-farm tree planting of commercial and agroforestry species and management of greening areas / urban greeneries. Others include wetland/mangrove conservation, spatial planning, Village Savings and Loan Associations (VSLAs) and youth engagement (via formation of environmental clubs in public schools).

CSLP uses in-field consultations, targeted trainings, strategic capacity building, detailed technical assistance, and participation in institutional/policy level discussions and workshops based on field-level experience to achieve project objectives.

¹ Shama, STMA, Ahanta West, Nzema East, Ellembelle and Jomoro districts/municipal

1.1 Introduction

Mangrove forests and wetlands are abundant resources in the six coastal districts of western region of Ghana. Major mangrove forest and wetlands areas include Pra Estuary and associated wetlands in Shama District, Esse -Whim wetlands in Sekondi-Takoradi Metropolitan Area, Butre -Akwidai wetlands in Ahanta West district and Greater Amanzule Wetlands (GAW) that stretches through Nzema East , Ellembelle, and Jomoro Districts. These areas are perceived as wastelands and all kinds of human activities have taken place at these natural sites. Human behavior and activities include reclamation for oil /gas expansion projects, human settlement indiscriminate cuttings of mangrove forest as fuel wood and as waste dumping sites especially plastic waste.

Figure 1.1 Map of Western region showing major wetlands



1.2 Ecological Significance of Wetlands

Wetland areas are biologically rich and have diverse ecosystem of flora and fauna. Flora resources include mangrove forests, salt marshes, swamps, reeds, water lily and water lettuce. Fauna ecosystem has marine fish, freshwater fish, shellfish, shrimps, crabs, prawns, oyster, birds, monkeys, snakes, etc.

1.3 Ecological and Socio- Economic Functions

Majority of above mentioned fish species spend their juvenile stages of growth in wetlands making this ecosystem an important fish nursery and spawning ground. During later stages in their development the fishes migrate to marine environment. Consequently, maintenance of wetlands are crucial to achieving food security and enhancing livelihoods in surrounding fishing communities. Wetland also provides other functions such as supporting stabilization of coastline, reducing erosion and buffering against impacts of flooding on abutting communities. In addition to its ecological functions, socio-cultural, economic and

other values offer further justification for its conservation. Wetlands also forms part of river transportation system linking the coast and inland areas and most convenient for transporting farm produce from riparian farming communities to the coast.

In light of above ecological and economic importance of wetlands, the CSLP in conjunction with Hen Mpoano initiated two mangrove restoration activities in three communities. Yabiw and Krobo in Shama district and Akwidai in Ahanta west district.

1.4 Objectives for Mangrove Restoration and Management

The CSLP had the following objectives in Mangrove restoration interventions:

- To sensitize catchment communities in wetland areas about ecological and economic importance of wetlands
- To provide technical advice to restore portions of degraded mangrove sites.
- To facilitate development of management action plans for restored areas.

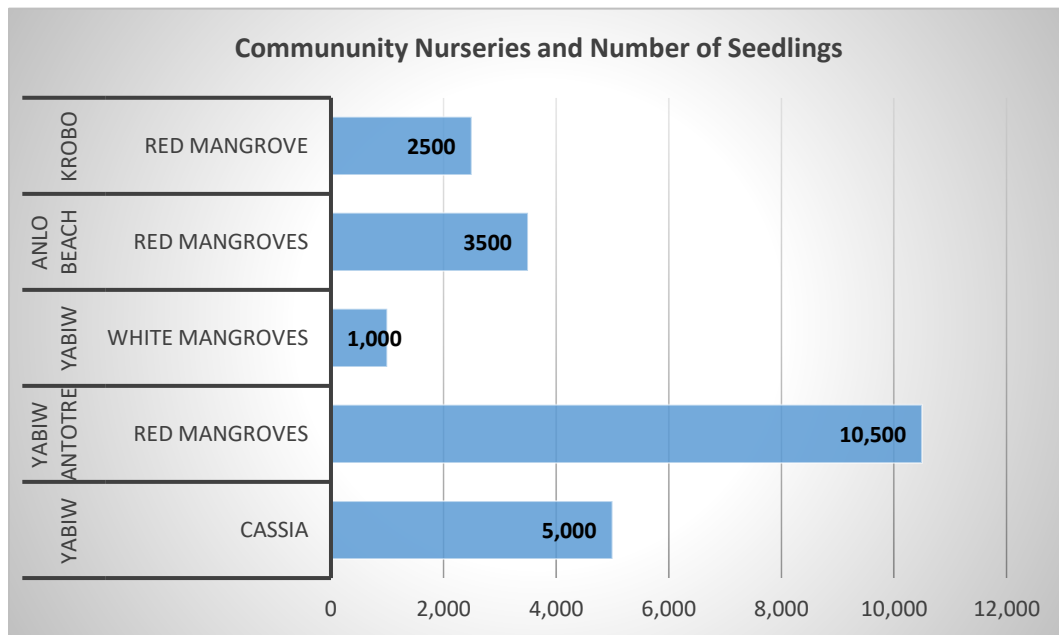
2.0 Strategies and Methodology

- Collaborated with key stakeholders such as Traditional Authorities as owners of the wetland, Wildlife and District Assemblies in restoration activities.
- Facilitated formation of volunteer groups to oversee management action plans
- Supported community nurseries to raise mangrove seedlings for replanting
- Facilitated development of community management actions plans.

3.0 Results and Discussions

3.1 Community Supported Mangrove nurseries.

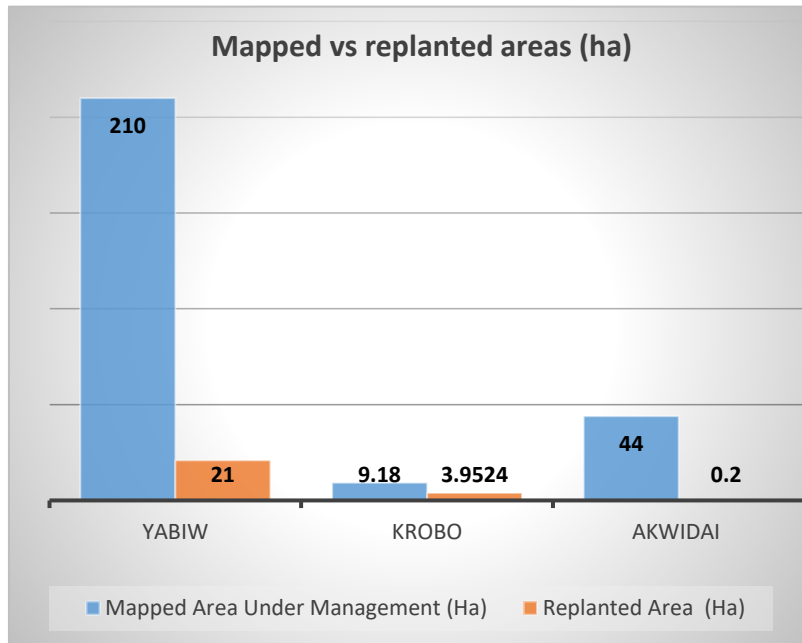
Fig 3.1 Community nurseries and number of seedlings raised



CSLP supported four community nurseries to raise white mangroves, red mangroves and cassia seedlings. CSLP provided technical advice, tools and polybags while community members nurtured seedlings. From 2014 to date total of 22,563 seedling were raised as shown in Fig. 3.1.1. These seedlings were used to replant degraded mangrove areas. Cassia seedlings were raised and supplied to beneficiaries interested in fuel wood plantation for charcoal business and also for smoking fish as strategy to prevent people from cutting mangrove forest. Yabiw Methodist Junior High School Climate Change Club members also raised 563 red mangroves. Surviving rate of seedlings raised from nursery was about 92 percent.

3.2 Replanting of Mangroves at Degraded sites.

Before the CSLP intervention, participating communities had experience in replanting of mangroves by other organizations, e.g. Akwidai and Anlo Beach areas. Volunteer group members mobilized community members while the CSLP provided technical advice and support (sanitary and food items.) for replanting activities.



Out of total area of 263.18 hectares, 25.15 hectares were replanted. Fig 3.2 shows total area replanted as against total area under management in each of the communities (see Annex 2).



Fig 3.2.1 Replanting Mangroves at Yabiw in 2015



Fig 3.2.2 Replanted mangroves in 2015



Fig 3.3.3 Replanted mangroves in 2018

3.3 Volunteer Groups, Capacity Building and Development of Management Action Plans.

CSLP facilitated formation of Volunteer group with the following responsibilities:

- Mobilize community members for raising mangrove seedlings and replanting activities
- Monitor replanted areas.
- Ensure no person drains water before and during fishing
- Monitor catching net sizes to ensure net holes are not less than one inch in diameter
- Ensure there are no dangerous traps to distract wading and monitoring.
- Report on any findings and encroachers to appropriate authorities.

Trainings were conducted to build capacity of volunteer group members to carry out above roles and responsibilities effectively. A training tour was organized for a volunteer group from Akwidai to Sanwoma (in the Nzema East and GAW community) to learn best

practices in mangrove nursery establishment. Table 3.3 summarizes trainings conducted for volunteer group members and its benefits to mangrove restoration activities.

CSLP facilitated development of community management action plan for Yabiw mangrove area. This was done in consultation with elders and community members from Yabiw. The development of community action plan was guided by Shama District by-laws for Pra River and associated wetlands.

Volunteer groups have adopted the management action plans. They have embarked on sensitization visits to other communities (Shama, Anlo Beach, Bosomdo and Krobo) sensitize community members on ecological and economic importance of wetlands and mangroves. Akwidai area is in process of developing a management action plan. See Annex A for Yabiw Management Action Plan.

Table 3.3 Capacity building Training for Volunteer groups

Type of Training	Facilitator (s)	# of Participants			Key Messages
		Total	Male	Female	
Training Workshop	CSLP/HM	17	12	5	Managing a committee
Training Workshop	CSLP/HM/FoN/SNV	19	19		Mangrove nursing and management
Training Tour to Sanwoma Nursery site.		5	3	2	Mangrove nursing and management
Total		41	34	7	

4.0 Key Observations, challenges, and Lessons Learned

4.1 Key observations

- There are by-laws governing wetland areas in Shama and Akwidai area but are not being enforced. Observation is that community members are not aware of these by-laws.
- Conservation committees such as CREMA are not in good position to ensure best management practices to wetlands and mangrove management.
- Youth in wetlands areas consider any organization with restoration agenda as threat to their source of livelihood. Some unemployed youth depend on mangrove wood extraction as source of livelihoods and their engagement in any restoration activities is very significant.

4.3 Challenges

- Community members' have higher expectations looking up to implementing organizations on mangrove restoration activities. Expectations include financial reward and provision of basic logistics.

- Replanting of mangrove seedlings at degraded sites is quite challenging. In most cases mangrove nurseries are sited at a distance from where replanting is done and community members have herculean task of transporting mangroves seedling over a distance wading through the mud to replant.
- It is difficult to predict incidence of high tidal water to replanted areas. This could lead to loss of mangroves if planted mangroves are covered with water for more than three days.

4.4 Key Lessons learned

- Planting distance for mangroves depends on planter preference either for woody portions or for restoration program. Minimum planting distance should be at least 2 meters within and between rows.
- Loamy soil can be used to raise mangroves seedlings.
- Red mangrove propagules can be planted directly without raising seedlings. The challenge is if tidal water covers planted propagules for more than three days, it can result in losing all propagules.
- Traditional Authorities have key roles in mangrove restoration as custodians and owners of the resource.
- Red mangroves can be planted in areas previously covered with white mangrove and vice versa.
- Replanting of mangroves should be done in highly degraded areas. This is because well managed cuttings can lead to regeneration of mangroves in future.

5.0 Recommendations and Conclusion

5.1 Recommendation

- Mangrove restoration play important role in the life of community members due to its ecological and economic significance and need to sensitize community members on regular time periods.
- Provision of basic logistics for community members in mangrove restoration is key due to its to nursery and replanting challenges
- Structures related to management committees in respective community needs restructuring and capacity building to make them effective.
- Any implementing organization with intent to do mangrove restoration must design a livelihood program to incentivize community members.

5.2 Conclusion

Mangrove restoration initiative has contributed to knowledge of community members about ecological and economic importance of wetlands. Obed Cabana from Yabiw said, *“he never knew mangrove seedlings can be raised at nursery.* Perception about wetlands as waste lands is changing in the participating communities as a results of CSLP/HM interventions. Donor support is needed to undertake scientific research in all wetlands in the six coastal districts of western region and build capacity of community members to champion conservation programs.

Annex 1: Yabiw Management Action Plan

Activity	Timeline	Expected outputs	Responsibility	Expected Outcomes	Input from Stakeholders
Form Volunteer groups in catchment communities: Krobo, Anlo Beach, Bosomdo, Shama Baka, and Asemasa.	Ongoing	5 volunteer groups formed in 5 catchment communities	Community members Traditional Authority	Volunteer groups operational in the catchment communities	NGOs Government Agencies
Build capacity of Volunteer groups to be effective in their operations e.g. Managing a Conservation , monitoring wetlands, sustainable harvesting of mangroves , study tour etc	Ongoing	Volunteer groups undergone capacity building	Volunteer groups Community members Traditional Authority	Volunteers have capacity and skills in their operations	NGOs Government Agencies
Create awareness in catchment communities about the Yabiw mangroves restoration program	ongoing	Awareness created in catchment communities	Volunteer groups Traditional Authorities Community champions	Community members aware of Yabiw mangrove restoration program and conforming to management plans	NGOs Government Agencies
Embark on Radio announcements/discussions	ongoing	Number of radio announcements/Radio discussions held.	Volunteer groups Resource persons	Public are aware about Yabiw mangrove restoration program	NGOs Government Agencies
Erect 5 signpost at strategic positions at Shama Baka, Asemasa, Anlo Beach , Bosomdo, Shama Junction	Ongoing	Five signpost erected at Shama Baka, Asemasa, Anlo Beach, Bosomdo, Shama Junction	Volunteers/community members	Public awareness about Yabiw mangrove restoration program	NGOs Government Agencies
Conduct education trainings on importance of wetlands/ mangroves in the catchment communities	ongoing	Number of education programs conducted	Volunteers Resource persons from Wildlife Division	Community members knowledgeable about ecosystem services of wetlands/mangroves	NGOs Government Agencies

Activity	Timeline	Expected outputs	Responsibility	Expected Outcomes	Input from Stakeholders
Mobilize community members for replanting degraded areas	ongoing	Number of propagules/ hectares planted	Community members Volunteers	Restoration of degraded sites and functional ecological characters	NGOs Government Agencies
Embark on regular monitoring to wade off encroachers	ongoing	Monitoring Reports	Volunteers	No encroachment	NGOs Government Agencies
Conduct inventory/ assessment of the ecological features of flora and fauna	Every 2 years	Assessment/Inventory Report	Volunteers Resource Persons	Management action to improve conservation activities	NGOs Government Agencies
Support livelihood activities within 50 metres buffer zone in the periphery of the wetland	ongoing	Report on supported livelihood diversification	MoFA Community members Traditional Authorities	Evidence of increase income and improved livelihoods	NGOs Government Agencies

Annex 2: Seedlings raised from Community Nurseries and Replanted Areas

Community	Type of Seedlings	# of Seedlings Raised
Yabiw	Cassia	5,000
Yabiw Antotre	Red mangroves	10,563
Yabiw	White mangroves	1,000
Anlo Beach	Red mangroves	3500
Krobo	Red Mangrove	2500
Total		22,563

Wetland Area	Community Nursery	Mapped Area Under Management (Ha)	Replanted Area (Ha)
Pra Estuary and Associated Wetlands	Yabiw	210	21
Pra Estuary and associated Wetlands	Krobo	9.18	3.95
Akwidai wetlands	Akwidai	44	0.2
Total		263.18	25.15