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Coastal Sustainable Landscapes Project

October 2013 to September 2018

Final Report



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Cover photos, clockwise from upper left

Marketing organic vegetables in a local market (Photo credit: Michael Feyi, CSLP)

Unmanned aerial vehicle view of mangrove replanting in Ayanzinli, Ghana (Photo mosaic credit: Justice Mensah, Hen Mpoano)

VSLA executives at a share out meeting in Asonti, Ghana (Photo credit: Richard Adupong, CSLP)

Two-year old *Acacia mangium* planted at Allengezule (Ghana) Catholic Primary School (Photo credit: Kwame Owusu, CSLP)

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ACRONYMS AND ABBREVIATIONS

AFOLU	Agroforestry and Other Land Uses
ATEBA	Atebubu Beekeepers Association
BAC	Business Activity Center
BMP	Best Management Practice(s)
CA	Conservation Agriculture <i>or</i> Community Assistant
CBO	Community Based Organization
CCC	Climate Change Clubs <i>or</i> Community Conservation Committees
CCM	Center for Coastal Management (at the University of Cape Coast)
CDCS	Country Development Cooperation Strategy
CEWEFIA	Central and Western Fishmongers Improvement Association
CHED	Cocoa Health and Extension Division
COCOBOD	Ghana Cocoa Board
CREMA	Community Resource Management Association
CRI	Crops Research Institute
CRMC	Community Resources Management Committee
CSA	Climate Smart Agriculture/ Conservation Agriculture
CSLP	Coastal Sustainable Landscapes Project
CSO	Civil Society Organizations
DA	District Assembly/ies
DCC	District Conservation Committees
DOFA	Departments of Food and Agriculture (formerly MOFA)
EDIF	Export Development Investment Fund (of Ghana)
EMMP	Environmental Management and Mitigation Plan
EPA	Environmental Protection Agency
ESP	Environmental Sustainability and Policy for Cocoa Production in Ghana Project
FC	Forestry Commission
FCMCBSP	Fisheries and Coastal Management Capacity Building and Support Project
FCMP	Fisheries and Coastal Management Program
FMNR	Farmer-Managed Natural Regeneration
FON	Friends of the Nation (local NGO)
FORIG	Forestry Research Institute of Ghana
FSD	Forest Services Division (of the Forestry Commission)
FY	Fiscal (or Financial) Year
GAW	Greater Amanzule Wetland
GAWCCC	Greater Amanzule Wetland Community Conservation Committee
GDA	Global Development Alliance
GES	Ghana Education Service
GHG	Green House Gases
GIF	Gender Integration Framework
GIS	Geographic Information System
GOG/GoG	Government of Ghana
GSCDP	Ghana Supply Chain Development Project
ICFG	Integrated Coastal Fisheries and Management Project
IP	International Programs (of the USFS)
IPM	Integrated Pest Management
IR	Intermediate Result
ISP	Internet Service Provider
IUCN	International Union for the Conservation of Nature
LOP	Life of Project

LULC	Land Use/Land Cover
LUSPA	Land Use and Spatial Planning Authority (formerly TCPD)
M&E	Monitoring and Evaluation
METSS	Monitoring, Evaluation and Technical Support Services
MMDA	Metropolitan, Municipal and District Assemblies
MOFA	Ministry of Food and Agriculture (changed to Department of Food and Agriculture)
MOP	Manual of Procedures
MTDP	Medium Term Development Plan(s)
NBSSI	National Board of Small Scale Industries
NDMO	National Disaster Management Organization
NGO	Non-Governmental Organization
NRM	Natural Resources Management
NTFP	Non-Timber Forest Products
PAPA	Participating Agency Program Agreement
PMP	Performance Management Plan
PPP	Public Private Partnership
REDD+	Reduced Emissions from Deforestation and Forest Degradation
RMSC	Resources Management Service Center
SFMP	Sustainable Fisheries Management Project
SL	Sustainable Landscapes
SNV	Netherlands Development Organization
SOP	Standard Operating Procedures
STMA	Sekondi-Takoradi Metropolitan Assembly
TCPD	Town and Country Planning Department (now LUSPA)
TOT	Training of Trainers
UCC	University of Cape Coast
USAID	United States Agency for International Development
USFS	United States Forest Service
USG	United States Government
USGS	United States Geological Survey
VSLA	Village Savings and Loan Association
WD	Wildlife Division (of the Forestry Commission)
WR	Western Region
WRCF	Western Region Coastal Foundation

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS.....	i
LIST OF TABLES	v
LIST OF BOXES	v
LIST OF FIGURES.....	v
1. PROGRAM OVERVIEW/SUMMARY	1
1.1 Activity/Mechanism Overview.....	1
1.2 Project Overview and Background.....	1
2.0 SUMMARY OF RESULTS	5
2.1 Indicator Targets and Achievement Summary	5
2.2 Significant/Key Implementation Activities/Events	6
2.3 Major Implementation Challenges/Issues, their Present Status, and Overarching Sustainability Mechanisms for Various Interventions.....	12
3.0 KEY TECHNICAL ACTIVITY AREAS	15
3.1 Overview	15
3.2 Village Savings and Loan Associations (VSLAs).....	15
3.3 Climate Smart/Conservation Agriculture (CSA).....	20
3.4 Farmer-Managed Natural Regeneration and Tree Planting	22
3.5 Beekeeping and Apiary Management.....	25
3.6 Spatial Planning, GIS and Mapping Community Land Use and Land Cover	28
3.7 Wetland/Mangrove Co-Management	31
3.8 Environmental Education in Junior and Senior High Schools	34
3.9 Awareness Creation and Capacity Building.....	37
3.10 Others	40
4.0 LINKAGES WITH OTHER USAID PROJECTS	43
4.1 Projects Implemented in the Western Region	43
4.2 West African Biodiversity and Climate Change Project (WA BiCC).....	44
4.3 Networks, Exchanges and Interactions with other USAID/Ghana Projects.....	45
5.0 WORK WITH GOG PARTNERS, TRADITIONAL AUTHORITIES, NGOS AND OTHER DONORS	45
5.1 Regional Stakeholders	45
5.2 MMDA Technical Departments	46
5.3 Traditional Authorities	47
5.4 NGOs and the Private Sector.....	48
5.5 Other Donors	48
6.0 MANAGEMENT AND ADMINISTRATIVE BEST PRACTICES AND LESSONS LEARNED	49
ANNEXES	51

Annex 1	Resources and Documents Consulted.....	52
Annex 2	Project Staffing.....	54
Annex 3	CSLP Performance Indicators Targets and Achievements.....	57
Annex 4	Summary of CSLP Implemented Activities by MMDA	63

LIST OF TABLES

Table 1.	The CSLP’s indicator targets and achievements.....	5
Table 2.	School clubs formed with CSLP support in area junior and senior high schools.....	35
Table 3.	CSLP intervention areas and commonly linked GoG partners.....	46

LIST OF BOXES

Box 1.	CSLP farmer awarded Best District Farmer prize in 2018.....	8
Box 2.	Ghana VSLAs are recognized by USAID as significant local community contributors.....	19
Box 3.	Marketing organic produce is not a challenge for CSLP-supported farmers.....	22
Box 4.	The Western Regional Coordinating Council acknowledges CSLP contributions.....	46

LIST OF FIGURES

Figure 1.	The six coastal metropolitan, municipal and district assemblies of Ghana’s Western Region.....	2
Figure 2.	The Western Region’s wetlands and mangroves are important for their diversity and as a source of livelihoods for the economic well-being of the coastal communities.....	4
Figure 3.	Major activity areas of the CSLP.....	7
Figure 4.	Group photo at a VSLA graduation.....	8
Figure 5.	Replanting mangroves at a degraded site.....	9
Figure 6.	World Environment Day 2018 awareness creation procession by students of Kow Nketsia A.M.E Zion Junior High School, Nkotompo, Sekondi-Takoradi Metropolis.....	14
Figure 7.	VSLA executives at a share out meeting in Tweakor No. 1.....	17
Figure 8.	CSA market entry at the Anyinasie market.....	20
Figure 9.	A forest tree species nursery supported by the CSLP and farmers ready for lifting the seedlings for outplanting on their farms.....	24
Figure 10.	Bottled honey from a CSLP-supported farmer and honey harvesters in their protective gear.....	27
Figure 11.	Remote sensing and use of GPS unit training for Government of Ghana technical staff.....	28
Figure 12.	Prepping the unmanned aerial vehicle for a flight to collect land cover imagery in the Pra River estuary and surrounding wetlands.....	29
Figure 13.	Anyanzinli wetland and mangrove resources map.....	32
Figure 14.	Signpost alerting the public of the community’s wetland work in Old Kabenlasuazo.....	33
Figure 15.	Training on wetland monitoring for CCC students.....	36
Figure 16.	Artwork by a local Climate Change Club.....	37
Figure 17.	The CSA garden at Asonti Junior High School.....	37
Figure 18.	CSLP female champion Gladys Atsu addressing the media during Media Day.....	38
Figure 19.	Wildlife Division Regional Manager speaking to the media at World Environment Day 2017...	39
Figure 20.	Hands-on training of the operation of the mobile metal kiln at Yabiw.....	41
Figure 21.	Safe use of pesticides GoG training participants collecting training participants collecting relevant regulatory information on pesticide products at a vendor’s shop.....	41
Figure 22.	CSLP & WA BiCC team at the tree nursery site of CSLP farmer, Mrs. Yaa Sekyiwaa.....	44
Figure 23.	Traditional authorities at a semi-annual update meeting.....	47

1. PROGRAM OVERVIEW/SUMMARY

1.1 Activity/Mechanism Overview

Program Name:	Coastal Sustainable Landscapes Project
Activity Start Date and End Date:	October 1, 2013 to September 30, 2018
Name of Prime Implementing Partner:	United States Forest Service International Programs
Contract/Agreement Number:	AEG-T-00-07-00003
Name of Subcontractors / Sub-awardees:	None
Major Counterpart Organizations:	Ghana Forestry Commission (Forest Services Division, Wildlife Division), Ghana Ministry of Food and Agriculture, Ghana Land Use and Spatial Planning Authority, Ghana Education Service, Ghana Environmental Protection Agency, Ghana National Board of Small Scale Industries
Geographic Coverage (cities and/or countries):	Six coastal metropolitan, municipal and district assemblies of the Western Region of Ghana
Reporting Period:	October 1, 2013 to September 30, 2018

1.2 Project Overview and Background

Overview

The Ghana Coastal Sustainable Landscapes Project (CSLP) was a United States Agency for International Development (USAID) Feed the Future initiative and a U.S. Forest Service-managed intervention implemented in the six coastal districts/ of Ghana’s Western Region (see Figure 1). The project, originally a three-year project (2013-2016) funded with USAID Climate Change monies, was extended through September 2018 with Feed the Future funding based on successes achieved within the initial phase. Total funding for the project was \$7,003,480 and included a total of 17 staff by project’s end. It worked throughout the five years to promote low emissions development in Ghana’s Western Region by strengthening community-based natural resource management combined with 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. At its end, the project interventions covered 43 core coastal communities with smallholder farmers and fisher folks as the main beneficiaries. In total, project actions of one sort or another reached more than 72 communities as of the end of May 2018.

1 Shama, STMA, Ahanta West, Nzema East, Ellembelle and Jomoro Districts/Municipals Assemblies



Figure 1. The six coastal metropolitan, municipal and district assemblies (MMDAs) of Ghana's Western Region

The interventions of the CSLP were guided by two desired outcomes: (i) increased incomes from livelihood diversification and, (ii) improved environment and natural resource management. Specific activities included 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

the formation of environmental clubs that helped increased awareness of the natural environment in public schools).

To achieve project objectives, the CSLP used in-field consultations, targeted trainings, strategic capacity building trainings and events, technical assistance, and participation in institutional/policy level discussions and workshops that drew directly from field-level experiences.

Background

Ghana's Western Region continues to face multiple, and growing land use pressures in its six coastal districts. Inland and coastal forests are being cleared for commercial development, agriculture, cash/tree crop development, charcoal, timber production, and artisanal mining. In all, these forces pose significant threats to ecologically significant areas and biodiversity, including in-shore fisheries. High unemployment rates compound these pressures, exacerbating unsustainable natural resource management practices and reducing ecosystem services provided by the Western Region's natural areas. Off and inshore fisheries are on the verge of collapsing due to extreme rates of illegal fishing and the lack of political will to enforce existing laws.

Most land in the Western Region outside forest reserves, other protected areas, and sacred groves has already been deforested and converted to agriculture. The on-going challenge for the CSLP and others has been to find ways of relieving the pressure from the remaining forests, wetlands and mangroves while improving livelihoods, especially in the rural communities.

Other anthropogenic pressures on the landscape, especially land use changes linked to developing oil and gas infrastructure, and a warming climate caused by increased atmospheric carbon dioxide, pose significant risks to the region's coastal landscapes. Climate change is also linked to jet stream fluctuations that cause irregular, more extreme, and unusual weather patterns and events. The region's residents are already reporting changes in rainfall patterns and intensities, factors that can lead to droughts in some areas and floods in others. In addition to storm events, other adverse impacts to the region from climate change include rising sea levels, salt water intrusion producing higher salinity rates of coastal water sources, changes in marine and terrestrial biological life cycles, and the likely extirpation of species.

The rapid expansion of tree crops (mainly rubber and cocoa) and infrastructure development related to oil, gas and mining production, threatens the remaining forests and natural areas and segments of the population that rely on the natural landscapes' resources for their livelihoods. Many poor rural inhabitants depend on natural products to

supplement their income; frequently, these products are their main source of revenue. This is the case especially for youth, women and the elderly, and the loss of this income source impinges equally on family and community food security.

USAID/Ghana's Environmental Threats and Opportunities Assessment of 2011 identified the need for the Feed the Future (FTF) program to mitigate any possible negative effects on forests and other natural areas from agriculture expansion. That threat, together with increased demand for fuel wood and charcoal production, are the dominant drivers of deforestation. Moreover, health risks increase as the quality and quantity of water resources for human and productive uses declines as a result of the hydrologic functions of watershed catchment areas being disrupted by agricultural expansion, deforestation and mining.

To address these numerous threats to sustainability, USAID/Ghana's Economic Growth Office developed natural resource interventions in Ghana's Western Region. USAID's main initiative, the Fisheries and Coastal Management Program (FCMP) has an operational mandate through FY 2019. It has four components: (i) Strengthened enabling environment for decentralized fisheries and coastal governance, (ii) Increased use of applied science to inform decision-making, law enforcement and the implementation of management plans, (iii) Heightened public awareness of trends, challenges and successes in ecosystem management and stronger public demand for sustainable use and conservation, and (iv) Improved management of marine and coastal natural resources for multiple benefits.

The US Forest Service, under an inter-agency partnership agreement with USAID, managed one component of the FCMP, the Coastal Sustainable Landscapes Project (CSLP). The CSLP contributed in some form to all four components, but with special emphasis on component (iv). The CSLP activities targeted landscape level engagement with communities, non-governmental organizations, government of Ghana agencies, the private sector, and international partners, who live and work in the coastal area from the Cote d'Ivoire border east to Shama District that borders Ghana's Central Region.

More broadly, the CSLP responded to the USAID Sustainable Landscapes (SL) Results Framework by focusing on Strategic Objective 1: *Accelerate the transition to low emission development through investments in clean energy and sustainable landscapes*. The SL interventions will support the second development objective of ensuring sustainable and broadly shared economic growth in Ghana under the USAID/Ghana Country Development Cooperation Strategy (CDCS). The goal of the strategy was to support the Government of Ghana in realizing its goal of becoming an established middle-income country by 2022. In this regard, the CSLP worked to support Ghana's economic development agenda and strategies such as the Shared Growth and Development Agenda, Growth and Poverty Reduction Strategy (GPRS), and the Food and Agriculture Sector Development Policy (FASDEP II). USAID/Ghana's Development Objective 2 also supported two US Presidential Initiatives related to the CSLP: Feed the Future and Global Climate Change. As the new fiscal year FY 2019 begins, USAID/Ghana is initiating a new CDCS that builds on its Feed the Future Initiatives, but with a much tighter emphasis on food security under a substantially reduced budget.

With successful implementation, the CSLP's cumulative efforts sought to contribute to increased employment, diversified and improved livelihoods, better land management of existing natural resources, augmentation of soil fertility, increased carbon stocks, and avoided emissions of greenhouse gases. Moreover, improved land management and livelihoods will reduce pressure on intact areas of forest reserves and areas of high conservation value, protecting their biodiversity, create/improve livelihood opportunities and enhancing the value of other ecosystem services within the value chains of the local communities.

As the project activities drew to a close in June 2018, it was obvious to most observers and the CSLP team that interventions have brought increased awareness among farmers, community members and government officials on the importance of their natural environment in their daily lives. It also substantially increased the understanding of the impacts of adopting best practices among stakeholders in the Western Region during and since the project's first phase from 2013 to 2016. Climate smart agriculture activities and other resilient

agricultural best practices are helping farmers adapt to the changing climate, and reducing the need for high cost inputs while aiming to sustain or increase productivity despite less predictable weather. In addition, the CSLP's emphasis on conservation of secondary forest through activities such as beekeeping and increasing tree cover on degraded agricultural lands through farmer managed natural regeneration (FMNR) and enrichment planting has been increasing over the life of the project. The CSLP also complemented these efforts by further connecting farmer groups with markets to increase value of their goods and thereby increase economic opportunities.

The project was ended a full year earlier than its extension mandate had planned (largely due to a shortfall of funding at USAID/Ghana that was originally anticipated for the final year). Community member participation was growing significantly in the last 18 months of the project's implementation. Adoption rates of best practices were climbing and more people were following the examples set by the early adopters. Government officials and other NGOs recognized the CSLP's approaches as reliable models to emulate. All of these are indicators that the CSLP was on a successful track. The missing final year would likely have added to these gains and helped ensure greater sustainability of the technologies and approaches promulgated by the project. Overall success of the objectives of the CSLP is likely to still happen as numerous aides to sustainability were put in place. A review and assessment of the communities who did participate is strongly encouraged one to two years hence to gain a better sense of any legacy left on these landscapes by the CSLP's efforts. This final report provides a summary and an analysis of where the technologies were adopted as it points out key results, highlights what lessons can be drawn from the efforts, and points out some of the unresolved issues as the funding available to implement the project ran out.



Figure 2. The Western Region's wetlands and mangroves are important for their diversity and as a source of livelihoods for the economic well-being of the coastal communities (Photo credits: Steve Dennison, CSLP)



2.0 SUMMARY OF RESULTS

2.1 Indicator Targets and Achievement Summary

Indicators for measuring and monitoring achievement toward the objectives established for the Coastal Sustainable Landscapes Project were duly established in the project’s Performance Monitoring Plan. The baseline values were all zero initially and, with experience, establishing annual targets for these indicators became more realistic, yet still challenging for the implementing team. Custom indicators were also adopted where the USAID standard indicators were not sufficient. As the project funding source changed from Sustainable Landscapes to that of Feed the Future, additional indicators were added while still maintaining those established for the initial phase of the project. Table 1 below lists the indicators, both standard and custom, and notes the life of project (LoP) performance of each. Additional tables in Annex 3 show the indicator results year-by-year for the project.

In broad terms, the CSLP was relatively successful in achieving its indicator targets. In instances where there was a shortfall (e.g., No. 4.8.1-29), project management attributes these to the fact that implementation of many activities were abruptly curtailed with the sudden announcement that the project would end within six months. The one instance where the target was exceeded (VSLA training hours) is attributed to the increased demand by established VSLAs for refresher trainings and a three-day training of trainers (ToT) session by a local NGO that wanted the training before the CSLP departed the landscape. In both instances the additional trainings were not anticipated at the time the annual work plan was established.

Table 1: The CSLP’s indicator targets and achievements

Indicators (<i>Global Climate Change & CSLP custom</i>)	Baseline		Life of Project (LoP) Performance		LoP Performance Achieved to the End of Reporting Period (%)
	FY	Value	Target	Actual	
4.8-7 Quantity of greenhouse gas (GHG) emissions, measured in <u>metric tons of CO₂e</u> , reduced, sequestered or avoided as a result of USG assistance	14	0	18,420,496	18,203,591	99%
4.8.1-26 Number of <u>hectares</u> of biological significance and/or natural resources under improved NRM as a result of USG assistance		0	6,315	5,950	94%
4.8.1-29 Number of person <u>hours</u> of training in natural resources management and/or biodiversity conservation supported by USG assistance		0	37,600	33,852	90%
4.8.2-29 Number of person <u>hours</u> of training completed in climate change as a result of USG assistance		0	20,300	19,213	95%
C-1 Number of person hours of training completed in VSL modules as a result of USG assistance	16	0	10,000	11,654	117%
C-2 Number of community sensitization sessions on climate change issues and/or NRM/biodiversity conservation as a result of USG assistance		0	110	118	107%
C-3 Number of persons & institutions receiving start-up items for improved NRM/ biodiversity conservation as a result of USG assistance		0	700	500	71%
Indicators (<i>Global Climate Change & CSLP custom</i>)	Baseline		LoP Performance (unique counting)	Comment	
	FY	Value			
4.8.1-6 Number of <u>people</u> with increased economic benefits derived from sustainable NRM and conservation as a result of USG assistance	14	0	3,855	Livelihood and conservation activities	
4.8.2-14 Number of <u>institutions</u> with improved capacity to address climate change issues as a result of USG assistance		0	142	Involved state and non-state institution	
C-4 Number of project-planted seedlings surviving in communities as a result of USG assistance (mangroves not included)	16	0	46,522	62,500 trees planted	

Indicators (Feed the Future)	Baseline		Performance		Comment
	FY	Value	FY17	FY18	
EG. 3.2-1 Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training	16	0	846	944	Farmers, students and government officials
EG. 3.2-4 Number of for profit private enterprises, producers organizations, waters users associations, women's groups, trade and business associations (CBOs) receiving UGS food security-related organizational development assistance		0	64	86	Mainly Community Based Organization (CBOs)
E.G. 3.2-17 Number of farmers and others who have applied improved technologies or management practices		0	357	544	E.g. of practices: cultural, pest mgt, soil-fertility
E.G. 3.2-18 Number of hectares under improved technologies or management practices		0	82	218	Mostly under climate smart agriculture
E.G. 3.2-20 Number of for profit private enterprises, producers organizations, waters users associations, women's groups, trade and business associations (CBOs) that applied improved organization-level technologies or management practices		0	51	56	Mainly CBOs
Indicators (other VSLA customized)	Baseline		LoP Performance		Comment
	FY	Value			
Number of active informal savings and lending groups	14	0	51		In 25 communities
Cumulative Amount (in USD) saved by informal savings and lending (VSLA) Group		0	\$159, 786		By 49 groups
Number of members of active informal savings and lending groups		0	1,311		903 women
Cumulative amount of funds loaned (in USD) by informal savings and lending groups		0	\$140, 655		By 46 groups

2.2 Significant/Key Implementation Activities/Events

The Coastal Sustainable Landscapes Project was engaged in a host of activities during its five-year life falling within two broad areas: environment and livelihoods. The graphic in Figure 3 (on the next page) provides a quick summary of the intervention areas covered by the project. This section briefly highlights some of the key activities within those intervention areas where the CSLP was most intensively engaged.

An initial rapid rural assessment by the CSLP's technical staff in Year 1 of project implementation examined the socioeconomic structure, livelihood challenges and broad impacts of agriculture practices on the natural environment within 23 predominantly inland communities across the landscapes. An additional 23 coastal communities were similarly assessed by the CSLP's grantee, Hen Mpoano. Information from these assessments was used to design technical activities that the CSLP could be responsible for during the brief two and a half year period that remained (at that time) of the project. This menu of activities was presented in another round of visits to the communities and community members self-selected their participation. It was these activities that became the focus of trainings, technical assistance, and monitoring of behaviors and adoption for the CSLP staff.

Livelihoods

As noted earlier, community livelihoods in the six coastal districts were heavily concentrated on fishing, fish smoking and tree crop farming. Cassava farming also provided the main vegetable staple crop. Due to limited land availability combined with the presence of heavily subsidized tree crops in these same areas, there is little arable land available for producing other vegetables and fruits for family consumption. Recognizing these facts allowed the CSLP to focus on activities that would help diversify community livelihoods, improve soil fertility, stretch and conserve local forest products generated off reserve, and enhance the production of other livelihood efforts, especially tree crops including cocoa. The main livelihood activities that were most successful for the CSLP were limited, but (i) they were also ones that were within the financial reach of community members, (ii) they could be implemented and monitored with a minimum of inputs and training, and (iii) their adoption would

not only signal behavior change gains but also investment returns to the participants. These activities included beekeeping/apiary management, climate smart/conservation agriculture, tree planting (of indigenous agroforestry and commercial species) and farmer-managed natural regeneration, and the village savings and loan associations.

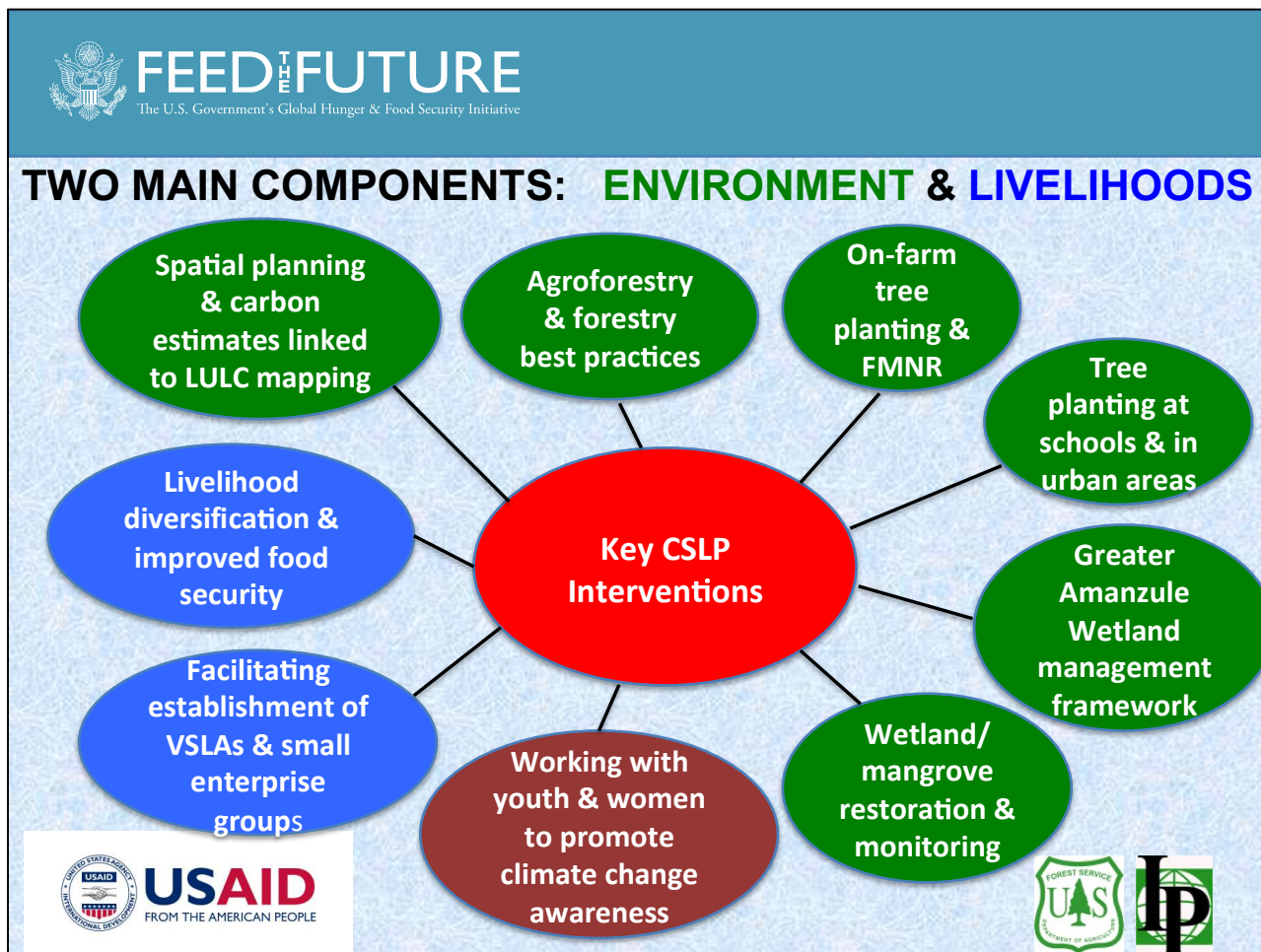


Figure 3. Major activity areas of the CSLP

Beekeeping and apiary management activities were establishing substantial gains as the CSLP drew to a close. More than 200 farmers had been trained and nearly as many apiaries established, and these in an area that had little to no history of formal/commercial honey production. During the last two years of the project, 80 percent of the apiaries had bee colonies established for more than two years and were producing honey (that was mainly sold in the community for prices higher than those in urban markets simply because the demand for the product is so high). About 90 percent of the beehives in the CSLP communities were made and supplied by CSLP-trained artisans. Beekeeping and the production of honey from man-made hives in the Western Region was particularly challenging due to the diverse microclimates and high rainfall of the area. These and other issues are discussed more at length below in Section 3.5.

Climate smart/conservation agriculture (CSA) was also becoming firmly rooted as an alternative livelihood in the six coastal districts. More than 260 smallholder farmers had been trained and have adopted CSA best practices that included planting nitrogen fixing agroforestry tree species on their garden plots and stopped using agrochemicals for fertilizer, pesticides and herbicides and instead are applying organic products. Composting and using improved varieties of vegetable seeds are also among the best practices. Twelve CSA demonstrations sites had been established, including two at junior high schools, with the active participation from Department of Food

and Agriculture extension agents. These project-trained and coached farmers had also formed 50 CSA enterprise groups, many in collaboration with UKAid’s Western Region Coastal Foundation and the project’s grantee, Hen Mpoano. Engaging, cooperating and collaborating with other NGO groups helps to spread the awareness of the benefits from CSA, but more importantly, these registered groups contribute to its sustainability as a viable tool on the landscapes for helping to ensure food security in rural communities. In the last six months of promoting the CSA technologies, the CSLP helped to bring together (twice) more than 150 actors of the food value chain in the Western Region interested in promoting and contributing to marketing organic vegetables. These networking events for the producers (mainly women), input suppliers, marketers and buyers of organic produce are an important and transparent way to connect the chain members and establish the groundwork for a more sustainable future in CSA. More discussion on CSAs can be found in Section 3.3.

Box 1. CSLP farmer awarded Best District Farmer prize in 2018

As this final report was being completed, DoFA awarded Best Farmer for Ellembelle District to Mrs. Comfort Obeng of Ayawora, a CSLP climate smart agriculture farmer and tree planter, at the Ghana-wide 2018 Farmers Day celebration. The tree planting efforts on her cocoa farm and her organic vegetable production were singled out at the award ceremony. Mrs. Obeng is a VSLA Village Agent and also a member of Ayawora’s Vegetable Growers Association

The *Village Savings and Loan Associations* established with the CSLP’s support were, hands down, the most popular, most in demand and arguably the most important tool for microeconomic growth in the project’s portfolio. A well-known concept in many other areas of Ghana, VSLAs were not well known in the Western Region and greeted initially with a great deal of skepticism by community members. Financial savings schemes in the past had resulted in substantial losses to the area’s communities. Their establishment started slow and only five had been established and were saving money at the end of the project’s first year. With the culmination of the first 7-module training cycle and share out of profits, word of their success began to spread and by the end of the CSLP’s tenure, 51 associations had been formed by the project and its grantee, Hen Mpoano with a total membership greater than 1,300, of which 70 percent were women. Aggregated savings across the operational area was \$160,000 and the number of loans had totaled more than 4,400. The average return on savings was 27.5 percent, about double that of the government treasury bill. Most important is the fact that it has allowed women in these communities to have greater economic voice, to be important contributors and decision makers in the economic fabric of these rural communities and to save and loan funds that contribute to conservation in addition to growing small businesses and paying for school fees. Like many other donor projects, the CSLP and Hen Mpoano use the membership of the VSLAs as a platform for other activities like building greater awareness of the environment, promoting CSA actions and educating communities on health issues confronting women and children. Section 3.2 provides more information on the CSLP’ experience with VSLAs.



Figure 4. Group photo at a VSLA graduation (Photo credit: Steve Dennison, CSLP)

Environment-related activities

Tree planting proved to be a bit of a conundrum for the CSLP, but with experiences similar to those faced by other natural resource management and conservation projects. During the rapid rural assessment process communities expressed a strong interest in growing commercial trees on their leased lands, and community schools wanted them for their shade and natural amenity value in those settings. Farmers also embraced the

concepts of agroforestry species for improving the soil fertility and guarding against erosion. In this region of abundant greenery and water, and a well-established culture of the government and projects providing free seedlings, many community members and farmers had little interest, or drive, for maintaining what was provided for free. More than half of the seedlings provided (70,000) by the project in Years 2 and 3, were not around at the project's end, a substantial percentage of those distributed to the farmers (who had expressed interest) simply were not out planted for a variety of reasons linked to the fact that the farmer had no real vested interest in them. Trees planted in school compounds, more than 6,000 at 22 sites, fared better with a 75 percent survival rate.

At the project's end, those farmers who did nurture the trees that survived were beginning to realize just how important they were. A study tour of tree planting champions to an area where farmers had planted similar species 10-15 years earlier and were beginning to reap the benefits, convinced the CSLP tree planters that they too would soon see rewards for their efforts. During the last year of the project, more farmers were approaching the project asking for seedlings, or even where they could purchase seedlings for planting on their farms. The early adopters are now the envy of their more reticent neighbors. Tree planting activities are also discussed in Section 3.4.

Farmers trained in *farmer-managed natural regeneration (FMNR)* were also beginning to recognize the value of their participation in the CSLP activity. It should be noted that many of these tree crop farmers immigrated to the Western Region from elsewhere, cleared and then burned the land to plant their cocoa, rubber, and oil palm. Traditionally, any regeneration coming up in the understory was destroyed as a weed species. The FMNR training demonstrated that many of these species striving to grow under the tree crops were commercially valuable and in 2014, Ghana's COCOBOD also recognized that allowing these understory "weeds" to grow are also beneficial as shade trees for the cocoa crop and even stipulated that a certain number of these shade trees per hectare were obligatory if the farmer was to receive any subsidy from the cocoa conglomerates. In the last years of the CSLP project, staff helped to train DoFA and COCOBOD extension agents in FMNR resulting in more than 9,000 trees were being nurtured. The trainings were highly praised and more were being sought as the project closed. Readers can find more information on FMNR experience in Section 3.4.

Wetland and mangrove conservation and restoration activities were supported by the project in more than two dozen coastal communities. Most of this was under the auspices of CSLP's local NGO grantee, Hen Mpoano. Efforts in these communities also followed a local demand approach to ensure that there were sufficient incentives for community members to adopt and adapt the technologies being suggested by the project. Many communities expressed a strong desire to restore mangrove sites; the CSLP and Hen Mpoano together raised more than 45,000



Figure 5. Replanting mangroves at a degraded site. (Photo credit: Hen Mpoano)

mangrove and *Cassia spp.* seedlings aimed at replanting in more than 100 hectares of mangrove areas.

The project's, and Hen Mpoano's, emphasis in these coastal communities was largely on establishing a co-management process. It has been one that has enabled the communities to better understand the relationships between their livelihood dependencies on these valuable resources and creating acceptable and recognized platforms for the conservation and management of this important coastal landscape. The governance model is formed around community conservation committees that first identify and map these resources and then establish priority activities and rules for each. The Forestry Commission's Wildlife Division provides technical and advisory inputs to the process for each community and local

and regional traditional authorities validate the rules and activities (so that enforcement is more widely accepted). These form the core of each community's management plan.

Hen Mpoano has facilitated 24 communities (across two districts) in the Greater Amanzule Wetland (GAW) landscape through this process and it will continue to provide support and help build community and district capacity to strengthen this federated approach to co-management. The GAW is an area under enormous pressure to convert the fragile natural land cover due to the rapidly expanding development of the oil and gas industry. The oil and gas resources are being exploited off shore, but most of the infrastructure is being established in the GAW and other nearby coastal areas.

Two other communities, each in different districts from the Greater Amanzule landscapes, have received CSLP support and assistance in defining their wetland and mangrove resources, establishing monitoring processes, restoring mangroves through replanting in some instances, and in developing community management plans. In these instances, junior high school climate change clubs, formed with CSLP support, were the basis for raising the awareness in their respective communities. They have also been employing wetland monitoring, on a pilot basis using a training module course designed at the University of Cape Coast. The schools' teachers and CSLP staff were trained in its use and in turn engaged the students from the clubs. Community members in one of the two communities have also established a management plan for their wetland resources that has been used to inform woodcutters from neighboring communities about exclusion zones and as part of a broader effort informing the regional Environmental Protection Agency (EPA) to thwart industrial level clay excavation (and mangrove removal) in the community.

Spatial planning and land use land cover (LULC) mapping have also been key elements that were integral parts of each of the activity areas described above. Community assistants, along with DoFA extension agents and others, were trained in the use of GPS units that allowed each intervention to be geographically located and then mapped with areas (in hectares) measured. Land use and land cover attributes associated with each area were also identified. The data collection, verification, correction and storage of these activities was significant, especially in terms of the time required. The area and LULC data were also applied to locally developed and establish allometric equations that allowed estimates of greenhouse gas (GHG) emissions (measured in metric tons of CO₂e) reduced, sequestered, and in most of the CSLP cases, avoided, to be calculated. These data provide a significant resource for district-level technical services in terms of resources location, LULC attributes and communities and individuals now familiar with the technologies supported by the CSLP. In closely related work, the project was involved in numerous training activities with district-level government services for the use of GPS units, basic mapping, using GIS tools accessible to government employees and in the use and interpretation of GIS data, especially that being generated by the CSLP. Issues linked to the capacity of government services to effectively use these data are also discussed in Sections 2.3 and 6.0.

Cross-cutting activities

Promoting climate change and environmental awareness among youth and women is the last significant activity area discussed in the section. Its placement on the list is not at all indicative of its popularity or importance. The activity itself provided a critical entry point and foundation in communities for work during the CSLP's life and its demand was increasing as the project came to an end.

In the early stages of the project, nighttime videos about climate change and local extreme weather events, followed by open discussions with the community members, provided a basis for the CSLP to establish a sound platform for introducing technologies to help mitigate and adapt to environmental and climate changes. An estimated 4,000 viewed these videos in 18 agrarian communities and another 5,500 watched in 24 GAW communities.

Women, who tended small vegetable plots were among the early adopters of the climate smart agriculture and agroforestry activities. At the project's end the 50+ CSA enterprise groups formed were comprised of more women than men. Community youth and teachers were also enthusiastic to learn more about climate change, CSA, tree planting, and erosion control following the video screenings. These community members formed the core for the Climate Change Clubs (CCC) that evolved and numbered 20 groups at the project's close with more

than 1,200 students (47 percent were girls). The clubs, and their teachers as recipients of CSLP-supported training of trainers on a variety of environmental topics, reached another estimated 3,000 students on topics linked to solid waste management and its impacts on the local environment.

Project partners at the GES, the WD, DoFA offices, the EPA and the members of the CSLP Regional Stakeholders Group all applauded the project's efforts that engaged the youth in each of the landscapes. In close out activities, each of these institutions noted their commitment to the CSLP model and its importance to long-term development in the region. Other assessments^{2,3} noted that the CSLP's activities were very successful at consistently engaging women from the communities in almost every activity being promoted by the project, usually at participation rates approaching 50 percent or more. In some cases, such as beekeeping and apiary management, women were also participating where heretofore there were none.

Gender Inclusion in Project Implementation and Design

The CSLP activities were based upon the buy-in and participation of community members in all interventions. As such, the project team and partners sought to understand and work within existing norms of the communities where they worked. Through this strategy, the CSLP was able to create opportunities that challenged gender norms as was evidenced by engaging women in beekeeping, for example, an activity where traditionally only men were engaged. The CSLP also sought to address power inequities by supporting female champions throughout all activity areas and supporting female leaders within community groups. At the same time, the project was able to demonstrate the power of men supporting women, and vice versa, to creating lasting change and greater gender balance in activities—hopefully creating a model for future community interventions.

The gender assessment undertaken with the support of a local consultant, evidenced that the CSLP approach was working to challenge gender norms while working within and respecting necessary community protocols. The consultant concluded that with the true community focus built with a strong foundation of trust, the CSLP “created an enabling environment for gender transformation by going beyond just including women as participants.”

Village savings and loan activities often allowed women in these communities to have greater economic voice, to be important contributors and decision makers in the economic fabric of these rural communities, and to save and loan funds that contribute to conservation in addition to growing small businesses and paying for school fees. Like many other donor projects in Ghana, the CSLP and its grantee, Hen Mpoano, used the membership of the VSLAs as a platform for other activities like building greater awareness of the environment, promoting CSA actions and educating communities on health issues confronting women and children.

Women who tended small vegetable plots were among the early adopters of the climate smart agriculture and agroforestry activities. At the project's end, the 50+ CSA enterprise groups formed were comprised of more women than men. Women leaders in these groups also went on to lead market assessments and meetings with market queens and food service providers, taking on new leadership positions that can lead to greater resiliency and food security for their households and communities.

Thus, the CSLP was successful in challenging numerous gender norms within the communities where it was engaged. This was possible due to several factors: the trust built by the strong CSLP team, regular engagement with individuals, communities, and traditional authorities throughout the life of the project, and the willingness of technical staff to serve as mentors throughout the project beyond regular office hours. This mentorship and empowerment through example led to numerous women leading CSLP-supported community groups and

² McNally, C. et.al. 2017. MSMEs/VSLAs Formative Evaluation Report. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014 ACT153 CRC. 95 p.

³ A. Appiah. 2017. Gender assessment report – CSLP [Unpublished]. USAID/Ghana and the USFS-IP, Coastal Sustainable Landscapes Project. 30 p.

improving economic conditions for their households, all the while, being supported by and helping to challenge commonly held assumptions by men in their communities.

2.3 Major Implementation Challenges/Issues, their Present Status, and Overarching Sustainability Mechanisms for Various Interventions

Implementation Challenges/Issues and their Present Status

Many of the challenges and issues confronting the CSLP were similar to most development projects though some had unique twists. This discussion highlights those and, in most instances, the steps that were followed to mitigate the obstacles that were confronted.

Communication with community members/beneficiaries was always difficult throughout the life of the project. Staff decided early on that having Community Assistants (CAs) as points of contact (PoC) was one of the best approaches to helping ensure that communication with participating community members could be best handled. In more than half the communities, even this approach presented difficulties because of their remoteness and accessibility. Combined with funerals, conflict with other donor project activities, and extreme weather events, engagement of the CAs and with communities was stymied sometimes as much as 20 percent of the time. Over the LoP, both project staff and community members adapted to the inconveniences, including the paperwork that accompanied the payment of the CAs, to the extent that the CSLP was seen as a reliable and significant partner for technical advice in the community. One community publically presented the project with a plaque at its final Media Day and Regional Stakeholder meeting recognizing it as the “Best Development Project”. Community assistants also had the advantage of increasing their capacities with many different skills linked to the field-based training programs of the technologies promoted by the project.

Adequate time to work through the kinks, adapt the technologies and convince the early adopters is often a luxury for conservation, agricultural and natural resources management projects. The CSLP was certainly not an exception. It takes time and a lot of persistent effort to build and maintain trust of beneficiaries and for project staff to thoroughly understand the issues and idiosyncrasies of individual farmers in individual communities. Project staff and farmers alike are likely not to know the diversity of microsites, let alone how new technologies can be most effectively adapted to the local conditions. The high rainfall and diverse soil conditions of the CSLP landscape translated into constant challenges, even for the second-generation emigrant farmers that were working to embrace the advice that the project was bringing to their communities.

When the CSLP learned that it would have to shut down a year earlier than planned due to budget cuts, it was just at the moment that successes were being noted at an increasing rate across most of the activities. Six months earlier, it was evident to the CSLP staff that community member trust in the messages and technologies it was promoting had begun to take hold, early adopter participants were realizing important gains in their livelihoods and that they were eager for more follow through and more advanced trainings. At the project’s technical close, at the end of the third quarter of its fifth year, demand for assistance in all aspects of the project was at an all-time high. Many community members (and district technical staff), were seeing the results of the early adopters and asking now about how they could participate, receive training and learn more about the technologies and models that the CSLP had brought to the landscapes. The project had aimed at addressing these issues more directly in its planned sixth year; what it was able to accomplish is discussed later in this section and in other areas of this document.

The capacity of local institutions, especially government departments, to follow through, monitor and continue to help community members adopt/adapt new technologies is a universal challenge faced by most development projects. The CSLP worked diligently throughout the LoP to ensure that new staff persons, especially decision makers, were brought up to speed on project activities within their jurisdiction. Refresher trainings aimed specifically at government technical staff were a common activity of the CSLP. Ubiquitous turnover of personnel

also made this a frustrating exercise. The next subsection addresses what the project has done to mitigate some of these issues and also to better ensure the sustainability of the many endeavors that were undertaken.

Identifying champions, risk takers and networking leaders is a critical element in helping to ensure the longevity of new approaches and technologies. This complements the time challenges noted above. To move ahead effectively, projects often require key people on their landscapes to be the champions and leaders of the technologies being promoted. For the CSLP, this was obvious given the initial short time horizon (3 years) of the project. And to its credit, at the end of the first phase it had identified key people in most of the communities where it worked. Over the next two years, these beneficiaries were the early adopters, the risk takers and the people that the project leaned on for demonstrations and as examples for others to watch and emulate. Study tours for these individuals, and training tours to their farms, helped to solidify their leadership and convince others that indeed the CSLP technologies did improve local livelihoods and the incentives to practice them were real. The challenge that remains is the follow through and monitoring needed, especially for those just adopting the technologies. Time is still needed for coaching, hands on training, and refresher trainings either by educated extension staff, local NGOs or other project entities. These important reinforcement actions by the CSLP could not happen due to its early closure.

Sustainability Mechanisms

CSLP worked since the beginning of its second phase (FY 2017) to build sustainability elements into its interventions. A number of these are noted below; almost all rely on institutions that have a long-term presence on the landscapes of the coastal areas of Ghana's Western Region.

Partnerships with NGOs, institutions that are likely to exist long after a donor-funded activity ends are one of the best ways to ensure that project-supported interventions are championed into the future. The CSLP was fortunate to work with several of these on the local landscapes. They included:

Hen Mpoano, in the areas of mangrove and wetland conservation management and restoration, livelihood diversity (CSA and beekeeping), mapping and spatial planning, and VSLAs;

Friends of the Nation (FoN), in the area of mangrove and wetland conservation management and restoration;

Goshen Global Vision with its expertise in livelihood diversity (CSA, beekeeping), spatial planning, FMNR, tree planting, agroforestry, climate change clubs/environmental education and VSLAs;

Ankobra Farm Enterprise with its strong emphasis on CSA, small farmer enterprises and environmental education; and

TRACTOR, the NGO established by B-BOVID, a social enterprise with experience in CSA and on-farm crop and animal diversity.

The project worked with all of these NGOs during the LoP on activities that ranged from joint training efforts, awareness creation, capacity building, support for leveraging other opportunities and mutual support to specific communities in conservation and agriculture activities. TRACTOR received a one-year small grant that was used mainly to assist the establishment of an agroforestry and CSA demonstration farm used by the Department of Food and Agriculture and the Ghana Education Service. It has also helped the enterprise leverage additional funds from other donors to promote its services.

Most significantly were the four years of small grants to Hen Mpoano in the Greater Amanzule Wetland complex to promote, establish and bolster the co-management of wetlands and mangroves in 23 coastal communities. These activities have been noted previously and are also discussed in Section 3.7.

The Community Assistants that the CSLP engaged, and who received substantial training and refresher trainings with most of the interventions (especially use of GPS units, beekeeping, VSLAs, CSA) are now community resource persons that other donor-funded projects and GoG institutions (DoFA, LUSPA, BAC, GES) can and

should tap. They are well versed in the interventions associated with the project. Their names and contact coordinates are part of the CSLP record shared on the www.ghanalinks.org website, with local NGOs and with the departments of the metropolitan and district assemblies on the CSLP landscapes.

The VSLA Village Agents were selected, trained and received refresher trainings specifically with elements of sustainability in mind. At the beginning of the CSLP's second phase (FY 2017), local community champions for the VSLA model had been identified and received a week-long training of trainers (ToT) effort that provided more knowledge and skills on the VSLAs including conflict management, share out procedures and bookkeeping. Another group went through a similar ToT a year later and many of the initial group (and also Hen Mpoano staff) had refresher trainings and coaching. These individuals, now numbering 41 (25 men, 16 women), are well-prepared and confident in their abilities and roles to coach and monitor established associations and to assist with the formation of new ones. Several of the VAs are from the Business Activity Centers operating on the landscapes. As with the CSLP's Community Assistants, the contact coordinates of the Village Agents have been shared with local government officials and several of the NGOs listed above.

The engagements with the Government of Ghana's DoFA, NBSSI, GES, WD, and EPA technical staff over the course of the project's operation are important elements that shore up the sustainability of the CSLP's interventions. The GOG's budgetary resources at the municipal and district levels are meager, but the enthusiasm for doing the work is not lacking. The CSLP worked with each of these institutions to include them in training activities, to be the focal points of technical trainings (e.g. FMNR, GIS CSA), and specifically engaged them for community coaching activities and field trips. Quarterly updates to all of the MMDAs, to the area's traditional authorities and to the CSLP's Regional Stakeholders made certain that they were all abreast of the projects activities in their respective jurisdictions, and they contributed ideas and critiques that figured into forward and future project plans. This involvement was important for more effective operation of the project during its life but also helped to establish a firm foundation of knowledge and awareness for after the CSLP departed from the landscape.

Youth engagement and awareness of environmental actions and development consequences evolved into a very important component of almost all of the interventions promoted by the CSLP. Engagement of youth and women in the adoption and behavior change aspects of the project are seen as key sustainability elements by both the USFS as implementers, but also by decision makers among the CSLP's Regional Stakeholders. As part of the project's annual planning process, they specifically asked that these groups be integral in any sustainability strategies, and they were.



Figure 6. World Environment Day 2018 awareness creation procession by students of Kow Nketsia A.M.E. Zion Junior High School, Nkontompo, Sekondi-Takoradi Metropolitan. (Photo credit: Gloria Otoo, CSLP)

Networking workshops were proving to be an exciting strategy for helping ensure the sustainability and forward progress of the growing CSA interest on the landscapes. The CSLP hosted and helped organize two CSA-related networking events in the first half of 2018. The first events of their kind in the Western Region bringing together players in the organic produce chain: producers, improved seed and organic fertilizer/pesticide suppliers, queen mothers/aggregators and local buyers of organic vegetables and fruit. The participants ranged from small business farmers to government technicians to restaurants to large mining and oil/gas buyers and private sector logisticians. At the last gathering, many of more than 150 entrepreneurs commented on the importance of, and the growth of organic produce demand in the region. Follow-on events are likely to be popular and help ensure the attention to

CSA on the landscapes and greater improvement to local livelihood diversity and food security for families and communities.

Data and knowledge sharing with district-level technical departments were also conscious strategies by the project to help ensure the sustainability of its actions on the landscapes. Project staff was regularly contacted (especially during the latter years of the project) by MMDA technical departments to provide data and other inputs used to report to regional and national institutions. The project participated and contributed to annual and 5-year planning activities, mainly at the district level. Government offices have also been provided the links to websites that contain project reports and data. The main challenge with sharing data with local government institutions is their capacity to access and analyze the information in a manner that is useful and productive. Staff turnover and lack of institutional memory may be significant barriers to this process. The CSLP had forward plans for helping to mitigate these in FY 2019, so they did not come to pass.

3.0 KEY TECHNICAL ACTIVITY AREAS

3.1 Overview

This section contains descriptions of each of the CSLP's major interventions. Each intervention subsection lists its key actions, provides a brief summary of important results, discusses women's involvement in the activity, notes important lessons learned, and talks about unresolved issues and challenges unique to the technologies employed. A short qualitative examination of important elements of sustainability, local leadership/champions and knowledge transferability concludes each subsection. Readers are also reminded that participation in each of the interventions by beneficiaries was through self-selection. Following the initial community assessment process, community members were offered a menu of possible interventions. Interested individuals then participated in basic training exercises and made the determination as to whether or not to participate. This led to a substantial reduction of the original numbers but provided a more committed and engaged beneficiary population. Community members did drop out in some instances, and others joined later, but it was these core groups that the CSLP engaged with throughout the project.

Readers with interests in a specific activity are encouraged to view the individual reports that can be found in the CSLP subdirectory at www.ghanalinks.org. The subdirectory also contains other reports and materials (including videos) generated by the project.

3.2 Village Savings and Loan Associations (VSLAs)

The CSLP's implementation strategy made the establishment of VSLAs a cornerstone of its activities on the Western Region's coastal landscapes. The USFS's experience elsewhere (e.g., the West Africa regional STEWARD project) and the success of CARE and others in the northern parts of Ghana provided sufficient evidence that VSLAs, when properly monitored, could make important contributions to rural livelihoods in the West Africa context.

Key actions

For the CSLP, the village savings and loan association model was aimed at having community members participate, learn that they could indeed save monies, and provide loans to themselves that would contribute to improving and diversifying livelihoods. This process in turn would help relieve the reliance on forest resources by the presence of funds from loans and savings sources; and reliance on forest products would be less and often mitigate the need for community members to procure those products illegally or unsustainably.

By the end of the first full year of implementation, less than a dozen VSLAs had been formed and the efforts were focused almost exclusively on the careful training (there are seven formal modules), monitoring, and coaching of this initial cohort. The CSLP was also very cognizant of the need to have these associations appreciate the tight governance of their self-selected group and to grow their trust of the CSLP as a worthy facilitator of the model. It also needs to be underscored that the Western Region communities had never experienced a local financial activity such as this one and that they had extreme skepticism based on horrific experiences with other financial schemes running off with their monies. The diligence and patience paid off in spades. Word of the success of these initial groups after one year opened the demand gates to the degree that the project could not satisfy, by itself, the demand for assistance in forming new groups.

Thus, the project provided training of trainers events to other groups, most notably Hen Mpoano and Central and Western Fishmongers Improvement Association (CEWEFIA) and SNV (the Dutch volunteer organization), so that they could begin supporting the establishment of new VSLAs. And equally important has been the training of local community Village Agents who are resident (or live nearby) in the communities and can support already formed associations and help establish new ones as discussed above under sustainability strategies.

As part of the country-wide awareness effort to bolster the VSLA movement, the CSLP was also a key supporter and co-organizer for the first VSLA Summit held in Accra in early 2017. This brought together donors, implementing partners and VSLA members and practitioners in a day-long workshop that shared experiences, lessons being learned and explored ways to make the model even more widely accepted and effective. Outputs from the VSLA Summit event can be viewed on the ghanalinks.org website.

Important results

- Fifty-one VSLAs established since September 2014 (including 11 by CSLP grantee, Hen Mpoano).
- Total membership was 1,311 persons.
- Thirty-one associations have gone through one complete cycle (8 to 10 months of savings, loans, repayments and profit sharing), 18 have been through two cycles and 10 have participated in 3 cycles.
- Aggregated savings of these groups is \$160,000; total loan value was \$394,000 over 4,419 loans; average savings per member per year was approximately \$140 at the end of Quarter 2, FY 2018.
- Loan repayment rate was 96 percent.
- Average return on savings was 27.5 percent, twice the prevailing government treasury bill rate.
- The VSLAs often served as a platform for other trainings and activities (beekeeping, CSA, food security, climate change awareness, mangrove restoration).
- Basic literacy and numeracy trainings were also provided to VSLA groups who requested it.
- As the project drew to a close, staff were regularly encountering members who were obtaining loans from their VSLAs to purchase improved seeds and other inputs for their CSA gardens, some were purchasing beehives and others investing in agroforestry and commercial tree seedlings for their farms.

Women's participation in the activity

The participation of women in the CSLP-supported VSLAs was higher than that of any other intervention undertaken by the project: 70 percent. In addition to being members, many women held leadership positions within her respective VSLA which helped set examples for other women inside and outside the VSLAs. Men in the communities with VSLAs refrained from participating at first but that changed after the first share out when they learned of the sums of money that were being saved and also experienced what the women were able to do profitably with the loans they obtained. The small money became bigger money.

More importantly, was the fact that the savings and loans being made by women in the community had also become a source of empowerment for the women. It helped to diversify the family unit's livelihoods, reduce the risks of being dependent on the traditional male domain of tree crops or fishing, and also meant that women had

more of a voice in decision making about the family's resources. These are each significant changes in the rural agrarian culture of the Western Region. Additional details about women's participation in VSLAs (and other interventions) can be found in gender assessment the CSLP subdirectory of the gahanlinks.com website.

Lessons learned

As noted above, women in the community became more empowered with economic decision-making and also in several cases also taking on leadership roles in the groups and communities. The VSLA model meant that the CSLP maintained a scheduled/regular presence in the communities as the VSLAs modules were being implemented. This provided opportunities for the community to better understand the several technologies supported by the CSLP. This presence also was a key factor in engendering trust with community members and demonstrated that the staff would indeed follow through and be available for questions, further discussions and even to help resolve conflicts.

At the same time, the regular visits also allowed CSLP staff to better understand both the ecological and social fabric of the communities where it worked. This meant more efficiency with adapting the technologies and greater chances of success for beneficiaries with the technologies being adopted.

Initially, loans obtained by VSLA members were (logically) being used to address immediate needs such as paying for school fees, bolstering inventory for petty trading, farming inputs, etc. But as the groups matured and became more confident in their savings and loan-taking behavior many of the loans were being used for more diverse purposes, including NRM activities (e.g. beekeeping, purchasing tree seedlings) and CSA enterprise endeavors. By the end of the project, more than 30 percent of the loans were being taken for these purposes and this is expected to grow as members diversify their livelihoods and become confident in their economic wellbeing.

The project also supported study tour visits to model VSLA communities. The visiting community members (who were contemplating the formation of a VSLA), would observe meetings in progress and then be able to interact directly with its members following the meeting. This was probably the most effective way of gaining the trust of a new community for adopting the model. Similarly, CSLP staff conducted exchange visits with staff of the USAID-funded Resilience in Northern Ghana (RING) project in northern Ghana. Both projects benefited significantly from sharing their VSLA experiences and lessons learned from these visits.



Figure 7. Tweakor No. 1 VSLA executives at a share out meeting. (Photo credit: Richard Adupong, CSLP)

Issues and challenges

The perennial issue confronting VSLA membership is the lack of literacy and numeracy skills among the majority of an association's membership. Even with literacy in the top tier of Ghana's Millennium Challenge goals, progress is slow, especially in the more rural areas like the CSLP's operational landscape. VSLA officers usually have the minimum set of numeracy and literacy needed to run the weekly meeting effectively. Greater awareness and efficiency of the organization would be achieved when more people have more skills in these areas. Sons and daughters of members sometimes attend with their parents to lend reading and math skills that they are learning in school.

The initial challenge that the CSLP encountered was one of trust and overcoming substantial skepticism about the validity of the VSLA model and how it could

possibly succeed in their community. In the Western Region, many financial schemes absconded with community members' hard-earned cash. The rigidity of the model and the CSLP's constant monitoring/coaching helped to build a strong foundation. In training and monitoring other groups helping to start VSLAs (e.g., Hen Mpoano), the project learned that it is these two elements that matter the most in having a successful association. With this firm base of governance behavior, and a successful share out at the end of the cycle, the CSLP-supported VSLAs have never looked back.

Loan repayment will also be a key challenge for many members. The self-selection process that initiates the formation of an association certainly helps to mitigate potential members defaulting but it certainly is not ironclad due to extenuating circumstances that might befall a member's family or a whole community. The rigid governance process also offers some safeguards, but the membership itself, and certainly the VA, needs to be vigilant and provide almost constant oversight during the loan repayment period. Coordinating the association's normal cycle with the seasonality of income from some crops can also help mitigate defaults.

Considerations for sustainability

The CSLP's priority to identify, train and coach Village Agents (VA) for each community with one or more VSLAs was significant step to ensure their sustainability on the landscape. At the end of the second round of trainings and refresher trainings, the project had 41 prepared and confident Village Agents. These individuals are very capable of mentoring existing VSLAs and in helping to establish new ones. Several are Business Activity Center professionals and all have received conflict mitigation training as part of the VA curriculum. A number of the VSLAs have also worked out a stipend scheme as part of their savings component that will be used to help support the VAs' work in their communities.

The BACs, Hen Mpoano and others have also been provided with the names and coordinates of all the VAs that they can turn to for advice and assistance. And, as noted above, additional training and coordination with the BACs (and other donor projects) for literacy and numeracy trainings can also provide greater assurances for sustainability. The more aware that a community is of its microeconomic challenges the more it will seek to manage the community's resources and the livelihoods that depend on them.

Village Savings and Loan Associations as the Cutting Edge

The Village Savings and Loan Associations established with the CSLP's support were, hands down, the most popular, most in demand and arguably the most important tool for microeconomic growth in the project's portfolio. The concept is well known and widely implemented in many other areas of Ghana. The VSLA Summit reported on elsewhere, provided ample testimony of this as other donors and international NGOs have supported them as successful development mediums (and tools) for dozens of years. There are literally thousands in existence in other areas of Ghana. The US Forest Service also supported them successfully in the STEWARD Project that operated regionally in other West Africa countries.

Prior to the CSLP's introduction, VSLAs were an unknown in the Western Region. Community members greeted the project's efforts in this realm initially with a great deal of skepticism. Financial savings schemes in the past had resulted in substantial losses to the area's communities. The CSLP's establishment of VSLAs started slow; only five had been established and were saving money at the end of the project's first year. But after the first share out and the recognition that the project was there to help them and not run away with their money, word spread quickly and the demand for assistance in their formation climbed steadily.

The CSLP's work with the associations, with their predominantly female membership, helped to open other doors, engender trust and understanding that the project was there to assist them with their livelihoods and hopefully improve the overall economic condition of their communities. Similar to what the RING Project and others had found, the VSLAs provide an excellent community-based platform to work in other areas and opened lines of communication with broader sectors of the community. As noted elsewhere, the CSLP used the VSLA platform to introduce other livelihood opportunities and most of the members were engaged in one or more of the project's interventions apart from the VSLA.

The VSLAs provided the entry point and foundation of CSLP's assistance on the landscapes. Demand for VSLA assistance from the CSLP as the project closed was still climbing. Communities, GoG technical departments, NGOs and others all have been convinced of its value and were seeking ToT assistance so they could begin to form and support their own. Many also continued to look for ways to improve the model. The CSLP addressed this with the training of Village Agents, but also firmly believed that it already had the best approach for community savings and as a platform for introducing other development activities.

Box 2. Ghana VSLAs are recognized by USAID as significant local community contributors

USAID Administrator, Mark Green, recently visited Ghana and also recognized the valuable contributions that the VSLAs are making in local communities. Since 2015, USAID/Ghana has supported the creation of more than 2,800 village savings and loan associations that have saved \$3.1 million and loaned \$1.1 million, cumulatively. A recent independent evaluation of the intervention found that village savings and loan associations place "beneficiaries on an impact pathway to improved outcomes" by promoting "women's greater agency and control over financial decisions" in the household. USAID/Ghana. The Ghana Glance 15 October 2018

The CSLP also participated with, and entered data quarterly, to the international Savings Group Information Exchange (SAVIX). This website, with its 276,000 savings groups worldwide, aims of to increase awareness of the scale of such groups, facilitate analysis and improve operational practice, by comparing project performance and reporting on long-term research findings.

3.3 Climate Smart/Conservation Agriculture (CSA)

The majority of the CSLP's climate smart agriculture initiatives were aimed at changing community members' behaviors that lead to reduced soil quality or loss. [Soil supports 98 percent of biodiversity, provides 99 percent of human food, filters 100 percent of rainfall for drinking water and stores more active carbon than the air, forests or seas combined; yet it is the most neglected biome. (Blakemore, 2018)] Traditional slash and burn agriculture practices, followed by the plant of only two seasons' worth of crops has ceased in the coastal zone and successive years of cropping with the addition of agrochemical additives has degraded and worn out the soil resources.

Key actions

The initial two years of the CSLP's most productive period (FY 2015 to FY 2018), was spent informing farmers and communities on the landscapes about the interventions for which advice was available to them through the project. The basic training modules related to livelihoods also provided practical opportunities for them to become involved. Climate smart agriculture trainings were aimed at awareness raising and introduction of technologies such a composting, integrated pest management, crop rotation and companion planting, encouraging zero use of agrochemicals, agroforestry and the control of soil erosion.



Figure 8. CSA market entry at the Anyinasie market. (Photo credit: Richard Adupong, CSLP)

With the migration to Feed the Future funding beginning in FY 2017, the emphasis on the livelihoods side of the project shifted to ensuring greater food security and focusing on farmers as small business owners. Each of these elements used the technologies already introduced in more comprehensive packages. The establishment of farm enterprise groups that focused on organic vegetable production, the formation of demonstration plots that the whole community could observe, and a strategy that would bring together and inform all players in the vegetable production and marketing chain were definitive components of the climate smart agriculture (CSA) approach during the last two years of the project.

Project livelihood staff led other CSLP specialists in the conscious engagement of Department of Food and Agriculture extension agents during community training sessions for CSA. Complementing this was the effort of the climate change clubs in several junior and senior high schools (see Section 3.8) who became stewards for CSA demonstration gardens. The Ghana Education Service, especially in Shama District and Jomoro Municipality, were staunch supporters of this effort. Two schools supported by the project were given special recognition.

The profile of CSA was also raised annually with the project's participation in the annual national Farmer's Day celebration in early December. At each event the CSLP would publically provide Best Male Farmer and Best Female Farmer awards to the deserving members from that year's population of CSA farmers.

Important results

- More than 800 farmers received training in a variety of climate smart/conservation agriculture technologies.
- CSA practices have been adopted by more than 260 smallholder farmers
- A dozen demonstration sites were established for CSA, including two at junior high schools.

- Fifty climate smart enterprise groups were established, several in conjunction with Hen Mpoano and the Western Region Coastal Foundation (WRCF).
- More than 170 actors in the food value chain have come together for the first time in the Western Region to promote and solidify marketing of organic vegetables.
- With this growing awareness of CSA, the private sector's organic food chain is becoming strategically engaged with CSLP-supported farmers and the CSA enterprise groups.
- The youth in the schools climate change clubs are competing with one another in their CSA gardens (13 at project close) via WhatsApp platforms, sharing ideas and increasing overall environmental awareness in their communities.

Women's participation in the activity

Vegetable production in small family plots in communities of the Western Region is traditionally a woman's domain. Their participation in the CSLP's climate smart agriculture interventions approached 50 percent.

Of the 266 CSA farmers participating in the 15 CSLP-supported enterprise groups, 55 percent were women. These women are also very cognizant of the food security and food safety benefits that come from adopting the practices. Both they and the buyers of their vegetables note that they taste better.

Lessons learned

Adoption of CSA technology is behavioral and requires time for farmers to realize the full benefits (the payoff for the incentive to engage/adopt). The labor required initially is also discouraging for many.

Access to improved seeds is important. The CSLP worked with private sector companies and in several instances, the seeds did not germinate; a discouraging event for first time adopters. Reliable seed suppliers and vendors of other CSA inputs need to be carefully screened.

Similarly, input costs are often high and their access difficult and/or not reliable. As CSA grows in awareness on the landscapes, these should prove to be less problematic. Solid networking and social media platforms accessible via cell phones can also help to rectify these issues.

Investments in CSA also need protection from destruction by animals. If the vegetable plot is adjacent to the family compound this is less of a problem than a plot that lies further afield.

Neem (*Azadiractica indica*) provides many organic benefits for CSA farmers. Planting a few trees on a farm can provide a source for organic mulch and oil from the seeds that provides a natural pesticide. The only drawback for the Western Region landscapes is that the neem is on the edge of its ecological niche; it prefers a more arid environment, but with a little attention, it does grow and provide benefits within the region.

Issues and challenges

Pests and disease control is one of the overriding challenges for CSA farmers. They are accustomed to spraying pesticides and herbicides on their tree crops and cassava, usually with one or two applications. Control of pests and fertilizing the soil is an on-going, and more labor intensive activity for CSA crops. The payoff, over the longer term, is a higher value, more nutritious product with a longer storage/shelf life. But this does not usually come in the first year of adoption; it takes two to three years to begin realizing the benefits from applying the technology.

The situation for site maintenance is even more labor intensive and takes equally as long before the benefits are realized. The real payoff for CSA comes with diligence applied in years one and two. By using organic methods, the site gradually improves; exactly the opposite of using agrochemicals that deplete the soil's fertility over time. Convincing farmers of this takes patience, time and lots of labor. Visiting farms where the technology has been in

place for two or more years can provide substantial incentive for others to adopt. In the rapid assessment of CSA vegetable production⁴ conducted by the project, its labor intensity was the main reason cited for declines in membership of the enterprise groups.

Box 3. Marketing organic produce is not a challenge for CSLP-supported farmers.

Marketing of organic produce is not a challenge. The chairperson of the Sawoma groups emphasized that, “individual buyers prefer to buy from us knowing that our vegetables are organic and also market queens buy our produce because they last longer before going bad. We have no issues with marketing because CSLP has linked us to buyers and there are a lot of people who are interested in buying organic vegetables as well”. Indeed, farmers believed that with time, most buyers will better appreciate the value of organic produce and pay higher prices for it. Mary Amos of Asonti observed that, “I used to sell my organic okra next to my sister who had inorganic okra, initially people were attracted to her produce because of its sizes. After a little wooing and struggling, I was able to sell all of my produce. The next market day, people ran to my stall even before I set up”. Sarkodie of Bokro supports this trend and indicates that “we have no problem selling our produce”. Lydia Yeboah, also of Bokro, further declared that, “most market women prefer my produce to inorganic ones. They always ask me for more produce”. – Adupong, R, L.O. Awuah et. al. 2018

Considerations for sustainability

Field visits/study tours by reluctant/recalcitrant farmers to adopt the technology to farmer champions can be a key motivator. As the project came to a close, farmers in many CSLP communities were seeing the results of the early adopter farmers and were asking in increasing numbers how they could get involved. DoFA and others need to keep the champion farmers in their sights and encourage others to see them as examples.

The Ankobra Farm Enterprise at the Ankobra Beach Hotel complex in Nzema East Municipality is a cutting edge operation for CSA. DoFA recognizes this as do several donors. Other NGOs (Hen Mpoano, Goshen Global Vision) and other donor projects need to work with them to leverage more opportunities for CSA farmers in the region.

The CSLP compiled the list of participants and their contacts from the market linkage workshops and shared them among all participant for future interactions and networking. Enthusiasm was high at this event; DoFA and NBSSI would do well to leverage other donor monies and/or the private sector and work strategically to keep the ball rolling.

There is a growing market for organic vegetables and enterprise groups need to plan effectively by networking with other enterprise groups to schedule their production to meet the demands from potential buyers.

To help ensure continued adoption of CSA on the landscape, continued coaching on the application of organic pesticides and fertilizers needs to be a key element in the DoFA extension agents’ repertoire; Hen Mpoano, Goshen Global Vision and others supporting CSA technology, and other donor projects also need to be diligent in supporting these techniques and providing refresher trainings.

3.4 Farmer-Managed Natural Regeneration and Tree Planting

The specific focus of the majority of these efforts was on cocoa farms and was aimed at decreasing the rate of deforestation and degradation. The overall objective was to enhance sustainable natural resources management

⁴ USFS-IP. 2018. Rapid appraisal on climate smart agriculture vegetable production: Farmers perspectives on benefits, challenges and lessons learned. [Unpublished] USAID/Ghana, Coastal Sustainable Landscapes Project. 25 p.

and to provide economic opportunities from timber and non-timber products from trees in the medium to long-term.

Key actions

In its second full year of operation (FY 2015), the CSLP established and supported three tree nurseries across the landscapes to supply agroforestry and commercial tree seedlings requested by participating farmers. These community nurseries supplied about 30,000 seedlings for outplanting. Community Assistants helped to manage these three sites. Additional (and more difficult to nurse) tree seedlings were purchased by the project from Forestry Commission sanctioned nurseries and transported by the project to farmers for outplanting.

A training tour was offered to tree planting champions in FY 2017 to provide them with a practical perspective to planting trees on cocoa farms and to observe other practices such as enrichment plantings. Farmers returned from the training even more convinced to plant selected species and were also seen as tree planting and resource stewards by other community members.

The CSLP worked with the Ghana Forestry Commission and others to formulate and adopt a tree registration process for trees nurtured outside of forest reserves. Farmers, particularly the land lease community members on the project landscapes, are very reluctant tree stewards because of the lack of tree tenure security that exists in Ghana today. The registration process has many flaws, including its very cumbersome nature. There was a process and form developed by the government during the project's lifetime but never tested. The CSLP worked diligently with farmers in two communities but halted the activity due to challenges and lack of committed interest by the Forest Services Division. Tree ownership, or lack of real assurances surrounding tree tenure, is a legitimate and serious concern of farmers on the Western Region landscape.

Several training and support activities on farmer-managed natural regeneration (FMNR) were provided by CSLP staff to beneficiary farmers, DoFA staff and extension agents of the Ghana Cocoa Board (COCOBOD). As the project was beginning, the COCOBOD adopted a new policy that stipulated that inputs to cocoa farmers would not be provided unless they had planted or were nurturing an established number of agroforestry or shade trees per hectare on their cocoa farms. This created an immediate demand for shade tree species. Tree seedlings could be nursed and transplanted at considerable expense and often with dubious survival prospects. Or, naturally occurring tree species already on the farm could be identified and managed by the farmer at practically zero expense to the farmer. The CSLP, with its FMNR training module already in place and being practiced on the landscape, was imminently popular and in demand by both farmers and government extension agents.

Important results

- More than 70,000 agroforestry and commercial tree species planted with more than 50 percent survival after three years.
- The agroforestry training tour provided a rare opportunity to beneficiary farmers to observe and learn from other agroforestry farmers about the benefits they have gained from decades of agroforestry practices.
- More than 9,000 trees nurtured as FMNR. Adoption of the practice is very good with about 75 percent of CSLP farmers engaged in the practice
- Cocoa shade tree restoration training of trainers with COCOBOD agents was popular and highly praised. The CSLP's ToT was in growing demand as the project exited the landscapes.
- More than 6,000 seedlings planted at 72 schools with an estimated 75 percent survival rate.



Figure 9. In Adubrim, a forest tree species nursery (left) supported by the CSLP; farmers (right) ready for lifting the seedlings for outplanting on their farms. (Photo credit: Kwame Owusu, CSLP)

Women’s participation in the activity

Men dominate cocoa farm management activities. There are exceptions where women are the farm owners and they make the decisions about tree planting and FMNR activities. As a result women were in the minority for this livelihood activity.

There was one notable exception where a woman in Ellembelle District collected wild seedlings of *emire* (*Terminalia ivoiriensis*) in the forest and nursed them in her own private nursery for sale. Demand for her efforts was weak because farmers were not accustomed to paying for tree seedlings. There was a demand in a neighboring district and the CSLP assisted with their transport and sale (350 seedlings for GHc 700, about US \$170). While this was not a very sustainable activity, with cell phone communication, other women entrepreneurs might be able to get into the business in the future and make it profitable.

Where tree planting was done in school compounds female student participants were in balance with the boys.

Lessons learned

The agroforestry tour opened the eyes of the champion farmers even wider once they saw the results of tree planting of 10 or more years ago and after they had spoken with the people who had planted these trees and who were now receiving substantial monetary benefits from their efforts.

The COCOBOD’s shade tree policy was a positive incentive. It also needs to be strategically coupled with the Forestry Commission’s efforts for registering trees being nurtured and planted on cocoa farms.

Tree planting in school compounds needs careful planning and assurances that the newly planted trees will be protected from animals (and people!) and that watering will happen during periods when the school is not in session. The results from these efforts are very much appreciated by students and the GES.

Issues and challenges

There is little incentive for farmers to properly nurse, nourish and maintain tree seedlings when they are provided free of charge. Initial attempts by the CSLP to require recipients to pay, or provide in-kind payment for the seedlings it provided, was thoroughly rejected. This was seen as unacceptable when they were provided tree seedlings for free by the Forestry Commission and other donor funded and NGO-supported projects.

Transporting seedlings from the commercial nurseries was expensive and labor intensive with many seedlings dying from the shock of movement or not being properly tended during and following outplanting.

Considerations for sustainability

The CSLP trained dozens of COCOBOD and DoFA extension staff in FMNR during the last two years of the project. This coupled with the experiences and trainings received directly by beneficiary farmers are resources now on the landscapes that can help ensure the expansion of this valuable activity. Both government agencies also need to continue to provide new and refresher shade tree restoration trainings to its staff for use on cocoa farms.

Continued training for farmers in the identification and nurturing of naturally occurring tree seedlings on their farms is a strategic approach that is needed for the COCOBOD and DoFA.

With the widespread availability of tree seedlings, there is little incentive for farmers to invest in them for purchase, nor is there incentive in their care and maintenance in the initial two years following planting, they can almost find other free sources for their replacement. But it was the CSLP's experience that once farmers saw and experienced the results of proper tree planting (especially for widely known/used non-timber forest product, NTFP, species like *nsorkor* used for chew sticks and *prekese*) that there was an incentive and demand for more, and farmers were willing to pay for the seedlings in most cases. Other development organizations could also take up the value chain aspects of these species in a niche-type of activity for a focused livelihood intervention.

The availability of indigenous, and local, "mother trees" to provide seeds that can be dispersed and germinated, as well as the existence of adequate vegetative material such as live stumps and roots (for FMNR situations) are essential for success.

3.5 Beekeeping and Apiary Management

Beekeeping in managed apiaries with manmade beehives was a new activity introduced by the CSLP to the coastal zone of the Western Region. Heretofore individuals harvested wild honey by the destruction of hives they found in the forest. Honey in the rural areas of the project's operational area commands an even higher price in the rural communities than it does in the market centers like Takoradi. (The honey sold commercially in urban areas is from the drier regions of the country like the area east of Cape Coast in the Central Region and the Ashanti areas north of Kumasi and the upper reaches of the Volta Region.)

Key actions

Introductory trainings that provided the basics about beekeeping were given to self-selected community members. Those who continued to express interest went through another more advanced training module and were provided startup materials. Once an apiary was established with bees colonizing a hive, the third tier of training, hive maintenance, honey harvesting and packaging was also provided.

Farmers with secondary forests on their farms, or areas in fallow for several years, were strongly encouraged to maintain these rather than convert them into tree crops. (Note in this region conversion of these areas meant cutting them and burning to clear the landscape before replanting to rubber, cocoa or oil palm.) In preserving these vegetated areas, they also avoided GHG emissions, conserved diversity and also provided a site for the harvest of other NTFPs.

As there were no beehives being produced locally, the CSLP trained an initial group of six local artisans by engaging a Ghanaian consultant for the north of the country. The beehive model was the Kenyan Top Bar type that required a router for fabricating to the exact standards needed for the bar that would hold the comb honey.

Two study tours were supported by the project. The first was aimed at building awareness and interest in the initial group of farmers and illustrating that beekeeping could be an alternative livelihood. The second tour proved to be the eye-opener for the CSLP's more successful beekeepers in that it was a visit to a beekeepers association that had been in existence more than 10 years with members who had overcome the same challenges that the CSLP group was grappling with.

Bees leaving the hive after the initial establishment of the colony was a problem faced by more than 50 percent of the CSLP-trained beekeepers. The project engaged a Ghanaian professional beekeeper to assess the CSLP's intervention and their apiaries. His findings and recommendations⁵ were incorporated into subsequent training and coaching sessions with farmers and Community Assistants. The success achieved moving forward was substantially greater.

Important results

- More than 200 farmers were trained in beekeeping (with three training modules and hands on coaching) and 184 have established and are managing active apiaries.
- At project end, 80 percent of the apiaries had bee colonies that had been established over two years.
- More than 90 percent of the beehives on the landscapes were made and supplied by CSLP-trained artisans.
- The training tour to the Atebubu Beekeepers' Association and its selected members' apiaries resulted in much greater motivation for beekeepers to independently increase the number of beehives in their apiaries.
- Successful harvesting of honey has spurred many of the beekeepers to increase the number of beehives in their apiary. From the one beehive per farmer that the CSLP supplied, there is now almost a 50 percent increase in the number of beehives in the landscapes.
- A number of beekeepers are forming their own business association to assist with their marketing efforts and to share experiences/lessons on improving their apiaries and their honey production.
- The success and cash returns coming in to the first wave of the Western Region's beekeepers is prompting many more to be involved. The BACs and DoFA have been provided lists of the CSLP-supported beekeepers that others can turn to for advice.

Women's participation in the activity

Beekeeping is/was seen as mainly a male dominated activity. But there are several women who were trained by the CSLP who are now successful beekeepers in their own right. The fear of getting stung was initially thought to be stronger among women, but this myth has been disproved by the project's experience as well. Twenty-nine women (including five in one community) were managing apiaries as the project closed.

Lessons learned

- Training local artisans in the construction of beehives proved to be a valuable strategy for ensuring that the beekeeping livelihood became more firmly established on the landscapes
- Conditions (environmental, agricultural, and ecological) around an apiary's microsite in the Western Region are extremely important to bee colony success and it takes time to understand them enough to mitigate the major factors that may make an apiary unsuccessful. (Even for the CSLP specialists, understanding these factors in each community was always an ongoing lesson.)
- Supplying start up materials (beehive and stand, protective bee suit, smoker), in addition to the training modules, helped to improve the initial adoption in this zone where there was no formal honey production/harvesting. Informal interviews with project-supported beekeepers indicated that without these

⁵Anin-Agyei, C. 2017. The causes of bees absconding and recommendations to the CSLP. [Unpublished]. USAID/Ghana, Coastal Sustainable Landscapes Project. 14p.

materials only about ten percent of the current number of beekeepers would likely be in operation. At the end of the project, it is evident that the motivational factors are clearly in place and that beekeeping will continue.

- Study tours for neophyte beekeepers to encourage their interest were a key element (and a successful one) for increasing interest and illustrating opportunities. Based on the epiphanies gained by farmers with the second study tour, this is also recommended that other groups supporting beekeeping also conduct similar tours.
- The success and volume of honey produced in rubber (*Hevea brasiliensis*) plantation areas of Ahanta West indicates that much greater volumes of the sweet stuff could probably be produced there. The time of flowering of the rubber trees and the fact that agrochemicals are more tightly controlled is conducive to greater production.



Figure 10. Kofi Anyigla, in Photo A, showing his bottled honey which is displayed in Photo C as well. In Photo B, Kofi is in the middle with full protective clothing a few minutes before the harvesting of honey began. (Photo credit: Kwame Owusu, CSLP)

Issues and challenges

There are several challenges that apiary managers face in establishing and maintaining their beekeeping endeavors. One is that the beehives require regular monitoring, both for maintenance of the hive and its surroundings and to check on the progress of the honey production. CSLP beekeepers and staff learned that hive sanitation is paramount to keep the bees from absconding, plus they are very sensitive to spraying with agrochemicals. This is a problem that requires careful monitoring in the cocoa and rubber production areas.

The other key challenge, is gathering as much knowledge about the apiary microsite as possible. Rainfall changes from one valley to the next, temperature variations and the like, can have an impact on flowering of species preferred by bees. As the farmer gains more intimate knowledge of microsite and climate conditions in the area of the apiary, adjustments and adaptations can be made that favor hive colonization over long periods. The rubber

tree plantation experience just cited is an excellent example of the importance of how knowledge of the flowering period of the nectar source provided an advantage for the beekeeper.

The cost of construction of the Kenyan Top Bar hive may be prohibitive to some. In the CSLP communities, loans obtained by members of the VSLAs have been effectively used to finance hive construction. It was noted elsewhere that the top bar's rigid standards and the need for a wood router (which demands access to electricity) may be preventative in some instances. The Atebubu study tour was valuable in that it provided farmers with illustrations of other types of less expensive beehives being constructed with local materials.

Considerations for sustainability

The fact that more apiaries are being successfully established on the landscapes is testimony to the sustainability aspect of the intervention. Honey production will continue to increase in the coastal areas of the Western Region.

NGOs, the BACs and DoFA should help to spread the word and provide contact information for interested farmers to contact the ones gaining and improving on their experiences with the CSLP. The BAC would do well to actively support efforts to establish associations of beekeepers. Social media platforms can allow rapid sharing of lessons and also assist with marketing efforts.

It is obvious that more information about the ecology of local species preferred by bees as a nectar source should be documented whenever possible. The farmers, over time, will also become knowledgeable in these types of data and information and this will get passed along. Time, the amount of diversity in local ecosystems, and diligence to detail remain important factors in the production of honey in the Western Region.

3.6 Spatial Planning, GIS and Mapping Community Land Use and Land Cover

Considerable effort was expended by the CSLP to measure, map and document its on-farm interventions. This was necessary to provide the necessary data for tracking indicators linked to carbon emissions and for the measurement of the area under improved natural resources management (NRM) attributed to the project. Equally important were the basic spatial capacity building efforts with the Ghana government's district technical staff.



Figure 11. Remote sensing and use of GPS unit training for Government of Ghana technical staff. (Photo credit: Evelyn Asante-Yeboah, CSLP)

Key actions

“You cannot manage what you have not measured” is the adage that the CSLP followed as it worked to improve NRM on the coastal landscapes and to mitigate and avoid green- house gas emissions. This baseline step of this process required the project to locate the intervention activity spatially/geographically on the landscape.

Project staff trained its own staff, Community Assistants and government technical staff in the districts to use hand-held geographic positioning system units (GPS) to collect the spatial coordinates of the intervention activities that beneficiaries implemented. These data were used to develop polygons of the intervention and the areas (in hectares) were calculated with these data. Land use and land cover (LULC)

information and other unique attributes associated with each polygon (along with the farmer's name, contact coordinates, etc.) were also recorded.

The quantity of greenhouse gas (GHG) emissions, measured in metric tons of CO₂e, reduced, sequestered or avoided as a result of the project's assistance was estimated annually. Allometric equations tied to the LULC types from a Japanese funded effort⁶ for all of Ghana were applied to the areas measured/mapped. This work, which applied rigorous science, provided multipliers for each cover type that was deemed more accurate (in addition to being Ghana-specific), than the broad regional estimates being applied to satellite imagery for the whole of West Africa.

In order for these data (about LULC in each of the MMDAs) to be of value, CSLP worked with Ghana's Land Use Planning Authority (LUSPA, formerly the Town and Country Planning Department) and Hen Mpoano's geographic information (GIS) specialist, to develop targeted trainings for basic GIS data collection, interpretation and use within the district contexts. Although some academic approaches were employed, the main thrust of these trainings was a practical and hands-on focus so that they could be of immediate value and use.

Following the initial training sessions, it was evident that there was a wide range in capacity in the collection and use of spatial data across the coastal districts of the Western Region. The CSLP project staff conducted an assessment of each district's capabilities, equipment, and perceived needs that enabled it to design a more tailored approach in its trainings with these government staff.

The CSLP regularly assisted district-level LUSPA staff in their reporting efforts about spatial data and associated activities on their landscapes. The project was viewed as a reliable source of these types of data for planners to use in their quarterly reporting. Project staff were also routinely asked to participate in forward planning efforts and contributed diligently to medium term development planning efforts (MMDAs) when asked.

In the last year of the project, the CSLP worked closely with the USAID-funded Sustainable Fisheries Management Project (SFMP), along with Hen Mpoano, which had grant and subcontracting ties to both projects. One key area where the three institutions collaborated and coordinated was in the use of an unmanned aerial vehicle (drone) technology.



Figure 12. Prepping the unmanned aerial vehicle for a flight to collect land cover imagery in the Pra River estuary and surrounding wetlands. (Photo credit: Gloria Otoo, CSLP)

Important results

- Almost 6,000 hectares of biological significance and/or natural resources came under improved NRM as a result of the CSLP's assistance.

⁶ PASCO. 2013. Mapping of forest cover and carbon stock in Ghana. FC-RMSC, CSIR-FORIG and CSIR-SRI, Ghana. 218p.

- An acceptable procedure for estimating carbon on these hectares was developed and used. (It is not perfect but uses good science to provide the estimates using data from Ghana’s ecosystems. See the challenges subsection below for more discussion.)
- The estimated CO₂ equivalent of emissions avoided based on improved NRM and landscape management over the five years of the project was over 18 million tons. This figure is seen as perhaps being as much as 30 percent too high (Cormier, 2017) due to multipliers used for mangrove and wetland cover types. These cover types are universally known to house extraordinary amounts of carbon. A substantial amount of the CSLP’s improved NRM areas were within these cover types.
- During the second quarter of 2018, a fixed-wing UAV collected more than 200,000 images covering more than 64 km² of the wetlands and mangrove areas where the CSLP operated. As the project closed, analysis of the imagery was beginning to be assembled to provide cover maps and provide detailed estimates of the areas flown by the UAV. These will be used by Hen Mpoano, Friends of the Nation, the Wildlife Division, LUSPA, and others to assist with mangrove and wetland management.

Women’s participation in the activity

Overall, women participated less in the project’s spatial planning and mapping activities when compared to other interventions. At the community level, participation was largely limited to the few female Community Assistants who were trained in GPS use for data collection. At the MMDA level, the population of women engaged by the government’s technical services is also very low. In trainings where services such as health and education services were present, the number of women was higher, but still men outnumbered women in these trainings.

Lessons learned

Engaging Community Assistants and training them in many of the CSLP interventions was invaluable in terms of time savings. Their use of GPS units was especially important. Identifying reliable, literate and number savvy CAs proved to be a challenge in many communities.

Basic spatial planning skills and spatial data analysis are quite limited at the district level, mainly to the development planner and one, maybe two, physical planning unit staff. (This often includes operating and collecting spatial data with a GPS unit.) Other technical departments rely heavily, if not exclusively, on the planning unit to do their spatial data collection, analysis and reporting. This means the planning units have little time to do the broader and bigger picture work for the district they really should be doing.

Issues and challenges

A significant challenge in collecting the on-farm data was ensuring accuracy and monitoring the processes used in its collection. The Community Assistants (and others) were trained in the use of GPS units that established the way-points used to determine the polygons and areas of CSLP interventions on each farm. Maintaining standards and monitoring the data being collected by more than two dozen different persons with basic literacy and numeracy skills meant long hours of data cleaning in the office.

The capacities of district level technicians varied substantially both within and across districts. LUSPA executive-level staff generally (but not always) had good understanding of concepts linked to spatial data collection and its manipulation with GIS tools. Technical staff turnover is always a given (as it is throughout the world) so re-training and refresher trainings need to be part of the annual activity planning. Basic computer skills were quite low or lacking in many instances, as was access to basic equipment such as GPS units, laptops (and software), printers and scanners. In several cases the slat air of the coastal environment created other challenges where equipment could not/would not be used and stored in a secure environment.

For an intervention that usually required a reliable source of power/electricity to conduct its work, the lack of reliability of Ghana’s electrical grid (especially until FY 2018), meant a need to be at locales with alternate power sources. Adequate bandwidth needed for running much of the software or accessing the internet was/is a universal problem anywhere outside of Ghana’s capital.

Linking the land use and land cover to greenhouse gas (GHG) emissions potential was, and remains, a hurdle. The Ghana-wide study cited above on forest cover and carbon stocks was comprehensive. But more data needs to be collected (and this involves tedious destructive sampling) for LULC types to be better represented within the country's climatic zones for which the allometric equations are generated. The CSLP used a default source⁷ for estimates of carbon stock in mangrove areas. This source also used destructive sampling and targeted the area where the CSLP had focused activities in the Greater Amanzule Wetland complex. Subsequent review⁸ of the source being used called some of the values generated into question. Although the source remains the best data available until more information can be collected, it appears to overestimate the carbon in the wetland and mangrove areas being measured.

The timely acquisition of the UAV imagery proved to be frustrating. This was largely due to bureaucratic issues that had to be contended with and the unplanned amount of time that transpired from when the imagery was collected to the point where the imagery was interpreted and presented in mapped form. The latter happening after the CSLP closed.

Considerations for sustainability

Hen Mpoano, Goshen Global Vision, the Friends of the Nation and the SFMP need to take the UAV imagery and actively use it in working with the wetland communities that have been flown and mapped. These should figure prominently in the management actions for the GAW communities, the Pra Estuary communities (including Yabiw) and in Akwidaa near Cape Three Points in Ahanta West.

These same NGOs should continue to work with the Western Region's LUSPA and the MMDA offices to continue use, and leverage opportunities with, donors and the private sector to take spatial planning in the coastal landscapes beyond simply infrastructure planning and development. There is a unique opportunity with the NRM planning and management data and the UAV data to more fully integrate the areas' livelihoods into the data layers managed by LUSPA. The Wildlife Division also needs to be an integral part of this work.

As noted earlier, the Community Assistants were trained by the project in the use GPS units. This is a resource that others can tap. Names and contacts have been provided to NGOs and local MMDA authorities.

The CSLP planned to provide simple guidelines for handing over data and experiential learning information related to spatial planning and GIS for district-level technicians. This was seen a substantial gap that occurs when technical staff move out and in to new district posts. The activity was dropped with the project's early closing. It would certainly be worthwhile for another institution (NGO or donor-funded project) to pursue.

3.7 Wetland/Mangrove Co-Management

The CSLP was engaged in the Western Region's wetland and mangrove areas on several fronts and primarily through governance efforts, but also in activities that involved awareness creation, education and monitoring. The most significant (and successful) part was done through a series of annual grants to the local NGO, Hen Mpoano. They managed and reported regularly on a co-management process focused on communities in three districts (Jomoro, Ellembelle, Nzema East) that encompassed the majority of the Greater Amanzule Wetland complex. (Hen Mpoano was also a subcontractor to the USAID-funded Sustainable Fisheries Management Project that had related activities in the Ankobra River estuary area of the GAW and strategic efforts were made by the CSLP and

⁷ Adotey, J. 2015. Carbon stock assessment in the Kakum and Amanzule estuary mangrove forests, Ghana. PhD dissertation submitted to Dept. of Fisheries and Aquatic Sciences, School of Biological Sciences, University of Cape Coast. 123p.

⁸ Cormier, N. 2017. Community Mangrove Management Technical Advisor Trip Report [Unpublished]. USFS-IP, Coastal Sustainable Landscapes Project. 35 p.

the SFMP to coordinate the activities in these areas.) Quarterly and annual reports of Hen Mpoano’s small grant activities can also be viewed in the CSLP subdirectory on the www.ghanalinks.org website.

The CSLP complemented its grant effort with separate activities in two other districts (Shama and Ahanta West). These focused on education and awareness creation (see also Sections 3.8 and 3.9 below), mangrove restoration, management plan development and wetland monitoring. In its latter two years, the CSLP stationed two Community Wetland Officers (one in each of two communities) who worked mainly with the local junior high schools and their Climate Change Clubs. These staff worked closely with other project staff advising, mentoring, and monitoring the other community members with the livelihood activities supported by the CSLP in those communities.

Key actions

The CSLP grantee, Hen Mpoano, has, and is continuing to develop and adapt co-management processes and structures for conservation of the Greater Amanzule Wetland (GAW). This work is being coordinated with the Wildlife Division of the Forestry Commission and involves facilitating the establishment and federation of community-based conservation committees in 23 Amanzule wetlands-dependent communities. Participatory development of a management plan with actions for implementation at the community level is an important component, as is the spatial mapping and analysis to support planning and resource management decision-making at the district level. As noted above, unmanned aerial vehicle (drone) technology during the first three months of 2018 is providing imagery of the extent of the resources, overall community land use and land cover and even the health of the mangrove resource for a majority of the coastal GAW communities.

CSLP staff assisted community members in Yabiw and Krobo (Shama District), and Akwidaa (Ahanta West) to design and implement management strategies for their wetland and mangrove areas. In Yabiw, this included supporting a nursery for cassia seedlings and mangrove propagules used to help restore degraded mangrove areas. (Some of this nursery stock was also transported to Akwidaa for use in that and surrounding communities.) The project also worked closely with members of these two wetland communities supporting them in livelihood activities related to charcoal production (see Section 3.10), beekeeping, FMNR, and CSA.

Unmanned aerial vehicle flights, like those noted for the GAW, were also made across Yabiw and Akwidaa capturing land use and land cover imagery that will be used in mapping, management and monitoring of the wetlands in these two communities.

Important results

- The CSLP, in collaboration with Hen Mpoano, Friends of the Nation and the SNV (the Dutch volunteer organization), built capacities of volunteer group members to oversee and manage restored mangrove areas.
- Management plans for GAW landscapes have improved management of wetland resources. More than 30 hectares of degraded mangrove forests have been replanted. Three district assemblies have better information on wetland landscapes including maps for planning and decision-making and

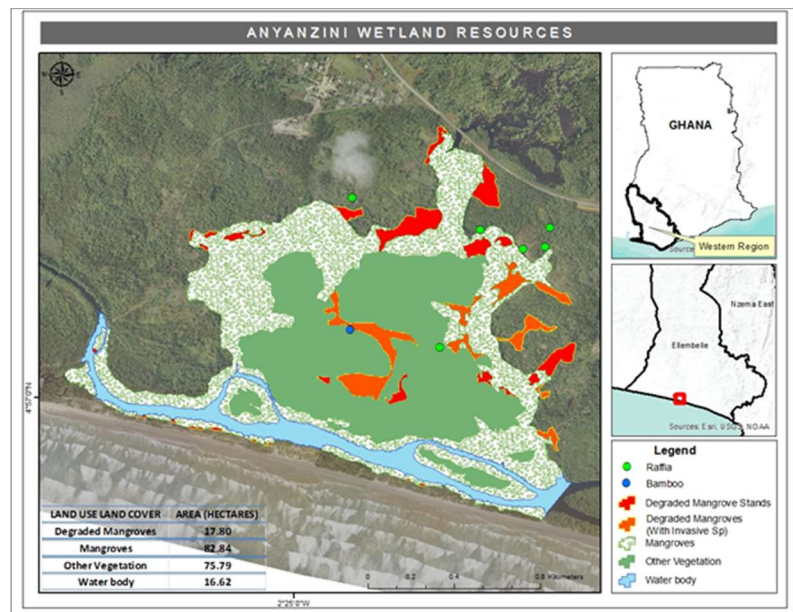


Figure 13. Anyanzinli wetland and mangrove resources map (Credit: Anyanzinli Community Conservation Committee and Hen Mpoano)

CSLP/Hen Mpoano-supported village savings and loans associations have improved household incomes in 15 wetland communities.

- Wetlands and mangrove areas and associated land cover types for 23 GAW communities have been measured and mapped. The respective communities and district conservation committees use these spatial tools to help refine and implement their management activities on their landscapes.
- Yabiw community designed and implemented a management plan was supported by the project on 200 ha of wetland and mangrove areas. More than 25 hectares have been successfully replanted. The community’s action plan for these areas was guided by Shama District by-laws for the Pra River and associated wetlands.
- Early in 2018, the CSLP and Hen Mpoano sponsored the public celebration of World Wetland Day in the Amanzule region. This not only provided a forum for the media and communities to see the importance of wetlands to local livelihoods and as a resource of national importance, but it was also a unique celebration for the communities, the Wildlife Division, and traditional and local authorities to tout the accomplishments with the co-management process to date. The Western Region Minister (governor) also publically declared his support to the improved management and long-term designation of the Greater Amanzule Wetland complex.
- For many of the communities, the extent and diversity of use of their wetland resources was an epiphany of sorts. The co-management process has been more than just the development of an NRM governance tool but also one of a broader and more intimate awareness of the importance of these resources to the community’s economic base and individual member livelihoods.

Women’s participation in the activity

The community conservation committees and the management groups of each of these planning efforts have good representation by women within their organization. They are not equally balanced; men outnumber the women in some instances by a considerable margin. But women do participate. And as community VSLA groups are established in these communities, the proportion of women will surely rise. As noted earlier, the proportion of women participating in livelihood and resources management at the community level is increasing due to the effect of empowerment that is growing with the number of VSLAs on the landscapes.

Lessons learned

Each community is unique, and to insure that the co-management process develops effectively, this diversity needs to be respected to the greatest degree possible.

The participatory mapping exercise with each community has yielded broad benefits and a more comprehensive understanding by the community about the extent, importance and value of its wetland resources to community member livelihoods and, in most instances, its economic foundation.



Figure 14. Signpost alerting the public of the community’s wetland work in Old Kabenlasuazo (Credit: Hen Mpoano)

Regular updates, discussions and vetting by traditional authorities about the co-management process, its linked activities, and management priorities and rules outlined by the Community Conservation Committees are key strategies for ensuring support and wiser decisions on mangrove and wetlands.

Issues and challenges

These mangrove and wetland initiatives have contributed significantly to the knowledge that community members now have about the ecological and economic importance of their wetlands. The real challenge is expanding this knowledge to the regional and national level so that the critical nature of these resources for the nation’s

economic well-being and natural heritage figures prominently in any land use policy decisions.

Local community and traditional authority leadership remains an important cog in the co-management of these important resources. The work of Hen Mpoano, the FoN and the CSLP has, and is, contributing significantly to the knowledge and governance aspects of the management. There are still instances of individuals exercising local control who make decisions that negatively impact the long-term well-being of these resources and the livelihoods dependent on them.

Considerations for sustainability

The NGOs like Hen Mpoano, Friends of the Nation, Goshen Global Vision and natural resource-oriented donor-funded projects like the CSLP remain the go to authorities for information and facts about natural resources. This is a good thing as the NGOs are in place for the long term. The Western Region is especially blessed with organizations that already have the capacity and the long-term memory to contribute science-based and sociologically sound data (as well as experience-based subjective information) that can contribute to positive decision-making (by traditional, local, regional and national governance bodies) about wetlands, mangroves, water, coastal and other natural biological resources.

To ensure that these institutions continue to provide this information about wetlands and mangroves effectively for the longer term there are several activities that needed to be continued and/or undertaken:

- Following the lessons noted above, the updating of wetland and mangrove activities helps to maintain support and provides opportunities for coordination with community, district and traditional authorities;
- Many concepts and ideas are new approaches for community members and they can better adopt and adapt when NGOs and others both applaud and recognize their effort and also provide continued coaching of the process;
- The management of mangrove resources can and should include the development of mangrove harvesting techniques/strategies with community members;
- If the process is truly sustainable, then management plans should be flexible and have adaptive mechanisms that allow changes and deviations from original prescriptions; and,
- It is essential that community-level monitoring activities be developed and practiced; these should also contribute to and complement monitoring and planning at the district and regional levels and ensure that the WD stays engaged in this process.

3.8 Environmental Education in Junior and Senior High Schools

Available statistics show that approximately 57 percent of Ghana's population is under the age of 25, a group that is often referred to as the youth and future leaders of the country. Yet there is little to no involvement of the youth in addressing key socio-economic issues. In recognizing this gap, the CSLP collaborated with the Ghana Education Service (GES) and other Government of Ghana (GoG) agencies to promote environmental education in schools. The overall objective of this collaboration has been to build the capacity of students to serve as environmental ambassadors in their communities and districts. In the process, they also promote a wider awareness of the community's natural resources and the issues that threaten their long-term contribution to local livelihoods and the economic stability of the community. There were a number of interventions employed by the CSLP that better positioned the students to serve as agents of change in their communities. These included targeted trainings for students, Training of Trainers for over 100 teachers, educational training tours for teachers and students, distribution of support and start up items, planting of over 6,000 trees by schools, and the establishment of 13 Climate Smart Agriculture (CSA) school gardens. Others included the effective management of wetland and mangrove areas, the celebration of four World Environment Days, creative artwork for advocacy campaigns and awareness creation events in local communities.

Key actions

Youth in junior and senior high schools were targeted for the formation of Climate Change Clubs (CCC). Where there were existing science or environmental clubs the CSLP supported their activities.

Working with district authorities and individual schools training of trainers were organized for teachers on environmental topics along with educational tours for both teachers and CCC students.

The CSLP also distributed start-up items and supported tree-planting efforts on school compounds. Closely linked to this support was the formation of school gardens (some as CSA demonstration plots) and management efforts in mangrove and wetland areas that included a 7 module pilot effort to conduct community wetland monitoring. This latter effort was coordinated with the University of Cape Coast's Center for Coastal Management.

The awareness raising activities linked to World Environment Day and Ghana's National Farmers Day along with creative artwork highlighting the students' knowledge of the importance of the natural environment in their daily lives rounded out the activities supported by the CSLP in the Western Region's six coastal districts.

Important results

- A total of 20 Climate Change Clubs were formed/supported in selected junior high schools across the landscapes by the CSLP through its collaborative efforts with the GES. At the project's close, student membership was 1,265 students. Three senior high schools were also supported to enhance environmental education.

Table 2. School clubs formed with CSLP support in area junior and senior high schools

District/Municipality	JHS clubs	SHS clubs
Shama District	10	1
Sekondi/Takoradi Metropolis	--	--
Ahanta West Municipality	2	--
Nzema East Municipality	2	--
Ellembelle District	1	2
Jomoro Municipality	5	--

- The ToT on waste management was conducted for 74 teachers from 37 public schools in Shama District. A similar ToT on sanitation was conducted jointly by the CSLP, GES, EPA and the WD (of the Forestry Commission) for 110 teachers from 74 schools.
- The CSLP developed environment-related information, education and communication (IEC) materials for use by students. These included brochures, factsheets and polo shirts. For example, a simplified brochure on climate change was developed and 1,000+ copies were distributed to CCCs and non-club members. The brochure made use of photographs of local scenes and artwork by the CCCs.
- The CSLP facilitated the supply of more than 6,000 tree seedlings to 22 schools. Survival rate of these seedlings at the project's close stood at 75 percent.
- To foster innovation in learning, the CSLP procured materials for the students to produce artwork on topics such as sanitation, pollution, deforestation and climate event impacts. In one community JHS (Jomoro Municipality), student artwork focused on illegal fishing methods to hold community sensitization sessions with its fisher folk.

- Of the 20 CCCs, 13 have established climate smart agriculture gardens, including nine schools new to the concept. Three SHS' were also supported to initiate CSA practices.
- Two school clubs won awards for the promotion of agriculture at Ghana's Farmers Day and one was subsequently selected by DoFA for the government's flagship agriculture program, Planting for Food and Jobs.
- Two JHS' collaborated with the University of Cape Coast's Center for Coastal Management to pilot seven wetland monitoring modules. Two CSLP staff were resident in these two communities to support the use of the modules as well as work with the community on other CSLP interventions.
- The CSLP and CCCs held four successful celebrations of World Environment Day commemorated each year in early June.



Figure 15. Training on wetland monitoring for CCC (Photo credit: Gloria Otoo, CSLP)

Women's participation in the activity

Forty-seven percent of the CCC membership is girls and about half of the beneficiaries (523 of 1,055 students) of the ToT on sanitation were girls. Still in process at the project's close out was the similar activity linked to sanitation. Estimates for that effort also indicate that about 50 percent of the beneficiaries (5,000) will be girls. The participants of ToTs themselves were equally divided between male and female teachers.

Lessons learned

Peer-to-peer learning and experience sharing is greatly enhanced when people of similar backgrounds are in a group. This was proven again and again in the ToTs especially as the trainings moved from district to district. It is all the more obvious for student groups.

The project believes that the strengthening of existing clubs and the new ones formed where necessary is essential for more youth to serve efficiently as environmental ambassadors.

The regular updates given to district, traditional and regional partners garnered widespread support for the effort as well as a lot of curiosity about what activities the students and their clubs had been engaged in during the previous quarter as well as what was planned for the future.

The ToT on sanitation provided valuable insight and information to the participants often giving four different perspectives on the topic coming from the four institutions facilitating the training. Everyone learned from this experience that also illustrated that different government groups could collaborate on a single topic together.

Issues and challenges

Adaptations by groups working with the GES and schools need careful forward planning and adaptive strategies that can work around and through the academic year. When NGOs, government agencies and others work within the environmental education context, it is important to maintain the focus on the fact that it is the students who are the clients and that adaptations in strategy and scheduling should reflect this.

The ToT approach is very effective and reaches more students, but it requires a good strategy, patience (especially when trying to corral several institutions to work together), and a willingness to adapt along with a commitment to do the follow up monitoring.



Figure 16. Artwork by a local Climate Change Club.
(Photo credit: Richard Adupong, CSLP)



Figure 17: The CSA garden at Asonti Junior High School.
(Photo credit: Richard Adupong, CSLP)

Considerations for sustainability

Ensuring an effective continuation of the CCC activities is one obvious strategy to sustain the activities supported and started with the CSLP's assistance. This can easily be done by the GES as the legally mandated supervisory institution of the schools. The CSLP has also made sure that the GES has been part of the process from the onset. The schools, the teachers and the students involved are also highly motivated to ensure the sustainability of the clubs.

The CCC teachers are staying connected using social media (WhatsApp). This is an excellent tool to maintain continuity across academic years as well as a platform to share ideas, lessons and experiences, not to mention updates to each other on the activities being implemented. (Some have even engaged in informal competition around selected activities, e.g. CSA gardens, and kept one another informed via shared pictures and data). Keeping the social media platform active is both appropriate and prudent.

Teachers who leave the school, and/or the CCC, should ensure that they hand over their knowledge and their social media connectivity. (The CSLP has already learned that there are examples of this happening and that the new schools that the teachers have transferred to are likely to form new CCCs due to the enthusiasm of the new teacher and his/her connectivity to the group s/he left.)

3.9 Awareness Creation and Capacity Building

The CSLP, in its quest to raise and enhance awareness on various environmental issues (e.g. indiscriminate cutting of trees including mangroves, poor sanitation, bad farming practices, poor savings culture), employed several targeted approaches to change behaviors, practices and knowledge as well as get stakeholder buy-in, commitment and support to achieve desired results. Some methodologies were modified with time, based on lessons and experience from the field.

Key actions

Numerous communication and awareness-raising media were developed, produced and distributed to relevant project stakeholders. These included calendars, newsletters, polo and t-shirts, brochures and fact sheets. All IEC materials followed the USAID's branding rules.

Recognizing the impacts of visuals, the project hosted night-time video shows in the local communities on climate change and its impacts. These formed the basis for discussions with community members on their experiences with climate-related events and adaptation opportunities for them to consider.

The CSLP used its simplified climate change brochure (geared towards people with lower literacy skills) in basic trainings of the subject to VSLAs, district assemblies and Climate Change Clubs. The project also collaborated with UKAid-funded Western Regional Coastal Foundation (WRCF) to scale up climate change awareness/education using the brochure as the basis for the activity.

The Climate Change Clubs (20 in total with 1,265 student members) noted previously, helped in awareness creation in their communities. These included processions during holidays and cultural days, sensitization gatherings, local community durbars, community tree planting and the establishment and maintenance of CSA gardens. Others include creative drawings and artwork, drama and poetry recitals and competitive events between CCCs that featured quizzes with climate change and topics about the local natural environment and waste management.

The project commemorated two thematic days of local and international significance. The first was World Environment Day led by the UN's Environment Program in early June every year. During the course of implementation, the CSLP selected one district each year and worked with a climate change club and district officials to plan and carry out the awareness raising celebration. The second was World Wetlands Day led by the Ramsar Secretariat and celebrated annually in February. In 2018, the CSLP worked with Hen Mpoano to commemorate the event and focused on all of the Greater Amanzule Wetland communities.

The nationwide annual Farmers Day celebrations in December of each year were also supported by the CSLP in one or two districts per year. The project worked closely with district level Department of Food and Agriculture staff to help plan these events. Placards and other IEC material on the project were prepared for these very visible events, along with full staff participation for the holiday.



Figure 18. CSLP female champion Gladys Atsu addressing the media during Media Day in her community. (Photo credit: Richard Adupong, CSLP)

Another communication awareness activity sponsored by the project was the annual Field Day with media personnel. Print, radio, internet and TV media were invited to interact, interview and view the actions of CSLP beneficiaries, along with the project's regional stakeholders, in a day-long series of visits to two or three communities on the landscapes.

A number of video productions were also produced as training and informational aids and for distribution by local television stations.

The CSLP believed in achieving greater results through effective partnership and collaboration and used available avenues to raise and enhance awareness. Strong partnerships were built with

Government of Ghana institutions, traditional leaders, non-governmental Organization (NGOs) and community-based organizations (CBOs). One example was the CSLP's collaboration with the Wildlife Division that enhanced

the capacity of the Cape Three Points-Princess Town Community Resources Management Areas (CREMA) to better serve as local managers of natural resources.

Important results

- An estimated 4,000 people watched the climate change-related videos in 18 agrarian communities and an additional 5,500 were estimated to have viewed and discussed them in 24 Greater Amanzule Wetland communities.
- Collaboration with the WRCF used the CSLP’s basic climate change brochure to train stakeholder groups in 100 communities. The two projects printed and distributed 5,000 copies of the brochure.
- With its climate change videos, brochure and training experience, the project became known as an important source of basic information on the subject. The Economic Development Officer in Jomoro Municipality once stated: “If you are looking for information on climate change in the Western Region, you better go to the CSLP.”
- The CSLP used the Ghana Farmers Day celebrations to honor project champions, one male and one female farmer at each event, who excelled during the reporting/fiscal year; it also took advantage of such great gatherings of farmers to enhance awareness on key food security issues through short speeches and exhibitions. The awards were given to encourage and motivate more farmers to adopt good agricultural practices.
- The updates, collaboration and coordination that the project undertook with its MMDA and regional partners also helped to create awareness and certainly contributed to building the capacity of local government institutions. These have been described in several subsections above and are also the focus of Section 5.0 below.
- Three of the annual Media Days were filmed (and these appeared on national TV), a summary video was prepared to document the initial three years of the project’s progress, a documentary was produced by Hen Mpoano of that NGO’s work which included its collaboration with the CSLP, and a training and informational video focused on VSLAs was produced jointly between the CSLP and the USAID-funded Resiliency in Northern Ghana (RING) project.

Women’s participation in the activity

Women were equal beneficiaries (along with men) of these activities. There were no special efforts made to specifically target women (apart from men) with the CSLP’s communication and awareness creation activities. Female staff of the CSLP helped to design, implement, monitor and incorporated feedback associated with these efforts.

Lessons learned

Joint efforts by the EPA, GES, WD of the Forestry Commission and the CSLP at promoting educational campaigns in public schools proved to be very effective. (And, each of the institutions learned a lot from working together! This is something that is not common on the CSLP’s landscape.)



Figure 19. Wildlife Division Regional Manager speaking to the media at World Environment Day 2017 celebration at Cape Three Points. (Photo credit: Richard Adupong, CSLP)

Youth engagement through school clubs was instrumental in creating more enthusiastic environmental ambassadors. Community officials and parents were often actively involved as well.

The use of the national Farmers Day gatherings provided an excellent (and successful) opportunity to reach other farmers in non-project intervention communities.

Issues and challenges

These were activities largely planned and implemented by the CSLP. The main challenges involved careful forward planning and budgeting to ensure that there was effective use of project resources. Diligent and regular monitoring of vendors selected to help produce materials was necessary to ensure that items were delivered in a timely manner.

The logistics and planning events with specific communities required attention to many details. Outside circumstances (e.g., funerals and extreme weather events) often meant postponement or even cancellation of activities that had consumed time and project resources. This is the nature of development activities in rural and difficult to access areas; the project simply had to be flexible and adapt.

Considerations for sustainability

Projects need to identify and actively involve stakeholders in awareness creation, share activities and work plans and work together to accomplish shared goals and objectives. In doing so, strategies and methodologies should be assessed for their relevance, impact and sustainability.

As the CSLP aimed to impact positively on local behaviors, practices and knowledge, it was prudent to reach more people of all ages and genders. Video presentations provide an effective medium to alert stakeholders in a project's zone of influence of critical environmental issues, or other issues where the project seeks to influence stakeholder behavior.

Perhaps more important, is the need for projects to gain the trust and respect of stakeholders if success in creating awareness and building capacity is to be achieved.

And lastly, attitudinal change takes time and calls for the use of effective methods (and modification in methodology) to achieve desired impacts. The scale of the CSLP was conducive to this; the population of partners and stakeholders was generally at a manageable magnitude and allowed for greater flexibility to adapt to experiences that beneficiaries recognized and were willing to embrace.

3.10 Others

In addition to the key activities discussed above, there were also a number of others that engaged CSLP staff; as with the others, these were action areas where community members or GoG technical departments had requested assistance. A couple of the more prominent ones: improved woodlot-based charcoal livelihoods and the safe handling/use of pesticides merit discussion in this section. In the first instance, woodlot-based charcoal production is a popular livelihood activity especially in Shama District. Charcoal, produced mainly from *Sena siamea*, is sought after from buyers that come from as far away as Accra, although most is sold in the Takoradi-Sekondi area. Producers turned to the CSLP seeking ways to both improve their production and to do so in a more efficient, healthier, manner over its traditional covered pit technology.

In the second instance, the use of agrochemicals for fertilizers, pesticides and herbicides is widespread on tree crop farms of the Western Region. The private sector companies provide minimal guidance for their use on these farms and it is common to see farmers applying them liberally ("more is better") with little concern for their own safety or the impacts on the environment. Standards for the safe storage of these products in farms and in

communities are equally neglected. Repeated quarterly discussions with regional and district DoFA and EPA staff, and the preparation of the CSLP's own annual Environmental Monitoring and Mitigation Plan (EMMP), defined and outlined the need for a training of field extension agents.

Key actions

The CSLP worked with woodlot charcoal producers to adopt best management practices that would enhance the woodlot's productivity, biodiversity and carbon sequestration. The project engaged the Forest Services Division of the Forestry Commission, the EPA and the district Business Activity Center staff in the best management practices trainings

The project helped to form and support two charcoal producers association (as enterprise groups) and piloted the use of two mobile metal kilns for the production of charcoal.

The CSLP designed a safe use of pesticides in farming activities training of trainers with the close collaboration of, and vetting by, the Department of Food and Agriculture and the Environmental Protection Agency.

An initial module of the safe use of pesticides in farming activities was the subject of a training of trainers activity for DoFA staff and the Cocoa Health and Extension Division of the COCOBOD aimed at the inappropriate use, handling, storage and disposal of pesticides.



Figure 20. Hands-on training on operation of the mobile metal kiln at Yabiv. (Photo credit: Kwame Owusu, CSLP)



Figure 21. Safe use of pesticides training for Government of Ghana participants. Here, participants collect relevant regulatory information on pesticide products at a vendor's shop. (Photo credit: Kwame Owusu, CSLP)

Important results

- Some charcoal producers are now intercropping in the coppice cutting cycle of the *Cassia*. Some farmers also now allow other indigenous trees to grow (FMNR) in their woodlot. Both are examples of best practices adoption.
- Two charcoal producers associations were formed and are successfully operating in the Shama District. They have established regulations for the use of the kilns, including payment in cash or charcoal product equivalent, which will be used to finance the future procurement of (most likely larger) kilns.
- Two metal kilns for producing charcoal were fabricated locally and trainings were conducted on their firing and use with producer associations. The kilns were a pilot effort with a couple of adaptive measures made to improve their use.
- The CSLP provided a successful ToT on the safe handling of pesticides to staff persons (37 men, 7 women) from four DoFA offices on the landscapes.

- The CSLP guided the design and development of the curriculum for the ToT on the safe handling of pesticides with the full participation of district and regional DoFA, the Environmental Protection Agency (EPA) and the Cocoa Health and Extension Division of Ghana's COCOBOD.

Women's participation in the activities

Charcoal production and woodlot management activities are largely in the male domain and women's participation was limited. There were several women land stewards among the CSLP activities in Shama District and these same women were also part of the charcoal producers associations that are operational.

Women's participation was limited in the ToT on the safe handling of pesticides by the low number of DoFA and COCOBOD female staff present at the district level.

Lessons learned

Farmers with cassia woodlots found that strip planting without burning (under their traditional slash and burn approach) reduced their labor costs, allowed existing (and valuable) tree species to regenerate and had low to zero CO₂ emissions.

The safe handling of pesticides ToT was not enough. Extension agents recognized that more was needed and requested additional trainings from the EPA, DoFA and the CSLP.

More resources are needed to take the safe handling of pesticide trainings efforts to the farmers coupled with a regular and rigorous monitoring strategy.

Issues and challenges

The locally constructed charcoal kiln went through three carbonization trials before success was achieved. This was a pilot effort and it is good that it was. The physics and engineering for kilns of this nature need considerable attention. For future kilns, fabricators need to fully understand the mechanism of operations before they are contracted to manufacture one. (In hindsight, the CSLP and the charcoal producers would have done better had they taken the fabricator into the field to see firsthand how the kiln was to be used and the conditions under which it would be operated.)

The dangers of pesticide use and handling is compounded by the low literacy level of the majority of farmers on the landscapes. They, and agricultural extensions agents, have little knowledge about these dangers. Frequent TOTs and refresher trainings, as well as regular monitoring, for extension agents and farmers is desperately needed.

Considerations for sustainability

Secondary processing of charcoal to briquettes might enhance the charcoal value chain. Institutions such as the NBSSI and the Energy Commission could provide support in the form of large mobile metal kilns and briquetting machines to the local charcoal producers. This also represents an opportunity for a private sector entrepreneur (perhaps an aggregator) to invest in this type of value added activity.

For the safe handling of pesticides ToT to be operational in the field, the trainees must do a follow-on of the draft plan for training farmers in their respective operational areas. (A regular monitoring effort with adherence to standards is also a critical future step.) This calls for additional resources from the districts. Where the resources are limited, the ToT participants could deliver simple awareness messages to farmers any time they are in the field. The practices can also be monitored periodically to assess changes in behavior and the adaptive practices being implemented by farmers in relation to the safe application of pesticides.

The CSLP had initially planned follow-on activities to the safe pesticide ToT later in FY 2018 and in FY 2019 but these were cut short due to the project's early close out. The EPA and DoFA, as well as the COCOBOD, were eager to continue the collaboration.

Trainings of this type should be integral and strategic components of the government's policy of "Planting for Food and Jobs". The regions and the most certainly the districts are very much aware of this need and the gaps in the policy's implementation to date. Other donors need to be more actively supporting trainings and cross-department trainings such as this one initiated and guided by the CSLP. Rural community livelihoods, food security and healthy lives are dependent on it.

4.0 LINKAGES WITH OTHER USAID PROJECTS

4.1 Projects Implemented in the Western Region

The CSLP worked with several other USAID-funded projects that had activities and partners in the coastal area of the Western Region. Two of these, the Sustainable Fisheries Management Project (based in Accra) and the Fisheries and Coastal Management Capacity Building Support Project (based at the University of Cape Coast), were commonly referred with the CSLP as "sister projects". Together, they formed the Fisheries and Coastal Management Program within USAID/Ghana's Economic Growth Office. (This was described earlier under Section 1.2). There was also a third USAID-funded project that the CSLP collaborated with, the Ghana Supply Chain Development Project (also based in Takoradi), which operated until early 2018.

Sustainable Fisheries Management Project (SFMP)

The SFMP and the CSLP collaborated in a couple of areas in the Western Region both on wetland/mangrove activities and with groups of dignitaries visiting implementation sites. The fact that both projects engaged the local NGO Hen Mpoano made these efforts both logical and easier. The CSLP provided staff specialists to assist with mangrove management trainings facilitated by SFMP's subcontractors SNV and Friends of the Nation.

The SFMP-funded UAV (drone) flights of the Pra River and Ankobra River estuaries were planned and facilitated with CSLP assistance. These are both sites where the two projects operate and both would use the imagery captured for management activities with their focal communities in those areas.

Similar cooperation and coordination was done in promoting and monitoring VSLAs. The CSLP staff trained SFMP specialists in training of trainers' events. The first time was with Hen Mpoano staff working with the SFMP and the second was 3-day intensive training of trainers for SFMP subcontractors including the Central and Western Fishmongers Improvement Association (CEWEFIA) and SNV staff. Each of these groups has gone on to help establish and support VSLAs within their own jurisdictions. The CSLP also worked with SFMP enumerators to capture baseline data on livelihoods, VSLAs and other CBOs in the Western and Central Regions where the SFMP was working with individual communities. More than 100 CSLP-supported VSLA members were a part of that study (McNally, C. et.al. 2017). One other SFMP-supported group, the Development Action Association (DAA) outside of Accra also received VSLA information and advice from the CSLP as they initiated a VSLA among women of their institution.

Fisheries and Coastal Management Capacity Building Support Project (FCMCBSP)

The CSLP's work with the FCMCBSP was mainly through the University of Cape Coast's Department of Aquatic Sciences and Coastal Management and their Center for Coastal Management. The Department developed a series of training modules packaged into a Wetland Monitoring Syllabus aimed at junior and senior high school teachers to be used in targeted communities. The CSLP helped to pilot these modules in two wetland communities (Yabiw

and Akwidaa) through the junior high school Climate Change Clubs. The project engaged two of the Department's graduates (first as National Service People, and then as contracted Wetland Community Officers in the second year) to help pilot the modules. Two local NGOs, Friends of the Nation and Hen Mpoano, were FCMCBSP grantees that also had two communities each pilot testing the Wetland Monitoring program.

The CSLP also had other peripheral engagements with the FCMCBSP in spatial planning and GIS areas and in discussions about strategic research linked to wetland and mangrove knowledge development and management. The Department of Aquatic Sciences and Coastal Management is developing basic academic training for district-level LUSPA staff that could be applied to their coastal zones. The CSLP, working in these zones, held in-depth meetings and discussions about practical approaches that the Department could adopt/adapt to add value to the formal classroom courses. Similar discussions were held with both faculty and graduate students with CSLP international mangrove specialists aimed at helping define research topics of a strategic and practical nature that would contribute to knowledge gaps about Ghana's coastal wetlands and mangroves.

Ghana Supply Chain Development Project (SCDP)

The SCDP's mandate was to build the capacity of small local business that could, and were, servicing the oil, gas and mining sectors in the Western Region. Much of what they were focused on were practical approaches to improve basic logistic delivery, accounting, bid preparation, monitoring and reporting. They also had specific training modules that were designed to assist small businesses with their marketing efforts and networking and it was the latter areas where the CSLP and the SCDP collaborated in two or three instances. The SCDP worked with the project and selected climate smart agriculture farmers to introduce basic marketing and networking concepts, and helped them identify the players and their roles in the supply chain of organic produce that the farmers wanted to sell. These basic and simple approaches went a long way in helping the CSLP farmers see themselves as small businesses as well as how (and where) they fit in the supply chain.

4.2 West African Biodiversity and Climate Change Project (WA BiCC)

The USAID West Africa Regional Mission-supported Biodiversity and Climate Change Project operates regionally (Sierra Leone, Ivory Coast, Ghana, and Nigeria) with several foci, wetlands and mangroves being one, as well as spatial components of land use and land cover, including mapping. The CSLP participated in two WA BiCC workshops that sought to identify LULC resources in Ghana and also to define key biodiversity areas spatially using currently available data.

The project also hosted a three-day visit by WA BiCC wetland and mangrove specialists to the CSLP (and Hen Mpoano) intervention areas. Each of the institutions shared lessons learned and also discussed issues, challenges and practical solutions of working with communities whose livelihoods are dependent on these wetland resources.



Figure 22. CSLP & WA BiCC team at the tree nursery site of CSLP farmer, Mrs. Yaa Sekyiwaa. (Photo credit: Richard Adupong, CSLP)

4.3 Networks, Exchanges and Interactions with other USAID/Ghana Projects

The CSLP worked closely in two dedicated areas with two other USAID/Ghana projects that operated outside of the Western Region. These were the Resiliency in Northern Ghana (RING) Project and the Agriculture and Natural Resources Management (AgNRM) project. Both are located in Ghana's Northern Region, based in Tamale. One of the main purposes of the CSLP's association with these two projects was to share experiences and lessons learned surrounding each project's support of Village Savings and Loan Associations. Each learned from the other. Both RING and AgNRM sent representatives to Takoradi to see firsthand the relationships and the activities that were related to the CSLP-supported VSLAs. The AgNRM representatives also interacted with CREMA groups that the CSLP worked with as well as Western Region staff of the Forestry Commission's Wildlife Division, taking back with them lessons and approaches that the CSLP had adopted and adapted in its implementation processes. The CSLP also sent two representatives to Tamale to experience the RING project's VSLA interventions.

One other activity resulted from the RING-CSLP exchanges and that was the design and implementation of a day-long VSLA Summit in Accra. The two projects worked together, along with USAID's Monitoring, Evaluation and Technical Support Services (METSS) Project, to provide an agenda, an invitation list of more than a dozen donor groups that supported VSLAs and/or savings groups in Ghana, and facilitated group discussions at the event. The two projects also sponsored the production of a video documenting the basic premises of VSLAs, its operational strategy and the successes that it brings to local community governance efforts and livelihoods. More than 90 people representing more than ten different donor groups and institutions attended the event.

CSLP staff also worked with the USAID-funded Integrated Resource and Resilience Planning (IRRP) Project on their dedicated activities focused on climate resilience in Ghana's coastal regions. CSLP staff participated in their March 2018 regional workshop in Takoradi on Climate Change Assessment and Resilience in the Western Region. These efforts worked with the MMDA partners that the CSLP was engaged with and helped to reinforce project efforts linked to spatial planning and climate risk adaptation and mitigation with the participants.

5.0 WORK WITH GOG PARTNERS, TRADITIONAL AUTHORITIES, NGOS AND OTHER DONORS

The CSLP's association with other institutions on the landscapes was always a work in progress. In its first year of operation, numerous approaches were used (formal meetings, memorandums of understanding, invitations to training and other project events, etc.), to engage Government of Ghana institutions and others in its activities. As a newcomer to the region, it was actions on the landscape that would be the most convincing and prove that the project was a force for good.

Following the initial community assessment work (in the third quarter of the first year), community members, traditional authorities and district officials encountered by project staff were enthusiastic and supportive of the interventions that the CSLP wanted to bring to the landscape. But they also noted that without an official blessing by the Regional Minister they would be very reluctant to participate.

5.1 Regional Stakeholders

The initial meeting with the Western Regional Minister was difficult. His and the Regional Coordinating Council's experience with other donor projects informed the CSLP that going above and beyond their expectations, especially regarding reporting, updating and engaging RCC departments would be necessary. Three

weeks of daily (literally) visits to the RCC, along with help from the Regional Economic Planning Unit head finally secured an official letter introducing the CSLP to district and municipal executive directors.

The first meeting of the CSLP’s Regional Stakeholder group (the Regional Minister, or his designee, the Economic Planning Unit Head and the directors of about 8 other technical departments), was held at the end of June 2014. It was mutually agreed that the group would meet thereafter on a quarterly basis which it did for 16 consecutive quarters. Four of the meetings with the Regional Stakeholder coincided with the CSLP Media Days, allowing them to interact directly with the project beneficiaries.

These quarterly meetings were an important and strategic activity that allowed the government’s regional technical representatives to be updated about CSLP activities as well as to provide critiques and inputs to each of its activities. More importantly from the project’s perspective, the quarterly encounters provided a platform for technical staff (RCC and CSLP) to interact with one another. Over the last 18 months of the project, these meetings were often venues for lively, collegial, technical discussions that also provided a lot of buy-in to the project’s interventions. The comment in Box 4 from the Regional Minister illustrates that the CSLP did go above and beyond the RCC’s original expectations.

Box 4. The Western Regional Coordinating Council acknowledges CSLP contributions

The WRCC is proud to be part of the efforts and interventions by the CSLP on climate change mitigation and adaptation that has gone a long way to complement the District Medium Term Development Plan and other national processes that currently address climate change. I wish to also use this opportunity to commend the CSLP for undertaking activities such as providing technical assistance, creating public awareness, coordinating and building capacity of Government of Ghana (GoG) institutions, farmers groups and Civil Society Organization (CSOs) and improving livelihoods through natural resource management such as mangrove enrichment, beekeeping and Village Savings and Loan Associations (VSLAs). -- Remarks from the Regional Minister at the December 2015 CSLP Quarterly Stakeholder Meeting.

5.2 MMDA Technical Departments

In the field across the six municipal, metropolitan and district assemblies (MMDAs) CSLP staff worked closely with the staff from each assembly’s technical departments. And as is common in most development work, the level of intensity of that work, the diligence and level of engagement of the technical staff and the resources at their disposal had a wide variation. Table 3 shows the main technical departments linked to each of the project’s intervention areas.

Table 3. CSLP intervention areas and commonly linked GoG partners

Key Intervention Area	GoG Partner(s)
Village Savings and Loan Associations	NBSSI/BAC
Agroforestry and forestry practices	FC-FSD, COCOBOD
Beekeeping	DoFA
CSA vegetable production	DoFA
Spatial planning	LUSPA, NADMO
Youth engagement	GES (some DoFA, WD, EPA)
Wetland/mangrove management	FC-WD
Awareness Creation	GES, EPA, WD

In cases where MMDA budgets were limited, most notably among extension officers, the CSLP would support the technical officers’ participation. This was regularly true for training events and the government staff was almost always eager and grateful for the opportunity to participate (and learn). The CSLP staff also tried to engage, where possible, the government agents for their monitoring and hands on work with community beneficiaries.

Quarterly updates with MMDA technical departments, especially coordinating directors and planning unit heads, were also part of the CSLP's schedule of interactions. The information provided/shared and the critiques received were similar to those (but at a different level of detail) with the RCC group. Initially, these were done district by district. These proved too time consuming and a significant drain on project resources so the project did one update meeting of all the MMDA officials together at a rolling venue across the landscape.

The CSLP M&E Specialist also came up with the unique idea of having one technical group from all the MMDAs (e.g., the GES or LUSPA or DoFA representatives from all the MMDAs) present their activities at each of the quarterly meetings. This was an exciting process to watch and participate in as now the technical groups from each assembly had the chance to showcase their activities. In some cases, this was a bit competitive but in a positive manner. It provided the opportunity for technical staff to shed their stovepipes and also helped to define priorities and direction especially in cases where there were interaction possibilities with the CSLP staff on the ground.

The CSLP was also regularly invited to participate in MMDA planning exercises and to contribute to medium term development planning efforts. District LUSPA staff, the planning units and even coordinating directors would regularly reach out to CSLP technical staff for specific information about project activities in their jurisdictions so as to be accurate in monthly and quarterly reports that they were responsible for writing.

5.3 Traditional Authorities

The project also met formally on a semi-annual basis with traditional authorities from across the landscape. The traditional authorities (chiefs, elders and queen mothers) are custodians of the land in all the CSLP intervention communities and the leaders of the communities. They are highly influential and are the first point of call in any community issue, including resolution of any land case or dispute and even complicated family disputes. This made their buy-in and continuous support very critical to project success. With this in mind, the CSLP held these regular meetings with traditional authorities from its intervention communities to keep leaders well informed about project activities being carried out in their communities and the progress being made. The Chief of Fiasolo (Ellembelle District) had this to say at one of these semi-annual meetings:

This platform created by the CSLP must be well applauded. Not all donor-funded projects and even corporate institutions involve the traditional leaders in their activities. The CSLP from its inception has stayed connected to us: chiefs, queen mothers and general elders of the various communities where they have interventions and that has contributed to the great nature of the project and the successes being recorded. The CSLP should keep it up.

CSLP's grantee, Hen Mpoano, held similar meetings with the traditional authorities in the Greater Amanzule Wetland complex where it was intervening. CSLP staff, usually the Assistant Director, also participated in these meetings facilitated by Hen Mpoano.



Figure 23. Traditional authorities at a semi-annual update meeting. (Photo credit: Richard Adupong, CSLP)

5.4 NGOs and the Private Sector

Hen Mpoano

The project worked with a number of local NGOs during the life of the project, Hen Mpoano (“Our Coast”) was the main one, and with an almost exclusive focus on activities of wetland and mangrove co-management activities in the Greater Amanzule Wetland complex. Most of this work was via a grant with USFS that the CSLP reviewed and renewed annually. Hen Mpoano worked closely with the CSLP staff in the office and in the field. Most of their work with the project has been documented thoroughly in the preceding sections.

The relationship has been a very productive one and mutually beneficial for both institutions. It was a very respectful and professional working endeavor. Hen Mpoano was an integral part of the monthly review and planning sessions and also provided critical inputs to the CSLP’s annual planning efforts as well. Project beneficiaries recognized the two institutions as complementary (and sometimes confused the two), and also were grateful for the assistance that emanated from the Hen Mpoano-CSLP partnership.

TRACTOR

A small grant of one year was also provided to TRACTOR, an NGO spawned by the social enterprise, B-BOVID. Most of the work was focused on establishing a demonstration farm for DoFA agents and participating farmers and school groups. The demonstration farm provided examples of agroforestry, farmer-managed natural regeneration, beekeeping and apiary management, a tree seedling nursery, and climate smart agriculture strategies and techniques. The CSLP also sponsored TRACTOR staff to participate in a training workshop on USAID Rules & Regulations for Grants & Cooperative Agreements.

Others

The CSLP also worked with other NGOs with significant track records of their own in the Western Region’s coastal landscapes. Most notable of these is Friends of the Nation (FoN) a socio-environmental advocacy group based in Sekondi and working predominantly in the Western and Central Regions for 25 years. The CSLP worked with them mainly on wetland and mangrove resources and issues, largely in Shama District and the Pra River estuary. And, like the CSLP, they also supported the UCC wetland monitoring efforts in two communities. Most recently the FoN, Hen Mpoano and the CSLP have worked to pool their collective knowledge and resources to develop a better and more cohesive strategy for the Western Region’s coastal mangrove areas. This was being achieved through financing and collaboration between USAID, the USFS-IP and the Sustainable Wetlands Adaptation and Mitigation Program (SWAMP) with the CSLP providing in-kind support and logistics to support consultants working with Hen Mpoano and the FoN.

In addition, the CSLP has also worked with the Ghana Wildlife Society with its focus on environmental tourism in the GAW, and the Goshen Global Vision, a relatively new (at 2 years) NGO with in-house specialists whose experience overlaps with the CSLP in agroforestry, CSA, tree planting, wetland management and VSLAs.

5.5 Other Donors

The CSLP also worked regularly with the UKAid’s Western Region Coastal Foundation (WRCF). This project worked in the same coastal districts of the Western Region as the CSLP. The main areas of collaboration were on climate change awareness and the training of trainer activity reported on above (Section 3.9), and with CSA activities in a number of communities where the two projects overlapped. The WRCF also actively participated with the CSA enterprise groups in the marketing and networking organic food value chain workshops.

In Nzema East, at the Ankobra Farms Enterprise (associated with the Ankobra Beach Resort), a series of demonstration activities are taking place. Climate smart agriculture, environmental education, and organic fertilizers/pesticides/soil amendments, largely from bamboo distillates, are being demonstrated. The CSLP

collaborated with them on a number of training events and ToTs for DoFA and champion farmers. Climate Change Clubs from some of the landscape's junior and senior high schools have also made field visits there. The Ankobra Farms is an activity that has been recognized by DoFA at the district, regional and national level for its cutting edge approaches to organic agriculture. Other NGOs, projects and donor groups would do well to work with them to leverage opportunities for farmers, small grants and other livelihood diversification opportunities.

6.0 MANAGEMENT AND ADMINISTRATIVE BEST PRACTICES AND LESSONS LEARNED

Many of the CSLP's technical approaches relied significantly on the support of its strong administrative structure. It was critical that the activities fall within the USAID norms and standards for development projects and also be flexible enough to adjust and adapt to the changing conditions in the field. Many of the challenges and issues noted earlier in this document (Section 2.3), especially the efforts surrounding sustainability, were being addressed successfully because of the flexibility within the project's administrative structure.

The CSLP Team and its functioning on the landscapes

The single most critical component of the whole project was its highly competent and professional staff (see Annex 2), a group that was very dedicated to helping the beneficiaries on the landscapes. It was also a team that had very low turnover in the course of the project. As the project became truly operational at the midpoint of FY 2014, the total number of staff operating from the Takoradi office was eleven. At project close out the staff numbered 17, and during the FY 2014 to FY 2018 period, only three positions (one technical, two administrative support) had changes in personnel.

This was a very cohesive group, one that had individuals with specialties and assigned roles, but also a group that was not "stove-piped" in its activities on the landscapes. The main technical approaches were familiar among and across technical lines and each team member stepped in to support each other's roles. Community members and all project beneficiaries also recognized this and knew that communication could reliably be passed from one CSLP team member to the other. The CSLP drivers were also very reliable technical support elements who were not only familiar with the terrain but also with individual beneficiary's activities, especially among the champion farmers.

It was also important that almost a third of the CSLP team came into the project with at least some prior knowledge of the conservation activities on the landscape, with a solid network and database of individuals, some knowledge of what was likely to work and what probably would not.

These facts also point to the scale of the project and the trust that was established between the CSLP team, community members, GoG counterparts and its NGO grantees. The scale permitted the CSLP to identify and work diligently and consistently with a core group of 200+ farmers on upland sites across two dozen communities and a similar number with its grantee (Hen Mpoano) in 23 coastal communities. These beneficiaries came to know and trust the staff of the CSLP and Hen Mpoano who came to their communities regularly, answered their questions, and trained them in technologies that they could manage themselves.

But this was also a two to three year process. Farmers, fisher folk, GoG staff, traditional authorities were reporting positive results of these efforts on an almost weekly basis as the project was closing out. Other community members were actively seeking out the initial beneficiaries and the CSLP to learn how they could participate. The lesson is a strong one: that the component of trust (of those bringing something new to the livelihood picture) is one that takes time, and this is especially true when biological resources and agriculture technologies are being applied.

Work with partners

It has been noted in several other places in this report that regular and fastidious contact with project partners has been a critical component of the daily operation of the CSLP. It is mentioned again here simply because it impacted significantly on how the projects was managed/administrated. The initial issues and frustrations of working with the Western Region Coordinating Council established the responsiveness and tone for the manner in which the CSLP conducted itself on the landscape. It also helped to direct its strategies with the technologies it brought to project beneficiaries. Looking back, this has been one of the critical components of its successful implementation.

Activity planning and regular reviews

Planning and reviewing, reviewing and planning were CSLP dogma, and the attention to these elements were probably to the team's chagrin at times. Weekly staff meetings provided the foundation and all staff participated as the previous weeks' activities were reported and discussed along with matters of administrative importance.

The monthly reviews allowed technical staff and CSLP grantees to examine what transpired week by week across each of the project's technical areas. This was the venue where elements needed for capture by the projects M&E system were highlighted along with discussions about issues and challenges that needed to be addressed. These reviews were then followed by discussions and a schedule of what was being planned by grantees and individual technical staff for the coming month. These discussions flagged bottleneck areas in terms of staff resources and also helped to highlight where project staff and the technical team members needed support or could add value by assisting one another in critical activities or trainings.

These reviews and planning sessions were the foundation of the CSLPs presence on the landscapes. They also thwarted conflict with project resources and made all staff more aware and informed about each other's activities and scheduling priorities on the landscapes. The sessions also allowed a visual illustration to be charted for each month that was posted prominently in the office (as a reminder and a check of what was happening when and where), and electronically for the grantees and each CSLP team member.

ANNEXES

Annex 1 Resources and Documents Consulted

[Note: Unpublished documents in this list can be most easily accessed through the CSLP subdirectory on the www.ghanalinks.org website.]

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Annex 2 Project Staffing

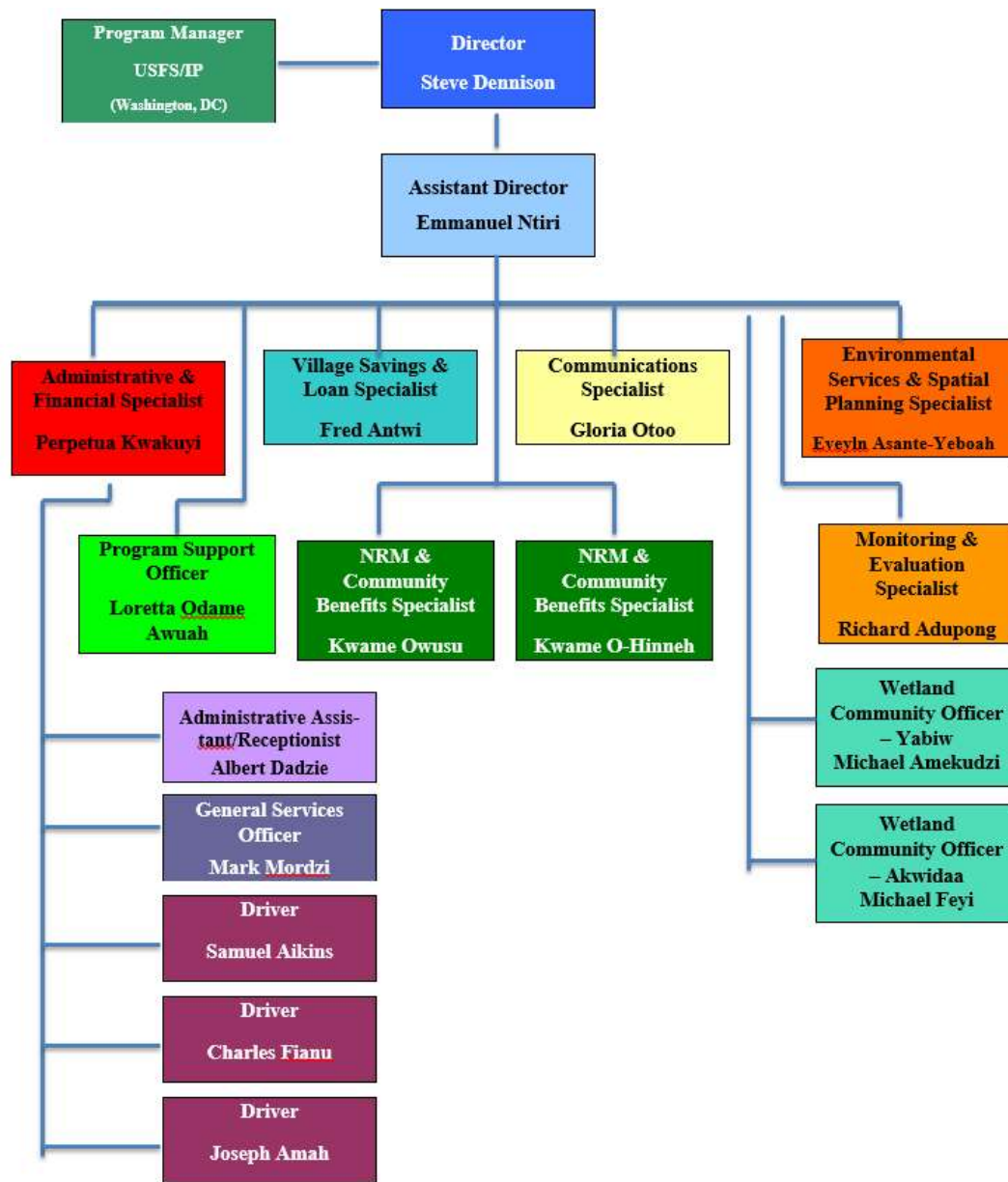




Figure A2-1. The Team at the CSLP-sponsored Media Day in Asonti, June 2018 (Photo credit: Steve Dennison, CSLP)



Figure A2-2. The CSLP team's Christmas card photo (Photo credit: Ali, Security Guard)

Annex 3 CSLP Performance Indicators Targets and Achievements

Global Climate Change Indicators & CSLP custom indicators												
Indicator	Baseline		Unit of Measure	Life of Project (LoP) Performance								Comments
	Year	Value		LoP Target	Yearly Performance					LoP Actual	LoP % Achieved	
					FY14	FY15	FY16	FY17	FY18			
4.8-7 Quantity of greenhouse gas (GHG) emissions, measured in metric tons of CO ₂ e, reduced or sequestered as a result of USG assistance	2014	0	Mt CO ₂ e	18,420,496	-	8,565	4,574,166	7,304,856	6,316,004	18,203,591	99%	Multipliers for tons of CO ₂ equivalents (estimated and realized) used for mangrove & wetlands are apt to be too high by 30% or perhaps more
4.8-7a Clean Energy												
4.8-7b Sustainable Landscapes					-	8,565	4,574,166	7,304,856	6,316,004	18,203,590		
4.8.1-26 Number of hectares of biological significance and/or natural resources under improved NRM as a result of USG assistance	2014	0	Hectares	6,315	-	527	1,508	1,523	2,314	5,950	94%	Significant wetland/mangrove areas under improved management practices.
Biologically significant areas							209	1,355	1,893	3,457		
All other areas					78	527	1,299	168	421	2,493		
4.8.1-29 Number of person hours of training in natural resources management and/or biodiversity conservation supported by USG assistance	2014	0	Number (of person hours)	37,600	435	5,711	8,879	10,023	8,804	33,852	90%	Planned trainings for FY18 quarter four could not happen due to sudden announcement of project close out
4.8.1-29a Number of men hours					283	3,712	6,406	6,366	5,313	22,080		

Global Climate Change Indicators & CSLP custom indicators

Indicator	Baseline		Unit of Measure	Life of Project (LoP) Performance								Comments
	Year	Value		LoP Target	Yearly Performance					LoP Actual	LoP % Achieved	
					FY14	FY15	FY16	FY17	FY18			
4.8.1-29b Number of women hours					152	1,999	2,473	3,657	3,491	11,772		
4.8.2-29 Number of person hours of training completed in climate change as a result of USG assistance	2014	0	Person-hours	20,300	165	3,197	6,146	5,328	4,376	19,213	95%	
4.8.2-29a Sustainable landscapes men					107	2,079	2,854	2,797	2,461	10,297		
4.8.2-29b Sustainable landscapes women					58	1,118	3,292	2,531	1,915	8,916		
C-1: Number of person hours of training completed in VSL modules as a result of USG assistance	2016	0	Person-hours	10,000	-	-	-	5,749	5,905	11,654	117%	Increasing demand for VSLA by communities and request for trainings from local NGOs to start VSLAs
C-1a Number of men hours					-	-	-	2,295	2,203	4498.25		
C-1b Number of women hours					-	-	-	3,454	3,702	7154.5		
C-2: Number of community sensitization sessions on climate change issues and/or NRM/biodiversity conservation as a result of USG assistance	2016	0	Number of sessions	110	-	-	-	54	64	118	107%	Involved active awareness creations with communities, local institutions and government agencies

Global Climate Change Indicators & CSLP custom indicators

Global Climate Change Indicators & CSLP custom indicators												
Indicator	Baseline		Unit of Measure	Life of Project (LoP) Performance								Comments
	Year	Value		LoP Target	Yearly Performance					LoP Actual	LoP % Achieved	
					FY14	FY15	FY16	FY17	FY18			
C-3 Number of persons/ institutions receiving start-up items for improved NRM/bio-diversity conservation as a result of USG assistance	2016	0	Number of persons/institutions	700	-	-	-	408	92	500	71%	Start-up items provided by the project were not supplied at the rate originally estimated. This was in line with the CSLP's strategy to decrease the number of physical items it provided for free to project beneficiaries to foster better sustainability of interventions
C-2a men								226	37	263		
C-2b women								156	39	295		
Institutions								26	16	42		
C-4: Number of project-planted seedlings surviving as a result of as a result of USG assistance	2016	0	Number of seedlings	40,700	-	-	-	22,880	46,522	46, 522	114%	62,500 trees were planted by the project and effectively monitored.

Two Global Climate Change Indicators										
Indicator	Baseline		Unit of Measure	Life of Project (LoP) Performance					LoP Achievement (unique counting)	Comments
	Year	Value		Yearly Performance						
			FY14	FY15	FY16	FY17	FY18			
4.8.1-6 Number of people with increased economic benefits derived from sustainable NRM and conservation as a result of USG assistance	2014	0	Number of people	-	574	966	1,578	1,659	3,855	Our VSLAs (50 in total to date) provided great financial support for the other livelihood activities(e.g. beekeeping, vegetable production) and incentivized conservation activities (wetland/mangroves)
4.8.1-6a men					373	471	489	513	1,215	
4.8.1-6b women					201	495	1,089	1,146	2,640	
4.8.2-14 Number of institutions with improved capacity to address climate change issues as a result of USG assistance	2014	0	Number of institutions	6	66	71	76	75	142	Unique number of institutions over LoP. Comprised of state and non-state (e.g. Community based organizations) institutions
Sustainable Landscapes, e.g., REDD+ capabilities				6	66	71	76	75	140	

Feed the Future Indicators (5 in total)						
Indicator	Baseline		Unit of Measure	Life of Project (LoP) Performance		Comment
	Year	Value		Yearly Performance		
			FY17	FY18		
EG.3.2-1: Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training	2016	0	Number of people	846	944	
Type of Individual						
Producers				775	431	
Male				389	205	
Female				386	226	
People in government				71	201	
Male				62	146	
Female				9	55	
People in civil society					312	
Male					226	
Female					86	
EG.3.2-4: Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) receiving USG food security-related organization development assistance	2016	0	Number of groups	64	85	
Type of organization						
Community-based organizations (CBOs)				64	85	
EG.3.2-17: Number of farmers and others who have applied improved technologies or management practices with USG assistance	2016	0	Number of farmers	357	544	
Producers				357	544	
Sex						
Male				150	317	
Female				207	227	
Technology type						
crop genetics				115	183	
cultural practices				101	241	
pest management				6	18	
soil-related fertility and conservation				16	10	
climate mitigation				32	102	
Commodity				Vegetables-eggplant, okra, pepper, Cassava	Vegetables-eggplant, okra, pepper, Cassava	

Feed the Future Indicators (5 in total)						
Indicator	Baseline		Unit of Measure	Life of Project (LoP) Performance		Comment
	Year	Value		Yearly Performance		
			FY17	FY18		
EG.3.2-18: Number of hectares of land under improved technologies or management practices with USG assistance	2016	0	Number of hectares	82 (32m, 50f)	218 (85m, 133f)	<i>The target for FY18 (i.e. 100) was exceeding significantly due to a Trainer of Trainers (ToT) conducted for Department of Food & Agriculture (DoFA) agency in five districts. The ToT and follow up strategies resulted positively in the adoption of improved practices by more farmers and as such, more hectares under improved management practices</i>
Technology type						
crop genetics				13	20	
cultural practices				23.24	154	
pest management				2.78	3	
soil-related fertility and conservation				11.08	2	
climate mitigation				31.5	39	
climate adaptation						
Sex				247	515	
Male				96	302	
Female				151	213	
Joint						
Commodity				Vegetables-eggplant, okra, pepper, Cassava	Vegetables-eggplant, okra, pepper, Cassava	
EG.3.2-20: Number of for-profit private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved organization-level technologies or management practices with USG assistance	2016	0	Number of groups	51	56	
Type of organization						
Community-based organizations (CBOs)				51	56	

Annex 4 Summary of CSLP Implemented Activities by MMDA

SHAMA DISTRICT

NOTE: CSLP intervention communities: 14 (Refer to next page)
Activities Implemented (2014-2018). Updated September 6, 2018

Activity	Comments
Tree seedlings supplied for planting in August /Sept. 2015	1,874 seedlings supplied to farmers (all cost paid by CSLP) to 42 farmers (41 men 1 woman). Species: black mahogany, emere, abako, kyenkyen, hwentia, prekese, guarea, & cassia.
Community nursery established	Location: Yabiw (with cassia & mangroves)
Formation of Village Savings and Loan Associations (VSLA)	6 VSLAs (one in Krobo & five in Anlo Beach). Total membership: 169 (28men, 141 women). Record keeping training conducted for one group. First cycle share out by three groups. One group has completed two share out cycles. 4 VSLA members trained as VSLA Village Agents and support groups. Financial education training conducted for all groups. Graduation ceremony conducted for three groups.
Climate Smart Agriculture (CSA)	105 farmers trained. Demonstration site established at Anlo Beach. Focus has been on organic vegetable production and entrepreneurship. Trainer of Trainers organized for MoFA staff & lead farmers. Business skill training conducted for groups
Beekeeping	17 interested farmers trained (in Yabiw and Krobo). Educational training tour organized for selected farmers to Atebubu Beekeepers Association (in Brong-Ahafo region from March 13-16, 2018). Honey harvesting underway by most beekeepers. Beekeeping start-up items supplied: 17 beehives, bee suits with attached veil and gloves supplied to trained farmers. Total cost paid by CSLP
Youth engagement, tree planting, CSA & other activities with schools	Club formed in 10 schools: Komfueku, Supomu Dunkwa, Abuesi, Aboadze, Yabiw, Shama Kumasi, Inchaban, Anto-Abosso, OBK and Assorku-Essaman. CSA demonstration site established in 3 schools. Basic CSA items/ gardening tools supplied to schools (e.g. improved seeds, water drums, fencing nets, rake, cutlass, fork & spade) 2016: 2,677 tree seedlings supplied to 13 schools; with Shama SHS receiving 1,300 seedlings 2017: 148 seedlings to 2 schools. Artwork items/tools: distributed to CCCs 2017 Farmers Day: CSLP awarded Komfueku D/A JHS Educational tours organized for some CCCs (e.g. Yabiw JHS CCC to Elmina & Cape Coast on wetlands mgt—with UCC, Yabiw JHS & Komfueku JHS CCCs visited Takoradi B-BOVID & Angu agroforestry/apiary sites; Komfueku JHS to Ankobra Beach hotel's organic vegetables site) Educational tour to Ankasa rainforest for 15 teachers from 6 CCCs and 1 GES staff. Training in basic beekeeping for 82 Agricultural Science students (56boys, 26 girls), 4 male teachers and 1 technician of Shama Senior High School in December 2017. 4 set of beekeeping start-up items delivered to the school. CSA trainings for Senior High Schools (SHS). Shama SHS 79 (64 students—46boys, 22 girls; 11 male teachers, 4 laborers—all males)
Wetland/mangrove conservation	Yabiw wetland. 21 hectares of degraded mangrove restored. Volunteer group formed. Wetland monitoring training ongoing at Yabiw Methodist JHS (collaboration by CSLP & University of Cape Coast-UCC). 2015: Raised and planted close to 10,000 mangrove seedlings. 2017: 4,000+ mangrove seedlings raised at Krobo. 2018: 2,543 mangroves planted to date (planting ongoing) UAV flights: Yabiw wetlands and Pra estuary (March 2018). Collaboration by CSLP, SFMP, Hen Mpoano and Friends of the Nation (FoN)
Sustainable charcoal woodlot production: Best Management Practices	44 farmers in Yabiw and Krobo. 2 mobile steel kilns procured & installed in Yabiw and Krobo. Training in operations of the kilns conducted. Formation of associations in Yabiw & Krobo with 23 & 21 members respectively. Constitution development underway.
Trainings Conducted	
Global Positioning System (GPS) unit	16 people trained. 6 farmers and 10 government officials from the district assembly

Agroforestry / Farmer Managed Natural Regeneration (FMNR)	Organized for 71 farmers. Refresher trainings conducted for farmers
Climate Change (CC) Training	For DPCU members
Carbon measurement training	Organized for district GoG officials and farmers
Trainer of Trainings (ToT) on Waste Management	For 113 GES officials (including 74 teachers from 38 schools). Follow up done in 27 schools with 1780 students
ToT on Gender and Environment	Conducted for 58 female teachers from 29 schools. Follow up done in all 29 schools with 1,055 students
Training on Environment, Leadership and Food security	Conducted for 30 teachers from 10 Climate Change Clubs (10 schools) in Shama district. Collaboration with Shama District Directorate of Education
GIS & Remote sensing	Training held for 22 District Assembly officials; including MoFA, NADMO, GES
Spatial planning	Jointly with STMA & Ahanta West GoG staff—19(16men, 3women) April 2018
Urban Forestry	Conducted for 64 teachers at Shama Senior High School & Shama District GES staff.
Others	
Video presentation on CC	Event organized in the nights. Participation: 50-160 people
Celebration of International Day	2016 World Environment Day held at Komfueku.
Farmers Day celebration	2017: Awarded Komfueku D/A JHS Climate Change Club for best CSA practices
Update meeting with traditional authorities	On bi-annual basis. Participation from all CSLP intervention communities. Last meeting held in March 2018; as joint meeting with other 4 districts.
Update meeting with District Assembly & other GoG officials	On quarterly basis. Last meeting on July 26, 2018; a joint meeting with Nzema East Municipality, Ellembelle, Ahanta West & Jomoro Districts

List of CSLP intervention communities – Shama District		Engagement with schools only
1	Aboadze	✓
2	Abuesi	✓
3	Anlo Beach	
4	Anto-Abosso	✓
5	Assorku-Essaman	✓
6	Ata-ne-Ata	✓
7	Dwomo	
8	Inchaban	✓
9	Komfueku	✓
10	Krobo	
11	OBK	✓
12	Shama	✓
13	Supomu Dunkwa	✓
14	Yabiw	

AHANTA WEST MUNICIPALITY

NOTE: CSLP intervention communities: 20 (Refer to next page)
Activities Implemented (2014-2018). Updated September 6, 2018

Activity	Comments
Trees planted in late 2014	Tumentu—206 trees Species: Ofram, nsoko, nyankom and mahogany
Community nursery established	Location: Tumentu (2015)
Tree seedlings supplied for planting in August /September 2015	3,525 seedlings supplied (all cost paid by CSLP) to 58 farmers (47 men 11 women). Species: black mahogany, emere, abako, kyenkyen, hwentia, prekese, guarea, and cassia
Formation of Village Savings and Loan Associations (VSLA)	3 VSLAs with 80 members (18 men, 62 women). 2 nd cycle share out by 1 group. Record keeping trainings conducted for one group. 2 members & 2 government officials trained as VSLA Village Agents. 2 VSLA members and 2 government officials trained as VSLA Village Agents and support groups. Financial education training conducted for groups. Graduation ceremony conducted for one group.
Climate Smart Agriculture (CSA)	2 vegetable groups formed with 32 members (18 men, 14 women). 101 farmers trained across the district. Focus has been on organic vegetable production and entrepreneurship. Demonstration site established at Akatakyi & Cape Three Points. Trainer of Trainers organized for DoFA staff & lead farmers. Business skill training ongoing for groups. Veggie enterprise groups, buyers, service providers' workshop: Over 80 participants from all the districts. First time engagement by all concerned parties. Discussions on both vegetable production and value chain. Held in Ellembelle district (March 2018). Food security trainings organized for farmers.
Beekeeping	16 interested farmers trained. Educational training tour organized for selected farmers to Atebubu Beekeepers Association (in Brong-Ahafo region from March 13-16, 2018). Honey harvesting underway by most beekeepers. Beekeeping start-up items supplied: 10 beehives, bee suits with attached veil and gloves supplied to trained farmers. Total cost paid by CSLP
Youth engagement, tree planting, CSA & other activities with schools	Climate Change Club (CCC) formed at Akwidaa SDA JHS and Cape Three Points JHS. Akwidaa SDA JHS is involved in wetland health monitoring trainings by CSLP & University of Cape Coast (UCC). CSA demonstration gardens established in both schools. Artwork items/tools: distributed to CCCs Educational tours organized for some CCCs (e.g. Akwidaa SDA JHS visited Takoradi B-BOVID & Angu agroforestry/apiary sites). Two teachers from Akwidaa CCC joined 22 teachers from other CCCs to the Ankasa rainforest
Wetland Conservation	Ongoing effort with CREMA and WD for conservation of wetlands in the district; focus on Akwidaa, Ketakor, Cape Three Points & Akyenim. 2017: Restored some portions of Akwidaa/Akyenim degraded mangrove site. UAV flights: Akwidaa wetlands (March 2018). Collaboration by CSLP, SFMP and Hen Mpoano.
Snail and mushroom production	Introductory trainings conducted for interested farmers. Collaboration with Regional MoFA.
Trainings Conducted	
Global Positioning System (GPS) unit	8 male farmers trained & assisting in farm land use mapping.
Agroforestry / Farmer Managed Natural Regeneration (FMNR)	81 farmers trained. Refresher trainings conducted for farmers
GIS & Remote sensing	Training held for district assembly officials; including MoFA, NADMO, GES
Spatial planning	Jointly with STMA & Shama districts GoG staff—19(16men, 3women) April 2018
ToT: safe use of pesticide	Ahanta West & Nzema East: 23 (20men, 3women) DoFA staff—April 2018. Collaboration with EPA & Regional DoFA
Climate Change (CC) Training	For DPCU members, teachers and CREMA executives/members (Collaboration with Wildlife Division-WD of Forestry Commission). Over 400 CREMA members in 20 communities trained.
NRM, General Environment & livelihoods linkages	For CREMA members in 20 communities. Collaboration with WD. Follow up trainings conducted for 3 CRMCs in each quarter.

ToT: Sanitation (by CSLP, GES, EPA & WD of FC)	Conducted for 30 teachers from 15 schools; March 15, 2018. Follow up held in 3 schools.
Carbon measurement training	Organized for district GoG officials and community members
Others	
Video presentation on CC, wetland & mangrove conservation	Organized in the evenings in the various communities. Participation: 80-150 people
Celebration of International Day	2017 World Environment Day (WED) held on June 5, 2017 at Cape Three Points.
Farmers Day celebration	2017: Joined event and awarded Cape Three Points CSA vegetable production group
Meetings with traditional authorities	On bi-annual basis. Participation from all CSLP intervention communities. Last meeting held in March 2018; as joint meeting with other 4 districts.
Update meetings with GoG officials at district Level	Meetings held on quarterly basis. Last meeting held on July 26, 2018; a joint meeting with Nzema East Municipality, Ellembelle, Jomoro & Shama Districts

List of CSLP intervention communities – Ahanta West Municipality		Ongoing engagement with CREMA
1	Adalazo	✓
2	Akatakya	
3	Aketenchie	✓
4	Akwidaa	
5	Akyenim	✓
6	Animakrom	✓
7	Anlo Town	✓
8	Antseambia	✓
9	Asemasa	✓
10	Asemkow	✓
11	Asuboi	✓
12	Busua	✓
13	Butre	✓
14	Cape Three Points	
15	Ehuntumano	✓
16	Ketakor	✓
17	Mpeasem	✓
18	Princess Town	✓
19	Seremewo	✓
20	Tumentu	

NZEMA EAST MUNICIPALITY

NOTE: CSLP Current intervention communities: 5 (Refer to next page)
Activities Implemented (2014-2018). Updated September 6, 2018

Activity	Comments
Trees planted in late 2014	Asonti—350 trees Species: Ofram, nsoko, nyankom and Mahogany
Community nursery established	No
Tree seedling supplied for planting in August /September 2015	4,932 seedlings supplied (all cost paid by CSLP) to 144 farmers (120 men 24 women). Species: black mahogany, emere, abako, kyenkyen, hwentia, prekese, guarea, and cassia
Formation of Village Savings and Loan Associations (VSLA)	12 VSLAs with 301 members (96 men, 205 women). Share out done by 8 groups with 5 completing two cycles. Record keeping trainings conducted for 8 groups. Exchange learning tours organized. Training on climate change and natural resource management organized for groups. 7 VSLA members and a government official trained as VSLA Village Agents and support groups. Financial education training conducted for groups. Graduation ceremony conducted for eight groups.
Climate Smart Agriculture (CSA)	2 vegetable groups formed with 20 members (4 men, 16 women). 49 farmers trained across the district. Focus has been on organic vegetable production and entrepreneurship. One demonstration site established in Asonti. Trainer of Trainers organized for MoFA staff & lead farmers. Business skill training ongoing for groups. Veggie enterprise groups, buyers, service providers' workshop: Over 80 participants from all the districts. First time engagement by all concerned parties. Discussions on both vegetable production and value chain. Held in Ellebelle district (March 2018) Food security trainings organized for farmers
Beekeeping	32 interested farmers trained. Educational training tour organized for selected farmers to Atebubu Beekeepers Association (in Brong-Ahafo region from March 13-16, 2018). Honey harvesting underway by most beekeepers. Beekeeping start-up items supplied: 17 beehives, bee suits with attached veil and gloves supplied to trained farmers. Total cost paid by CSLP
Youth engagement, tree planting, CSA & other activities with schools	Climate Change Clubs formed: 2 (Asonti M/A & Bokro M/A JHS). CSA garden established in each school. Basic CSA garden tools (e.g. watering can, cutlass, rake, spade, fencing nets), vegetable seeds and water containers supplied. 2015 Farmers Day: Asonti M/A JHS CC Club received award from the Municipal Assembly as Best Junior High School promoting agriculture in the Municipality Over 20 tree seedlings planted in Asonti M/A JHS. Artwork items/tools: distributed to CCCs. Quiz & football competition: between Asonti M/A JHS & Adubrim D/A JHS in March 2018. Several intra-club quiz competition by Asonti M/A JHS CCC Educational tour to Ankasa rainforest for 4 teachers from Asonti M/A & Bokro M/A JHS CCCs. Joined 22 teachers from other CCCs
Wetland Conservation	Greater Amanzule Wetlands-GAW (collaboration with Hen Mpoano & WD). Over 20,000 mangrove seedlings raised and planted. Mangrove nursery site established at Metika. 12 Conservation Committees formed in communities, trained in wetland management and supplied with tools for conservation activities. District level committee formed. Land use & land cover maps produced. UAV flights: Greater Amanzule wetlands (March 2018) Collaboration by CSLP, SFMP and Hen Mpoano.
Snail and mushroom production	Introductory trainings conducted for interested farmers. Collaboration with Regional MoFA.
Trainings Conducted	
Global Positioning System (GPS) unit	4 male farmers trained & assists in farm land use mapping.

Agroforestry / Farmer Managed Natural Regeneration (FMNR)	141 farmers trained. Refresher trainings conducted for farmers
Cocoa Shade Tree Cover Restoration	Conducted for several cocoa farmers (e.g. over 150 farmers in Asonti alone) and COCOBOD CHED staff.
GIS & Remote sensing	Training held for district assembly officials; including MoFA, NADMO, GES
Spatial planning	Jointly with Ellembelle and Jomoro GoG staff—16(15men, 1woman) April 2018
ToT: safe use of pesticide	Ahanta West & Nzema East: 23 (20men, 3women) DoFA staff—April 2018. Collaboration with EPA & Regional DoFA
Climate Change (CC) Training	For DPCU members, teachers and CREMA executives/members (Collaboration with Wildlife Division-WD of Forestry Commission)
ToT: Sanitation (by CSLP, GES, EPA & WD of FC)	Conducted for 29 teachers from 29 schools on February 8, 2018. Follow up held in 6 schools.
Carbon measurement training	Organized for district GoG officials and community members
Others	
Video presentation on CC, wetland & mangrove conservation	Organized in the evenings. Participation: 80-170 people
Media Field Day with regional government officials	Organized in two communities: Asonti and Bomokrom in June 2018
Celebration of International Day	No
Farmers Day Celebration	2016: Joined event in Nzema East (in Asonti) and awarded 2 farmers
Meetings with traditional authorities	On bi-annual basis. Participation from all CSLP intervention communities. Last meeting held in March 2018; as joint meeting with other 4 districts.
Update meetings with GoG officials at district Level	Meetings held on quarterly basis. Last meeting held on July 26, 2018; a joint meeting with Jomoro, Ellembelle, Ahanta West & Shama Districts

List of CSLP intervention communities		GAW community
1.	Akropong	
2.	Apataim	✓
3.	Asonti	
4.	Bokro	
5.	Bomokrom	

ELLEMBELLE DISTRICT

NOTE: CSLP Current intervention communities: 17 (Refer to next page)
Activities Implemented (2014-2018). Updated September 6, 2018

Activity	Comments
Trees planted in late 2014	836 trees planted. Adubrim-479 trees and Ayawora-357 trees. Species: Ofram, nsoko, nyankom and Mahogany
Tree seedling supplied for planting in August /September 2015	14, 721 seedlings supplied (all cost paid by CSLP) to 236 farmers (194 men 42 women). Species: black mahogany, emere, baku, kyenkyen, hwentia, prekese, guarea, ofram and cassia
Formation of Village Savings and Loan Associations (VSLA)	20 VSLAs with 516 members (169 men, 347 women). Share out done by 8 groups with 6 completing two cycles and 3 groups completing 3 rd cycle. Record keeping trainings conducted for groups. Exchange learning tours organized. Training on climate change and natural resource management organized for groups. 14 VSLA members & 1 government official (BAC staff) trained as VSLA Village Agents and support groups. Financial education training conducted for groups. Graduation ceremony conducted for eight group
Climate Smart Agriculture (CSA)	4 vegetable groups formed with 121 members (45 men, 76 women). Over 350 farmers trained across the district. Focus has been on organic vegetable production and entrepreneurship. 4 demonstration sites established; <i>Adubrim, Ayawora, Kamgbunli and Sawoma</i> . Trainer of Trainers organized for MoFA staff & lead farmers. Business skill training ongoing for groups. Veggie enterprise groups, buyers, service providers' workshop: Over 80 participants from all the districts. First time engagement by all concerned parties. Discussions on both vegetable production and value chain. Held in Ellembele district (March 2018) Food security trainings organized for farmers
Beekeeping	67 interested farmers trained. Educational training tour organized for selected farmers to Atebubu Beekeepers Association (in Brong-Ahafo region from March 13-16, 2018). Trainings offered for DoFA staff. Honey harvesting underway by most beekeepers. Beekeeping start-up items supplied: 67 beehives, bee suits with attached veil and gloves supplied to trained farmers. Total cost paid by CSLP
Youth engagement, tree planting, CSA & other activities with schools	Close to 300 seedlings planted in selected public schools. Climate Change Club formed at Adubrim D/A JHS. CSA garden established in the school. Artwork items/tools: distributed to CCCs Educational tour to Ankasa rainforest; attended by one teacher from Adubrim CCC. Joined 22 teachers from other CCCs CSA trainings for Senior High Schools (SHS): <ul style="list-style-type: none"> • Kamgbunli SHS 45 (35 students-26boys, 9 girls, 10 teachers—all men) • Nkroful SHS 147 (126 students-100boys, 26 girls; 21 teachers—18men, 3women). Quiz & football competition: between Asonti M/A JHS & Adubrim D/A JHS in March 2018.
Wetland Conservation	Greater Amanzule Wetlands-GAW (collaboration with Hen Mpoano & WD). Over 20,000 mangrove seedlings raised and planted. Mangrove nursery site established at Anyanzinli. 12 Conservation Committees formed in communities, trained in wetland management and supplied with tools for conservation activities. District level committee formed. Semi-annual review meetings held by the district committee. Land use & land cover maps produced. Celebration of 2018 World Wetland Day: Held on February 2, 2018 at Aya Community Centre in Ampain. Collaboration by Hen Mpoano, CSLP, Wildlife Division of FC and SFMP. UAV flights: March 2018. Greater Amanzule wetlands. Collaboration by CSLP, SFMP & Hen Mpoano
Snail and mushroom production	Introductory trainings conducted for interested farmers. Collaboration with Regional MoFA.
Cassava Production	107 farmers (in 5 communities) supplied with improved cassava seedlings
Trainings Conducted	
Global Positioning System (GPS) unit	8 male farmers & 22 wetland conservation champions trained & assists in farm land use / wetland mapping.

Agroforestry / Farmer Managed Natural Regeneration (FMNR)	238 farmers trained. Refresher trainings conducted for farmers
Cocoa Shade Tree Cover Restoration	Conducted for several cocoa farmers and COCOBOD CHED staff
GIS & Remote sensing	Training held for district assembly officials; including MoFA, NADMO, GES
Spatial Planning	Jointly with Nzema East & Jomoro GoG staff—16(15men, 1woman) April 2018
ToT: safe use of pesticide	Jointly with Jomoro DoFA staff: 21 (17men, 4women) DoFA staff—April 2018. Collaboration with EPA & Regional DoFA
Climate Change (CC) Training	For DPCU members, teachers and CREMA executives/members (Collaboration with Wildlife Division-WD of Forestry Commission)
ToT: Sanitation (by CSLP, GES, EPA & WD of FC)	Conducted for 29 teachers from 15 schools on December 5, 2017. Follow up held in 3 schools.
Carbon measurement training	Organized for district GoG officials and community members
Others	
Video presentation on CC, wetland & mangrove conservation	Organized in the evenings. Participation: 80-400 people
Media Field Day with regional government officials	Organized in 4 communities: Adubrim and Ayawora on May 20, 2015 & Anyanzinli and Kamgbunli on June 28, 2017
Farmers Day Celebration	2016: Held at Aiyinase. CSLP awarded 2 farmers; 2018: DoFA awarded District Best Farmer to Mrs. Comfort Obeng , CSLP CSA farmer, tree planter and (VSLs) Village Agent
Meetings with traditional authorities	On bi-annual basis. Participation from all CSLP intervention communities. Last meeting held in March 2018; as joint meeting with other 4 districts.
Update meetings with GoG officials at district Level	Meetings held on quarterly basis. Last meeting held on July 26, 2018; a joint meeting with Nzema East Municipality, Jomoro, Ahanta West & Shama Districts

List of CSLP intervention communities – Ellembelle District		GAW community
1	Adubrim	
2	Alabokazo	✓
3	Alloakpoke	✓
4	Ampain	✓
5	Anyanzinli	✓
6	Ayawora	
7	Azuleloanu	✓
8	Bobrama	✓
9	Fiasolo	
10	Kamgbunli	✓
11	Mpeasem	
12	Nyamebekyere	
13	Old Bakanta	✓
14	Sanzule	✓
15	Sawoma	✓
16	Sendu	
17	Tandan	

JOMORO MUNICIPALITY

NOTE: CSLP Current intervention communities: 26 (Refer to end page)
Activities Implemented (2014-2018). Updated September 6, 2018

Activity	Comments
Trees planted in late 2014	No
Community nursery established	Location: Tweakor No.1 (2015)
Tree seedling supplied for planting in August /September 2015	18,907 seedlings supplied (all cost paid by CSLP) to 145 farmers (115 men, 30 women) Species: black mahogany, emere, baku, kyenkyen, hwentia, prekese, guarea, and cassia
Formation of Village Savings and Loan Associations (VSLA)	10 VSLAs with 249 members (99 men, 150 women). Share out done by 6 groups with 3 completing 2 nd and 3 rd cycles. Record keeping trainings conducted for 6 groups. Exchange learning tours organized for groups. Training on climate change and natural resource management organized for members. 14 VSLA members and a government official (Community Dev't staff) trained as VSLA Village Agents and support groups. Financial education training organized for groups. Graduation ceremony conducted for seven groups.
Climate Smart Agriculture (CSA)	4 vegetable groups formed with 65 members (39 men, 26 women). Over 150 farmers trained across the district. Focus has been on organic vegetable production and entrepreneurship. 4 demonstration sites established: <i>Adusuazo, Fawoman, Navrongo, Tweakor 2, Beyin and New Ankasa</i> . Farmers trained at New Ankasa was a collaborative effort with UKaid-funded WRCF. Trainer of Trainers organized for MoFA staff & lead farmers. Business skill training ongoing for groups. Veggie enterprise groups, buyers, service providers' workshop: Over 80 participants from all the districts. First time engagement by all concerned parties. Discussions on both vegetable production and value chain. Held in Ellebelle district (March 2018) Food security trainings organized for farmers
Beekeeping	73 interested farmers trained. Local carpenter at Fawoman trained in beehive construction and produces beehives at reasonable cost to farmers. Educational training tour organized for selected farmers to Atebubu Beekeepers Association (in Brong-Ahafo region from March 13-16, 2018). Trainings offered for DoFA staff. Honey harvesting underway by most beekeepers. Beekeeping start-up items supplied: 73 beehives, bee suits with attached veil and gloves supplied to trained farmers. Total cost paid by CSLP
Youth engagement, tree planting, CSA & other activities with schools	Club formed in 5 schools: Adusuazo D/A JHS, MANS JHS, New Town JHS, Agyeza JHS & New Kablesuazo JHS. CSA garden established at Adusuazo JHS; basic gardening tools supplied (e.g. watering can, cutlass, rake, spade, fencing nets), vegetable seeds and water containers supplied. Educational tour to Ankasa rainforest for 4 teachers from Adusuazo & MANS JHS CCCs. Joined 22 teachers from other CCCs Close to 1,000 seedlings planted in selected public schools. Artwork items/tools: distributed to CCCs
Wetland Conservation	Greater Amanzule Wetlands-GAW (collaboration with Hen Mpoano & WD). Over 20,000 mangrove seedlings raised and planted. Mangrove nursery site established at Metika. 12 Conservation Committees formed in communities, trained in wetland management and supplied with tools for conservation activities. District level committee formed. Semi-annual review meetings held by the district committee. Land use & land cover maps produced.
Snail and mushroom production	Introductory trainings conducted for interested farmers. Snail production commenced by few farmers. Collaboration with Regional MoFA.
Cassava production	8 farmers (at Ekpu) supplied with improved cassava seedlings
Trainings Conducted	
Global Positioning System (GPS) unit	8 male farmers & 22 wetland conservation champions (20 men, 2 women) trained & assists in farm land use / wetland mapping.
Agroforestry /Farmer Managed Natural Regeneration (FMNR)	230 farmers trained. Refresher trainings conducted for farmers

Cocoa Shade Tree Cover Restoration	Conducted for several cocoa farmers and COCOBOD CHED staff
GIS & Remote sensing	Training held for district assembly officials; including MoFA, NADMO, GES
Spatial Planning	With Nzema East & Jomoro GoG staff—16(15men, 1woman) April 2018
ToT: safe use of pesticide	With Ellembelle DoFA staff: 21 (17men, 4women) DoFA staff—April 2018. Collaboration with EPA & Regional DoFA
Climate Change (CC) Training	For DPCU members, teachers and CREMA executives/members (Collaboration with Wildlife Division-WD of Forestry Commission)
ToT: Sanitation (by CSLP, GES, EPA & WD of FC)	Conducted for 30 teachers from 15 schools in November 21, 2017. Follow up held in 3 schools.
ToT on Agriculture in schools	Conducted for 12 teachers from 5 schools with climate change clubs (Feb 2018)
Carbon measurement training	Organized for district GoG officials and community members
Others	
Video presentation on CC, wetland & mangrove conservation	Organized in the evenings. Participation: 80-400 people
Media Field Day with regional government officials	Organized in two communities: Navrongo & Tweakor No 1 in June 2016
Celebration of International Day	2015 World Environment Day (WED) held on June 5, 2015 at Adusuazo.
Farmers Day Celebration	2015: Held at Azuleti. CSLP awarded 2 farmers
Meetings with traditional authorities	On bi-annual basis. Participation from all CSLP intervention communities. Last meeting held in March 2018; as joint meeting with other 4 districts.
Update meetings with GoG officials at district Level	Meetings held on quarterly basis. Last meeting held on July 26, 2018; a joint meeting with Nzema East Municipality, Ellembelle, Ahanta West & Shama Districts

List of CSLP intervention communities – Jomoro Municipality		GAW community
1	Adusuazo	
2	Agyeza	
3	Allengezulei	✓
4	Beyin	✓
5	Bonyere	✓
6	Ebonloa	✓
7	Effasu	✓
8	Egbazo	✓
9	Ekpu	✓
10	Ellonyi	✓
11	Ezinlibo	✓
12	Fawoman	
13	Half Assini	
14	Mangyea	✓
15	Metika	✓
16	Mpataba	✓
17	Navrongo	
18	Nuba	✓
19	New Nzulezu	
20	New Kablesuazo	
21	New Town	
22	Nzulezu	✓
23	Old Kablesuazo	✓

24	Tikobo I	
25	Tweakor No 1	
26	Tweakor No. 2	