Fisheries Integration of Society and Habitats (FISH) Annual Report for Fiscal Year 2017

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FISHERIES INTEGRATION OF SOCIETY AND HABITATS (FISH)

OBLIGATED AMOUNT	US $12,850,000
PROJECT DURATION	5 years (9 September 2014 – 9 September 2019)
EVALUATION DATES	**July 2017**
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Disclaimer:

Front Cover: BVC Members Who Conduct Patrols to Stop Illegal Fishing, Photo by Sarah Ellison of Pact

AUTHORITY/DISCLAIMER

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Contents

Abbreviations and Acronyms

ADC	Area Development Committee
AOR	Agreement Officer Representative
APEA	Applied Political Economy Analysis
BDC	Biodiversity Conservation
BVC	Beach Village Committee
CBNRM	Community Based Natural Resource Management
CA	Christian Aid
CC	Chancellor College (University of Malawi).
CCA	Climate Change Adaptation
CDCS	Country Development Cooperation Strategy
CDO	Capacity Development Officer
CEPA	Centre for Environmental Policy and Advocacy
CFR	Code of Federal Regulations
CISER	Community Initiative for Self Reliance
CISONECC	Civil Society Network on Climate Change
COMPASS	Community Partnerships for Sustainable Resource Management
CPI	Community Performance Index
CSA	Climate Smart Agriculture
CSO	Civil Society Organization
DCOP	Deputy Chief of Party
DDP	District Development Plans
DEAP	District Environmental Action Plan
DEC	District Executive Committee
DFID	Department for International Development
DOE	Department of Environment
DOF	Department of Fisheries
DOH	Department of Health
EAD	Environmental Affairs Department
EAP	Environmental Action Plans
ECRP	Enhancing Community Resilience Program
EGRA	Early Grade Reading Activity
EI	Emmanuel International
EIA	Environmental Impact Assessment
EPA	Economic Planning Area
ETOA	Environmental Threats and Opportunities Assessment
EU	European Union
FA	Fisheries Association
FADS	Fish Aggregating Devices (Artificial Reefs)
FAO	Food and Agriculture Association
FISH	Fisheries Integration of Society and Habitats
FRU	Fisheries Research Unit
FSTAP	Fisheries Science and Technology Advisory Panel
G & CDS	Governance and Capacity Development Specialist
GCCA	Global Climate Change Alliance
GEF	Global Environment Facility
GGB	Good Governance Barometer
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbei
GLOW	Great Lakes of the World Conference
GoM	Government of Malawi
GVH	Group Village Headman

HH	Household
IAA	Integrated Agriculture-Aquaculture
ICEIDA	Icelandic International Development Agency
IDRC	International Development Research Centre
IEC	Information, Education and Communication
INVC	Integrating Nutrition in Value Chains
JICA	Japan International Cooperation Agency
KMS	Knowledge Management System
LEK	Local Ecological Knowledge
LGA	Local Government Authority
LMNP	Lake Malawi National Park
LNP	Liwonde National Park
LUANAR	Lilongwe University of Agriculture and Natural Resources
LULUCF	Land Use, Land Use Change and Forestry
M&E	Monitoring and Evaluation
M&EO	Monitoring and Evaluation Officer
MCoF	Malawi College of Fisheries
MERLS	Monitoring, Evaluation, Reporting and Learning Specialist
MAGFAD	Malawi-German Aquaculture and Development Project
MASALAPA	Mangochi Salima Lake Park Association
MASDAP	Malawi Spatial Data Platform
MCC	Millennium Challenge Corporation
MoAIWD	Ministry of Agriculture, Irrigation and Water Development
MNRE&M	Minister of Natural Resources, Energy and Mining
MoEST	Ministry of Education, Science and Technology
MoU	Memorandum of Understanding
MSc	Master of Science
NAP	National Adaptation Plan
NAPA	National Adaptation Program of Action
NCST	National Commission on Science and Technology
NGO	Non-Governmental Organization
NRBE	Natural Resource Based Enterprise
NRM	Natural Resource Management
NTFP	Non-Timber Forest Products
NP	National Parks
ONA	Organizational Network Analysis
PAC	Project Advisory Committee
PERFORM	Protecting Ecosystems and Restoring Forests in Malawi (USAID)
PIRS	Performance Indicator Reference Sheets
PM	Project Managers (partner lead representative)
PMEP	Performance Monitoring and Evaluation Plan
PMU	Project Management Unit
PPP	Public-Private Partnerships
PRA	Participatory Rapid Assessment
PVCA	Participatory Vulnerability and Capacity Assessment
RDQA	Routine Data Quality Assessment
REDD+	Reducing Emissions from Deforestation and Forest Degradation (plus)
RIS	Ramsar Information Sheet
RVC	River Village Committee
SADC	South African Development Community
SAV	Sub-Aquatic Vegetation
SEA	South eastern Arm (of Lake Malawi)
SOER	State of Environment Report

SOP	Standard Operating Procedure
SOW	Scope of Work
SSBPR	Spawning Stock Biomass Recruitment
STA	Sub-Traditional Authority
STAP	Science and Technology Advisory Panel
STTA	Short Term Technical Assistance
SWA	South West Arm
SWOT	Strengths, Weaknesses, Opportunities and Threats
TA	Traditional Authority
TDT	Technology Development and Transfer
TNA	Training Needs Assessment
ToT	Training of Trainers
UNDP	United Nations Development Program
UNIMA	University of Malawi
URI-CRC	University of Rhode Island - Coastal Resources Center
USAID	United States Agency for International Development
USG	United States Government
VCA	Value Chain Analysis
VDC	Village Development Committee
VDP	Village Development Plan
VFA	Village Forest Area
VNRMC	Village Natural Resource Management Committees
VSLA	Village Savings and Loans Association
WALA	Wellness and Agriculture for Life Advancement
WESM	Wildlife and Environmental Society of Malawi

Executive Summary

FISH

Year 3 of the five-year FISH project represented a period of accelerated implementation of activities across the four components. Most activities have been achieved and for many quantifiable indicators targets exceeded due to reported rapid uptake by community members adopting extended technologies from lead farmers/trainers. There are just two notable activities which were not achieved as planned:

i) The advocacy process led by CEPA has been delayed with an amended course of action reflecting the requests by Department of Fisheries. Furthermore, action was taken to determine sub-national financing scenarios instead of only lobbying for increased funding to fisheries from central treasury.
ii) Few persons accessed the repository due to problems with intermittent network access discouraging repeated use. FISH has mitigated this problem by installing independent inverter and battery back-up.

Most documentary outputs were completed as planned with some pending approvals and printing. And, of the 16 PMEP indicators 12 are on track (see Section VI).

More specifically the following describes the successes as contributions to outcomes by each of the four project components or 'Outputs'.

Output 1

Fisheries chapters which include the ecosystem based co-management approach are imbedded within the District Development Plans for all 4 Districts ensuring that the approach implemented by the project becomes sustainable.

The National Fisheries and Aquaculture Communications Strategy and National Research Agenda has been approved by FSTAP pending formal adoption. Once sustainable funding mechanism is developed for FSTAP the agenda for both communication and research becomes institutionalized to harmonize strategies more efficiently including priority actions.

The following research studies have contributed to longer term outcomes with specific emphasis on utilization of science for decision-making:

- Lake Chiuta has an established early warning model to implement disaster risk management activities.
- The potential benefits of using brushparks is reviewed with early results from biophysical assessments showing positive results in the sanctuaries. Guides were produced.
- Research to provide better management models of deep pool refugia in Lake Chiuta including establishing a link between climate variation and management strategies.
- Comprehensive understanding of usipa and chambo management including leadership training to establish within the Department of Fisheries improved stewardship of the fishery underpinned by scientific analysis. (e.g. MSY, Yield per recruit, length frequency analysis)
- Further expansion and understanding of fuel wood saving technologies with recent studies showing fire wood consumption reduced by 70% using latest technologies.
- Significant contribution to improved understanding of the post-harvest loss status across the value chain nodes provides clear entry points for improvement and a stark reminder to the need for increased investment to mitigate losses currently estimated at $US220 million.

Output 2

Output 2 aims to set the foundations, build an enabling environment to demonstrate sustainable eco-system based fisheries management which conserves biodiversity whilst maintaining productivity.

The most important outcome will be the approval of bylaws or management agreements (the 6th step of the PFM) by the Director of Fisheries including the provisioning of legal mandate. The planned

contribution to the outcome was surpassed with the completion and approval of 14 bylaws by District Councils and three ecosystem-wide management plans submitted to DoF. Training of trainers has led to local level capacity enhancement to sustain further knowledge transfer to LFMAs.

FISH has successfully trained MCoF staff enabling them to imbed the PFM with monitoring tools into a revised curriculum (assisted by FISH) to be launched in the coming year.

Through the efforts of FISH District councils are endorsing and promoting natural resource management strategies reducing downstream conflicts with fisheries.

Significant groundwork has been made by the project to build a workable framework and voice of action to address power dynamics and ensure self-resourcing by local LFMA's becomes reality. Upstream the Parliamentary Committee on Agriculture and irrigation Development has been engaged with presentation, discussions and a planned field trip.

To further engrain the capability at a local level frontline staff have been trained in community performance monitoring using the Community Performance Index (CPI) tool. This is used to identify the strengths and weaknesses of community groups and committees, thus empowering local communities to monitor and develop improvement actions themselves.

Output 3

Output 3 works toward restoring degraded critical conservation hotpots and establishing eco-system based practices to protect and maintain these areas.

The continuum between initiating the process of continuous improvement to well-managed and maintained ecosystems (that can also be measured) is over a period of many years. Our success will be our progress along this continuum. So far, the project has encouraged communities to establish over 280 hectares of lake sanctuaries with 153 brushparks installed. The second biophysical assessment shows marginal gains over the first in species composition.

The critical breeding habitats are affected by heavy silt loading. To date, 58 VNRMCs have restored 106 hectares of riverine area and almost 400 hectares of forest land. Whilst this may not be enough in total area to make a significant difference, the success of these locations may be emulated elsewhere for wider impact.

In addition to improved management of natural forested lands and riverine areas, soil and water conservation technologies are essential for a holistic approach to land management, especially soil. Whilst the extent of adoption and radial adoption to others is yet to be assessed, currently the progress to date is just over 9000 farmers applying one or more of the soil and water technologies promoted. Critical to success will be the adoption rate and scale out.

Output 4

This project output focuses adaptive management strategies and diversification of livelihoods in a changing environment. The key to successful outcomes will be the adoption and scale out supported by local institutions and government policy. FISH reports successes in promotion of new farming and post -harvest technologies to thousands of households. These include training and establishment of beekeeping groups, climate smart agriculture technologies, drought tolerant crops and Integrated Aquaculture Agriculture in some cases as shown below far exceeding targets due to popularity encountered in the communities. The coming year will consolidate these successes to ensure households adopt and scale out on their own land where relevant and encourage radial adoption to others in the community.

The project continues to promote fuel efficient stoves and kilns with over 5000 changu-changu stoves in use since the inception of the project. A total of 310 processors are using new modified changu-changu stoves for fish frying and parboiling. The outcome will be reduced firewood harvesting and less time for collecting firewood which may be economically valued as time saved for another livelihood activity elsewhere. In the following year, the project will assess the impact of widespread use of these technologies.

The project continues to promote model beaches encompassing these technologies with additional beach sanitation, on-board handling of fish, marketing etc. As FISH consolidates best practices this concept will be ramped up in Year 4.

The established 86 VSL groups continue to reap from successful savings and investments (over MK51 million). Some have initiated new businesses such as mushroom farming. The project has imitated 25 new groups following the WORTH concept which provides additional numeracy and literacy competencies

DREAMS

From January 2017 – September 2017, PACT has integrated PEPFAR DREAMS-funded activities into the FISH implementation strategy and management structures, leveraging existing systems for efficiency while supplementing the current FISH team with a fully dedicated HIV management team. The team includes Program Manager based in Mangochi office, Program Officers for Zomba and Machinga and Monitoring and Evaluation Officers. At community level, the BVC representatives have been trained as community mobilization teams which are working through BVC and the Peer Mentors, conducting one to one and small group interpersonal communication sessions.

PACT in the FY17 has coordinated closely with other DREAMS implementers and health programs in the districts of Zomba and Machinga, health facilities, government, traditional authorities, and communities. This coordination ensured provision of relevant, male-friendly services and support to increase HIV testing, treatment, and retention to accelerate progress towards HIV epidemic control in the fishing communities around the lakes of Chilwa and Chiuta.

The DREAMS activities progressed from start-up into implementation during this reporting period. Final administrative tasks outstanding after the first three months were accomplished enabling the FISH DREAMS program to begin direct implementation. Recruitment activities continued and major procurements are now complete.

Management, Monitoring, and Finance

The following are key highlights to summarize:

- Action was taken this year to ensure partners were well-resourced with motorcycles and vehicles.
- Expenditure according to original project planning documentation is on track. A budget alignment is requested for Year 4. DREAMS budgeting successfully integrated with cost efficiencies evident.
- Significant inroads have been made to update activity data (especially training data) into cloud-based monitoring system. A much-improved data management process has been put in place.
- A Mid Term Evaluation was conducted in June and July 2017. The key messages were to upscale on-the-ground activities and national level advocacy for improved support to the governance and finance of fisheries. Less investment in research was recommended.
- Key personnel changes for Chief of Party, October 2016, Monitoring Evaluation Reporting and Learning Specialist April 2017 and Program Operations Manager (mainly DREAMS oversight), September 2017. A Communications Specialist joined the team late August 2017.
- The project management has initiated an improved working arrangement with 2nd tier partners managed by Christian Aid. A new system was initiated for great inclusivity within the partnership arrangement.

Introduction

The Fisheries Integration of Society and Habitats Project (FISH) is a five year, $14.9 million USAID funded Project, implemented by Pact from September 9, 2014 to September 9, 2019 in collaboration with University of Rhode Island (URI), Christian Aid (CA), the Community Initiative for Self-Reliance (CISER), and the Center for Environment Policy and Advocacy (CEPA). CA manages subawards to Emmanuel International (EI) and the Wildlife and Environment Society of Malawi (WESM). The primary objectives of FISH are to increase resiliency to climate change and improve biodiversity conservation through effective sustainable fisheries co-management. Four outputs will contribute to these objectives:

1) Utilization of science, analysis, and information for decision making increased.

2) Enabling environment for conservation and management of freshwater ecosystems enhanced.

3) Priority threats to freshwater ecosystem biodiversity reduced.

4) Adoption of climate change adaptation measures that support resilience of communities.

This report presents the key achievements, challenges, lessons learnt and actions required during the FY17 fiscal year.

BACKGROUND

The FISH project is built around the four primary freshwater ecosystems of South arm of Lakes Malawi, Malombe, Chilwa, and Chiuta. The four waterbodies play a significant role in the economics, politics, nutrition and social dynamics of the nation. In Malawi, fish constitute 45% of animal protein, 4% of GDP and provide employment to more than 500,000 people. Malawi also has 14% of global freshwater fish biodiversity and Lake Malawi, with 800 species, is the most fish bio-diverse lake in the world.

The four lake ecosystems are under considerable stress due to a number of factors including population growth, catchment degradation, climatic change and unsustainable harvest and poor management practices. These forces have contributed to near extinction of fish species (e.g. Nchila in 1950s) and over 100 species are considered endangered. Since the 1980s, catch per unit of effort (CPUE) has declined four fold (e.g. the popular “Chambo,”). Annual losses from over-fishing, using small (illegal) mesh sizes, degradation of spawning and nursery areas and other unsustainable practices is currently estimated at $28 million.

Climate change is evident as increased temperature and rainfall variability affects lake levels, internal water circulation patterns, water chemistry and seasonality of inflows. Impact on fish habitats, spawning areas and productivity are evident (i.e. fish productivity is climate linked and environmentally driven). Shallow lakes like Chilwa and Chiuta are highly vulnerable to rainfall variability and dried out in 1968, 1995, 2012 and most recently in 2016. This has devastating impacts on fish yields and livelihoods. The 2012 recession of Lake Chilwa reduced fish catches by an estimated 70%.

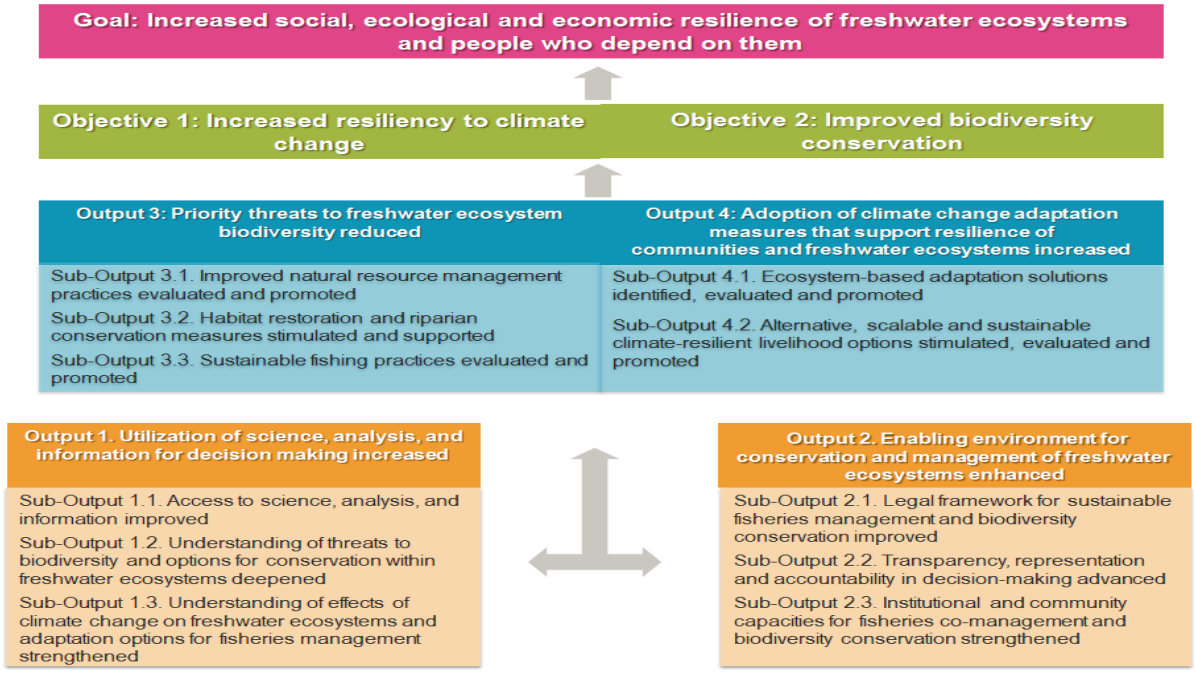
In order to address these challenges, 50% of FISH support is from the Adaptation Pillar of the President’s Global Climate Change Initiative for USAID/Malawi. This is aligned with USAID’s Global Climate Change Strategy. The aim is to strengthen science to inform decision making in climate change adaptation (CCA), providing a guide to governance and climate smart livelihoods in fishing communities. The balance 50% of FISH funds are from the Congressional Biodiversity Earmark for USAID/Malawi. The aim is biodiversity conservation (BDC) of the 4 key lakes, addressing threats with prime consideration on Lake Malawi.

FISH INTERVENTION APPROACH

FISH addresses USAID/Malawi's Country Development and Cooperation Strategy (CDCS) goal, "to improve Malawian's quality of life", notably the CDCS Objective DO 2: "Sustainable Livelihoods Increased," and Intermediate Result 2.1, "Resiliency to Climate Change Strengthened". It targets Sub-Intermediate Results (SIRs) "institutional capacity improved", "policy and systems strengthened" and "positive behavior adopted". The theory of change posits that *"if decisions around fisheries management (1) are based on shared, evidence-based objectives and learning, (2) are grounded in inclusive and effective ecosystem-scaled governance structures, and (3) strengthen the assets of communities, then Malawi's complex and diverse freshwater lake ecosystems can be sustained".*

FISH is primarily **a knowledge-capacity-action** project and has identified key intervention approaches at each point in the theory of change. The starting point for building knowledge and capacity is a threats-based ecosystems approach to biodiversity conservation planning that emphasizes participation and empowerment, which is essential for selecting appropriate interventions. We have identified the key ecosystems as the lake areas and their associated sub-catchment basins, acknowledging that some threats are driven by changes within the lakes while others emanate from adjacent catchment areas. FISH employ an integrated land and water-based ecosystem approach that addresses the needs and aspirations of the people living within them in planning for conservation goals. Good environmental stewardship exhibited via sustainable fishing and land care practices will lead to healthy and resilient ecosystems that can continue to provide a wealth of good and services upon which Malawi's people rely for their livelihoods.

FISH Results Framework



I. Overall Progress of the Project

Output 1: Utilization of science, analysis, and information for decision making increased

In summary, the FISH project made the following contributions towards the Output Area 1 outcomes during FY17:

The FISH project **finalized studies that provide sound science** that can help improve fisheries management and climate change adaptation

Assessing the potential of brush parks for enhancing fisheries production and management in Lakes Malawi and Malombe: This study was one of the first in Malawi's lakes to offer empirical insights into some of the potential benefits and costs of scaling up the use of brush parks. The two-phase study engaged in paired approaches to understand how brush parks are working in Lake Malawi and Lake Malombe. It included focus group discussions with communities living on the shores of Lake Malawi and scientific monitoring of brush parks in Lake Malawi and Lake Malombe. The report is cautiously optimistic, finding that in general there were more fish per haul, more species per haul, and different species present at brush park sites when compared to controls. However, more research would be needed in order to scientifically confirm the promising trends. Through the community engagement process, communities have installed 153 shallow brushparks in 15 established community-led sanctuaries in in Lake Malawi and Malombe to act as silent policemen and provide refugia to juvenile fish thereby ensuring protection of fisheries biodiversity from illegal fishing.

Developed a technical brief and an executive summary: Towards an early warning system: linking climate variability to lake levels for Lake Chiuta. The two documents are based on research conducted by Chancellor College to analyze the link between climate and Lake Chiuta's overall water budget. This information is crucial in monitoring the evolution of extreme lake level fluctuations and can be used for early warning purposes. Satellite images for wet and dry seasons from the period of 1972 to 2015 were used to reconstruct a time series of the lake area's spatial extent. Using this data, lake water budget constituents were estimated including evapotranspiration, lake levels, inflows and outflows. The analysis show decreasing rainfall trends that are not statistically significant. As a result, the catchment has been experiencing hydrological deficits to its water balance due to increased evaporative demand since 1990 resulting in minimal outflows into Lake Amaramba. Furthermore, the study observed that most of the recent recessions have been exacerbated by irrigation reservoirs which were constructed along the key inflows and have, in turn, attenuated inflows. The two reports include a number of recommendations for future studies and actions. The recommendations were shared with the Machinga District Executive Committee and a plan of action to include the model and recommendations in the District Disaster Contingency Plan was drafted for implementation in Y4. The incorporation of the model will enable the district council disaster management office to forecast lake recessions and thereby implement disaster risk management activities to reduce impacts of the recession on livelihoods.

Deep pool fish refugia in Lake Chilwa: The two documents are based on research conducted by Chancellor College to analyze the link between climate and Lake Chilwa's deep pool refugia in the Likangala and Domasi Rivers. These deep pools are critical in rebuilding fish stocks after extreme lake drought periods. The study mapped 31 pools in the Likangala River and 18 pools in the Domasi River. Field data was collected from 22 pools on dimensions, water quality and fish abundance. Most of the pools' depth and volume has been reduced by sedimentation though the largest pools were generally found along the Likangala River. Fish counts were very low and only 40% of the sampled deep pools had any fish. This is likely due to the extreme drought and illegal fishing. There was a slight decline of rainfall between 1958 and 2012. This is also evident in the river discharge data where mean annual discharge is decreasing. Declining contributions of the groundwater reserves over the years, due to catchment degradation pose a serious challenge and need immediate attention. 129 community members were also interviewed including the RVC and BVC committees to gather local ecological knowledge and perspectives on governance. The respective RVC and BVC responsible for managing the deep pools have low capacity and are largely unknown by the communities. Concerns are rising that

current management for the rivers is inadequate with over 95% of respondents fearing the rivers will eventually dry up. The reports include a number of recommendations for future studies and actions. Recommendations of the report have been incorporated in Lake Chilwa fisheries by-laws and will form the basis of revision of integrated catchment plans to ensure equitable allocation of water amongst multiple users to ensure that was is available to maintain the ecosystem functions of the deep hole refugia.

"**The state of knowledge of the usipa, *Engraulicypris sardella* resource and fishery of Lake Malawi"** technical report was finalized after incorporating feedback from DoF. The report summarizes scientific information as well as local ecological knowledge collected by project partners and staff using focus group discussions. The URI team also worked with DoF and the University of Malawi to develop the first ever stock assessment for usipa. Landings data from 1976 to 2015 for multiple fishing gears were used to develop a catch per unit index. Furthermore, the research team collected 12 months of length frequency data from several sites along the SE and SW arm of Lake Malawi. The assessment found that usipa catches have steadily increased over the past 15 years. The results of a surplus production analysis show that the current level of fishing of usipa over the past few years is equal to or above the calculated MSY and therefore the stock is overfished. The length frequency data showed that overfishing is also occurring. Finally, the URI team supported DoF in the development of a **Management Strategy for Usipa**. The strategy document has been drafted and will be vetted and finalized together with DoF in FY 18. The strategy will be added to the Lake Malawi Management Plan and By-laws thus ensuring the long-term viability of the usipa fishery.

Chambo Stock Assessment URI is working with DOF to evaluate the catch data for Chambo using a biomass dynamics model with gear standardization. New information about chambo on length frequency, maturity and age is being collected by Monkey Bay researchers and will be analyzed and added to the stock assessment.

Improving post-harvest technologies and fuel-saving alternatives: The FISH team has completed on-site trials on modified Changu-changu moto stove for fish processing, focusing on parboiling Usipa. The study aimed to compare the fuelwood consumption between the Changu-changu moto stove compared to the traditional three-stone stove. The study showed that the modified changu-changu uses 70% less firewood by weight to process 1kg of fish compared with the three-stone stove and produces higher quality fish. The modified Changu-changu moto stove is now being successfully applied for frying Utaka, Ndunduma, Kambuzi and Chisawasawa by Lake Malawi and Malombe fishing communities, and catfish from Lake Chilwa. It is expected that accelerated scale-out of the stove will lead to significant reductions in firewood thereby reducing deforestation rates in the catchment. This in turn will have positive benefits on lake and river fish breeding habitats due to reduced soil erosion. A study on the economic performance of the Changu-changu moto stove will be carried out in Q4. The study will compare the amount of fuel wood, time, and labor costs needed for the Changu-changu moto stove and the traditional 3-stone fish parboiling or frying facilities. This information will be used to calculate the amount of money saved on operational costs when using the Changu-changu moto stove. The study will also assess the fish product quality and final market value.

Fish post-harvest loss assessment: Analysis of Load Tracking data to quantify post-harvest fish loss volume and economic loss was completed by the World Fish Center. Results showed that the proportion of fish in good condition decreases and the proportion of fish in average and poor condition increases as one moves through the supply chain. The total economic loss from post-harvest losses also increases as fish products move through the supply chain as follows beach (32.7%)>processor (25.5%)> retail (15.5%) translating into a 21.3% total economic loss across the various nodes. The current total economic value of the fisheries sector in Malawi was estimated at $US812 million (15% of GDP) and the economic loss due to physical and quality losses was estimated at $US220 million. The potential economic value of the fishery was estimated at $US 1.03 billion. The results of the study were presented to the Parliamentary Committee on Agriculture and Irrigation Development to raise awareness on the critical food security and economic contributions to the nation and to advocate for increased financial allocations to support implementation of participatory fisheries management to secure and sustain the identified benefits. The results have also been used to identify interventions such as improved on-board handling, fish processing and packaging to reduce fish post-harvest losses thereby increase household incomes and economic contributions of the sector to the national GDP.

Progress and key achievements

Details on progress for each sub-output the project against the quarterly plan

Output code	Planned for Quarter	Progress
1.1	**Access to science, analysis and information improved**	
1.1.1	*Improve scientific information repositories accessibility and dissemination*	
a	Update digital repository and finalize fisheries topic map for digital repository	**Set-up Complete/Updating Continuous:** The digital repository is functioning and includes most of the 3,698 bibliographic entries available on the full repository that is available on a fully indexed and searchable pen drive. The digital repository will enable researchers to easily access fisheries research studies and lead to the design of relevant research to respond to the priority areas of the national fisheries research agenda.
1.1.2	*Strengthen Dissemination channels for Management of Relevant Science*	
a	Finalize national fisheries communication and aquaculture strategy	**Completed:** The strategy has been finalized and has been submitted to the DoF for lay out and printing. The document provides strategic direction for communications of fisheries related issues important for effective management and ecological sustainability of the resource
b	Finalize national fisheries research agenda	**Completed:** Final report was produced after national stakeholder consultations and submitted to FSTAP and DoF. The agenda will be formally adopted by FSTAP in FY 18 Q1. The agenda will guide researchers to implement priority research that will inform policies and develop technologies for sustainable fisheries management and climate change adaptation
c	Support masters candidates in their second semester of coursework at URI.	**On-going:** In early May, the two Malawian masters' students finished their first academic year at URI. They successfully completed their course work and developed research plans for their major papers. One student is focusing on submerged aquatic vegetation and one student is focusing on bio-economic modelling of usipa. The two students started their second year at URI in September 2017. The students will strengthen the capacity of DoF to undertake stock assessment, economic valuation and climate change adaptation studies in the sector.
d	Fisheries Leadership Course	**Completed:** Two fisheries leadership courses were held in 2017 – in May and August for Fisheries Association (FA), Fisheries Association of Malawi (FISAM) leaders, Fisheries Headquarters and District Fisheries Officers. The training enabled the participants to develop the usipa management strategy.
e	Stock Assessment training	**Completed:** A stock Assessment training for DoF researchers was conducted in August. A total of 12 researchers were trained. The training enabled the staff to finalize analysis of usipa stock assessment data and provide management recommendations for the development of the usipa management strategy.
1.2	**Understanding of threats to biodiversity and options for conservation within freshwater ecosystem deepened**	

1.2.1	*Compile lessons learnt from the past and present biodiversity conservation initiative and identify best practices*	
a	Conduct a census of fish processors, traders, and fish processing technologies	**Completed:** The census tool was completed, field tested, and used by DoF during the 2017 Frame Survey, which commenced in September 2017. Results of the census will feed into the annual updates of the economic value of fisheries and fish value chain improvements.
1.2.2	*Undertake a freshwater fishery biodiversity conservation SWOT analysis of 2 key lakes*	
a	Support the District Development Plans	**Completed:** The fisheries, agriculture and forestry SEP were formally consolidated with DDPs and submitted to respective DCs for signing. The updated DDPs will enable districts to implement activities that will enhance fisheries biodiversity conservation and resilience of water and land based ecosystems and livelihoods
1.2.3	*Conduct baseline assessment of biophysical and socio-economic conditions and biodiversity conservation capacity*	
a	Lake fisheries and climate change map books	Four map books were completed in Quarter 2.
b	Biophysical baselines and monitoring of community led fish sanctuaries	**On-going/Continuous:** Sanctuaries were monitored in Quarter 1 and Quarter 4. The results show that increased species composition and diversity in all sanctuaries in Lake Malombe suggesting enhanced protection of fish biodiversity. In Lake Malawi, the species composition and diversity in sanctuaries is so dynamic depending on the present management in a specific ecological area. Sanctuaries in Area A have registered increased diversity while those in Area B and part of Lake Malawi National Park had lower diversity in Quarter 4 than in Quarter 1. A monitoring report comparing the two monitoring events is forthcoming in FY18, Q1
c	Develop a technical brief about the rise in fishing with mosquito nets & implications of harvesting juvenile fish	**Completed:** The brief has been finalized and is in the pipeline for publication. The technical brief has been used to communicate the negative impacts of using mosquito nets on the productivity of the fishery and to produce radio programs on misuse of mosquito nets for fishing
1.2.4	*Commission prioritized fisheries biodiversity conservation studies with relevant research institutions*	
a	Usipa Stock Assessment with management recommendations	**Completed:** The stock assessment has been finalized and is in the pipeline for publication. The team has also finalized an usipa state of knowledge report and it has drafted an usipa management strategy. The Usipa strategy was reviewed by DoF and adopted in the draft Lake Malawi and Lake Malombe management plans where it is attached as an Appendix.
b	Chambo Stock Assessment with management recommendations	**On-going:** Researchers at URI's Fisheries Center are continuing to review relevant literature, including the Chambo Restoration Strategic Plan drafted in 2005, to plan how to build upon and improve earlier management initiatives. FRU conducted QA/QC checks on the 2016 data, which will be used to update the Chambo

		stock assessment and serve as one of the sources of the data for the August stock assessment course. Length frequency data and otolith samples were gathered at beach landing sites in February. March, April, May and June.
c	Indigenous deep water brush park (SEA) and experimental brush park (Lake Malombe) report	**Completed:** The brush park research has been completed. The LEK from the deep water brush parks a total of 153 brush parks have been set up in 15 established community-led sanctuaries in Lake Malawi and Malombe during the year
d	Brush park technical brief	**Completed:** The technical brief has been finalized and is in the pipeline for publication.
e	Revised Value Chain Assessment with added load tracking (quantitative data on volume and prices of fish in good, average and poor condition)	**Completed:** Load Tracking data was used to quantify post-harvest fish loss (volume, prices, and economic loss). Average fish loss at the landing beach was determined to be 32.7%, with an overall economic loss across landing site, processing, and market at 21.3%. Total national economic value of the fishery is estimated at US$880million (15% of GDP) and total loss in the fisheries sector due to post-harvest loss is estimated at $US220 million a year. The potential value of the fisheries sector is estimated at US$1 billion. Results were summarized in a technical brief and used to engage the parliamentary committee on agriculture and irrigation development to communicate both the economic value and nutritional importance of fisheries resources to local and national economy and underline the negative impacts of underfunding of the sector to these critical economic and nutritional contributions of the sector.
f	Guide for Establishment of Fish Sanctuaries	**Completed:** The guide has been revised and finalized based on the first year of pilot testing the guide. It is currently in the pipeline for publication. During the year it was used to train communities on sanctuary establishment
g	Implement field trials on the use of crates for in-boat storage of fish to reduce post-harvest losses	**Completed.** The fish stored in containers had higher quality that translated into higher beach prices than fish stored on the floorboard of the boat. Preliminary results show a 64% increase in gross value when fish are handled using plastic buckets compared with handling on the floor board. Correspondingly, use of buckets for on-board handling reduced beach post- harvest losses (currently at 32.7%) by 20.9 %. The activity is being scaled out to other high volume beaches so as to reduce post-harvest losses, increase gross value and income of fishers thereby enhancing economic well-being and livelihoods of fishing communities
1.3	**Understanding of effects of climate change on freshwater ecosystems and adaptation options for fisheries management strengthened**	
1.3.1	*Compile lessons learnt from past and present CCA initiatives and identify "best practices"*	
a	Develop Guide to modified changu-changu stove construction	**On-going:** The completion of the guide was delayed to incorporate user modifications on the original rectangular design to suit the types of pots or basins that are used in fish frying. In Lake Chilwa, the design was also modified to combine the smoking kiln and the changu-changu because the processors The existing guide has already been used to train 221 fish processors who have constructed

		540 modified changu-changu. The use of the guide to scale out modified changu-changu application will enable fish processors reduce the amount of firewood use and improve the quality of fish produced thereby reducing deforestation and increasing the value of fish sold.
1.3.3	*Commission prioritized CCA studies of best practices on Lakes Chilwa and Chiuta with relevant research institution*	
a	Study Alternative and Resilient Livelihoods for Fishers	**Not Completed:** Study has been postponed to year 4
b	Technical report on deep pool refugia assessment	**Completed:** A technical brief has been completed and is in the pipeline for publication. Recommendations of the report have been incorporated in Lake Chilwa fisheries by-laws to enable the sustainable management of deep-hole refugia for fish biodiversity conservation.
c	Tech rep. on water recession of Lake Chiuta assessment w/early warning management	**Completed:** The URI team has prepared a technical brief as well as an executive summary. Both are in the pipeline for publication. The results were presented to the Machinga District Council and will be incorporated into the District Disaster Contingency Plan to enable the district council disaster management office to forecast lake recessions and thereby implement disaster risk management activities to reduce impacts of the recession on livelihoods.

Output 2: Enabling environment for conservation and management of freshwater ecosystems enhanced

Under Output 2, the focus was on the institutional elements of fishery resource use and its governance, legal framework for promoting, supporting, and building the capacity of fisheries co-management governance frameworks, structures, networks and transparency, representation and accountability in decision making.

Contributions to outcomes

Fisheries by-laws completed and adopted for Lake Malawi and Management Plans Underway: 14 by-laws for SE & SW arms of Lake Malawi, Upper Shire, Lake Malombe were completed and approved by Mangochi District Council and 3 management plans SE & SW arms of Lake Malawi, Upper Shire, Lake Malombe and Lake Chiuta were developed and circulated to DoF for inputs. Management plan for Lake Chilwa and Mpoto Lagoon was already developed with support from World Fish Center. The by-laws for Lake Chiuta, Chilwa and Mpoto Lagoon will be finalized and approved by the Zomba, Machinga and Balaka District Councils in Y4Q1. The management plans and by-laws will secure the legitimacy of FAs and thereby enabling them to govern the conservation, sustainable management, and development of fisheries and to help local fishing communities implement fisheries management objectives and development policies. They will further empower to monitor compliance of the by-laws and enable the FAs and Mangochi district council to generate revenue from the fisheries sector through the provisions specified therein such as levies on fish transporters, traders, as well as fishing operator's permits to support implementation of PFM.

Training of trainers (ToT) in group dynamics, planning and visioning for 20 Fish Technicians and government extension officers was completed: FISH facilitated training of fifteen (15) FISH Technicians and 17 DoF extension workers in visioning, planning, transparency, accountability and resource mobilization. The training enabled the trainees to facilitate local level trainings to LFMAs in activities such as by-law formulation planning process to incorporate critical issues such as self-financing to sustain the LFMA operations. This has led to an informed process of developing by-laws with BVC members, VDC and ADCs to include self-financing as a strategy to sustain LFMA operations.

ToT of Malawi College of Fisheries Staff in PFM and curriculum review as exit strategy for FISH completed. FISH project supported efforts of anchoring PFM in DoF mainstream activities. To this end, FISH supported SWOT analysis, refresher trainings for Malawi College of Fisheries staff and review of the training curriculum as outlined below;

i. **ToT of Malawi College of Fisheries (MCF) Staff**: During the year lecturers and senior DoF staff conducted a Strengths, Weaknesses Opportunities, and Threats analysis of MCF to identify training gaps and opportunities. Based on the identified and prioritized gaps, a PFM refresher course for the lecturers was conducted for12 college lecturers (10 male and 2 female). The refresher course equipped lecturers with PFM skills and methodologies to enable them teach extension workers in modern approaches in the management of fisheries resources.

ii. **Review of MCF Curriculum**; FISH supported the review of the MCF curriculum to address gaps identified by the SWOT analysis conducted by senior DoF and MCF staff. This SWOT analysis was complimented by consultations with stakeholders such as fishers, fish farmers, former students and lecturers were done to understand the gaps in training programs being offered by MCF with reference the SWOT analysis and PFM refresher course. A number of gaps were and addressed to produce a revised curriculum which was submitted to DoF for approval and it is expected that the revised curriculum will be implemented from January 2018 to train a new cadre of Fisheries Extension Officers and Research Technicians with new skills in PFM, ecosystem based fisheries management, climate change adaptation necessary for continuing the FISH approach to sustainable fisheries

Implementation of Advocacy Strategy Underway -. Implementation of the advocacy strategy aimed at downstream (i.e. ADC, VDC, BVC, LFMAs) and upstream (district and national level) commenced to enable LFMAs to self-advocate for inclusion of fisheries issues in the DDP and initiate an advocacy campaign to present a compelling case to policy makers to allocate more financial resources to the fisheries sector.

i. **Dialogue with district council officials**: FISH produced a policy brief highlighting provisions in natural resources policies and legislation impacting on fisheries and areas of conflict with fisheries. The policy brief was used in downstream advocacy with district council officials on the need to address the identified areas of conflict such as poor coordination between NRM sectors in implementing policies and winter cultivation. Following the dialogue session, they requested that the information on catchment management should be presented to their respective District Executive Committees for wider uptake and implementation. These dialogue sessions have led to increased awareness on the need to improve collaboration by the sectors involved in natural resources management (NRM) at the district level. In some instances there has been joint monitoring visits by some sectors to irrigation sites and freshwater ecosystems. At local level, there has been increased coordination of sectoral institutions such as VNRMCs, Agriculture Committees and BVCs in application of integrated catchment management. In addition, FISH engaged development partners such as Red Cross in Lake Chiuta on the need to ensure management of the Lake Bed after recession. This will lead to improved land and water use practices and hence improved biodiversity conservation of freshwater ecosystems;

ii. **Identification of local advocacy issues**: FISH has built the capacity of implementing LFMAs in facilitating implementation of local level advocacy processes. To this end, FISH

supported identification and implementation of local advocacy issues. Among others, LFMAs with support from CISER were able to garner support from Mangochi District Council, Department of Mines and Environmental Affairs Department which led to issuance of instruction to stop unregulated artisanal gold mining activities in Traditional Authority Makanjira. This has led to inclusion of fisheries agenda in decentralized structures such as VDC and ADCs to influence responsible development activities such as mining to consider the needs of other sectors such as riverine ecosystems and their riparian fragile areas leading biodiversity conservation of freshwater ecosystems.

iii. **Assessment of resource requirements for local institutions involved in fisheries management:** FISH undertook upstream advocacy on improving financing for the fisheries sector with DoF using results from the study on financing fisheries conservation and management. Based on engagement with DoF FISH focused on resource requirements for local institutions involved in fisheries management to effectively support PFM. This led to development of scenarios for addressing financial requirements of the institutions. In this regard, several scenarios have been proposed and discussed with stakeholders. These include introduction of landing fees; sharing of proceeds from fines for illegal practices; and construction and charging use of sanitation and storage facilities. Some of the scenarios are informed by what is already happening in some sites. To this end, FISH has engaged traditional leaders and LFMAs to implement the scenarios for financing LFMAs operations as part of the downstream advocacy on self-financing. This will eventually lead sustaining effective implementation fisheries management objectives at the local level.

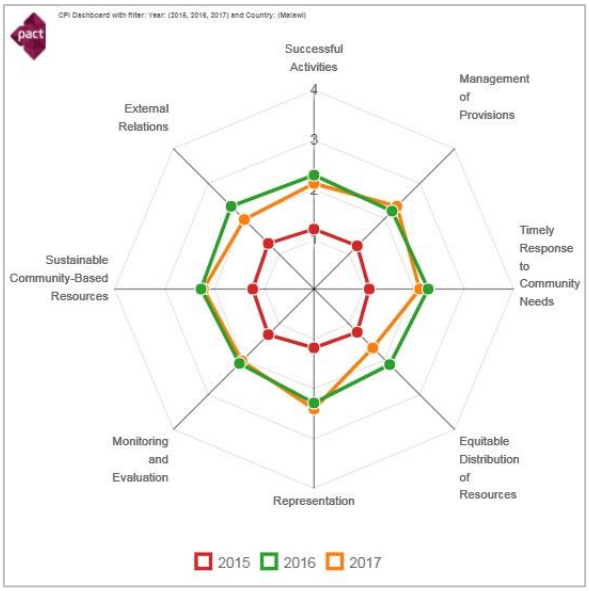
iv. **Upstream advocacy with Parliamentary Committee on Agriculture and irrigation Development.** FISH engaged PCAWD as part of upstream advocacy to lobby for support on improving financing of the fisheries sector. FISH used the results from the fish value chain and post-harvest loss study to communicate the significant economic (15% of GDP) and nutritional security contributions of the sector relative to financial allocations that the sector received to implement PFM. An advocacy and engagement workplan to further advocate for improving financing of the fisheries sector which includes field visit to FISH project site and meetings with DoF and parliamentary chief whips was agreed upon that would lead to a parliamentary statement on the state of fisheries and the need for increased financial support.

Capacity building efforts for fisheries management climate smart agriculture and improved land and water use practices on-going: FISH engaged in a number of capacity building efforts within the year to capacitate FISH frontline staff to implement PFM and empower LFMAs and NRM groups to enable them to engage in local development planning and implement land-based activities that compliment fisheries BDC and PFM activities and increase the involvement of women in LFMAs and NRM groups.

i. Three quarterly meetings of 9 TAs were undertaken where lessons and PFM best practices were shared and proposals for improved fisheries management submitted to DoF for consideration. These included universal closed season by both artisanal and commercial fishers, championing removal of illegal fishing gears and operationalization of transboundary action plans between Malawi and Mozambique.

ii. FISH also built capacity of frontline staff to undertake CPI assessment of BVCs and VNRMCs. The trained staff in turn monitored performance of these CBOs using the CPI. The results were used to strengthen performance of the CBOs and their networks with other decentralized structures in the implementation of the six-steps in Participatory Fisheries Management (PFM) policy and implementation of land based activities by CSA groups and VNRMCs. It is envisaged that the capacity building efforts will consolidate the establishment of a better functioning governance network that understands the benefits of fisheries co-management, climate smart agriculture and improved land and water use practices and enable the 159 village groups that the project is working with to adopt better agriculture, agro-forestry, fishery management and conservation, post-harvest technologies, fuel efficient technologies.

iii. 50 CBOs were evaluated using the CPI tool. 41 BVCs were chosen from last year's list of 35 BVCs to compare their performance between 2015, 2016 and 2017. The 6 additional BVCs and the 9 VNRMCs were a supplement of the ADCs which underwent the exercise in 2015 and 2016. The trained FISH Techs and DoF extension workers used the training to monitor performance of 50 CBOs and compare results with those obtained in 2015, 2016, and 2017. The CPI results indicated that the performance of the CBOs has slightly gone down, as average score for almost all CBOs was below 2.5 (see graph below). This slight drop is due to the more rigorous methodologies that were used in the exercise in 2017. There was a deeper process for evidence verification for a CBO to attain a score. The more rigorous methodology came after reviewing the uniform increase of scores between FY15 and FY16. In addition, action planning based on the scores were also added to the facilitation. Even though the CBO performance has gone down according to the scores, the refined process and action planning will boost the long-term performance of the CBOs.



CPI Scores for CBOs 2015, 2016 & 2017

Progress and key achievements

Details on progress for each sub-output the project against the quarterly plan

Output code	Planned for Quarter	Progress
2.1	**Sub-output: Legal framework for sustainable fisheries management and biodiversity conservation improved**	
2.1.1	*Conduct review of policy and legislation impacting Malawi's fisheries of 4 target Lake ecosystems*	
a	Finalise ENRM Policy Brief highlighting provisions and areas of conflict with fisheries	**Completed:** The developed policy brief was used in upstream advocacy with district councils on the need to harmonise ENRM policy implementation at the t local level. This dialogue has contributed to reduced conflict in policy implementation leading to an enabling environment for conservation and management of freshwater ecosystems
b	Conduct dialogue sessions with policy makers on NRM legislation harmonisation	**Completed:** The engagement of district level stakeholders in dialogue will lead to uptake of the recommendations from ENRM policy brief by more stakeholders. This will eventually result in the creation of a more enabling environment for conservation and management of freshwater ecosystems
c	Conduct FISH Project ToT on gender mainstreaming	**Completed:** The training of trainers and training guide for LFMAs has led to increased awareness of gender issues by LFMAs and has facilitated meaningful participation and inclusion of gender categories in FISH interventions
d	Conduct orientation on implementation of the Theory and	**Completed:** The training facilitated improved coordination and implementation of catchment related activities such as winter cropping and river bank cultivation leading to a more enabling

	Procedural Catchment Management Guidelines	environment for the conservation and management of freshwater ecosystems
2.1.2	*Develop, disseminate and implement fisheries policy communication at all levels*	
a	Engage DoF on outcomes of the financing study and seek further collaboration	**Completed:** FISH engaged DoF on options for improving financing of the fisheries sector as part of upstream advocacy efforts aimed at sustaining LFMAs operations without relying on external support.
b	Identification of issues for self-advocacy by LFMAs	**Completed:** FISH facilitated identification of local advocacy issues in all target lake ecosystems with LFMAs. These will facilitate downstream advocacy on the specific issues such as self-financing with district councils and decentralised structures (ADCs and VDCs) by LFMAs
c	IEC materials on advocacy developed	**Not completed:** The consensus on the scenarios for financing local institutions involved in fisheries management will inform development of the IEC materials. These will support downstream advocacy on self-financing of LFMAs to support PFM.
d	Develop an IEC BVC Training Package Include the messages in the College Curriculum include policy issues	**Completed:** 6 leaflets on the 6 co-management steps out of 6 planned were developed for use by fish technicians and their counterparts in user friendly format for use during BVC trainings. The leaflets provided better understanding on fisheries co-management and what the CBOs are expected to do
d	Disseminate evidence based messages on policy as per the "Communication Strategy".	**Completed:** 3 out of 3 planned evident based materials (brochures, leaflets, and calendars) messages were produced and disseminated as awareness materials to enhance compliance of fisheries rules and regulations leading to an enabling environment for the conservation and management of freshwater ecosystems.
e	Two (2) SMS on by-laws (no-take zones and Zimbowera) disseminated through TNM and Airtel	**Not completed:** SMS messages were waiting for approval of by-laws, and will start with Upper Shire and Lake Malombe and SE and SW arms of Lake Malawi now that the by-laws are approved. The SMS messages will facilitate the dissemination of messages on by-laws to TNM and Airtel customers thereby increasing compliance in the targeted water bodies
f	Produce radio programs on Overfishing, Solution to overfishing, Lake siltation and water pollution, reduction of forest, climate change effects on fisheries	**Completed:** 14 out of 10 planned radio programs were aired through Dzimwe, Umoyo and Chanco community radio stations. The radio messages provided the required awareness messages on sustainable fisheries management.
2.1.3	**Multi-stakeholder evidence based fisheries advocacy strategy through regular BVC, inter-district , inter-departmental and inter-ministerial forums**	
2.1.3.1	*Consultative high level inter-district, inter-ministry / inter-department stakeholder dialogue on appropriate fisheries policy*	

a	Policy brief on options for improving financing of the sector	**Completed:** FISH developed a policy brief and revenue sharing scheme based on a draft analytical report on options for improving financing of the fisheries sector. These were used in both downstream and upstream advocacy on self-financing of LFMAs
b	Hold meetings with Parliamentary Committee on Agriculture and Water Development (PCAWD) on review of the FCMA, improving financing of the fisheries sector and decentralisation of licencing of trawler operators	**Partially Completed:** FISH engaged PCAWD as part of upstream advocacy on improving financing of the fisheries sector. The members as allies to FISH advocacy efforts have pledged to visit FISH target areas to appreciate the challenges facing the sector and draw an action plan on how to further advocate for improving financing of the fisheries sector.
2.2	**Transparency, representation, and accountability in decision-making advanced**	
2.2.1	*Conduct applied Political Economy Analysis (PEA) in target areas to understand current co-management strengthening agenda*	
a	Participatory gathering of information for APEA through focus groups	**Not completed**: The APEA participatory gathering of information will combined with GGB and the results from the findings will help to address governance challenges faced by BVCs and strategies to improve financing in BVCs and FAs as well as increased finance in LFMA to effectively work with champions and spoilers in PFM
2.2.2	*Utilize Good Governance Barometer (GGB) to assess & monitor local fisheries governance systems and processes for decision making and best management practices in 4 lakes*	
a	Adapt Pact's Good Governance Barometer (GGB) to Malawian fishery context	**Completed**: One GGB Malawi facilitator's guide produced and the guide will be used for GGB trainings for LFMAs to facilitate good governance there by creating an enabling environment for the management and conservation of freshwater ecosystems.
2.3.2	*Analyze and strengthen capacity of Beach Village Committees (BVC) and Fisheries Associations (FA) to contribute to co-management of fisheries*	
a	PFM refresher with MCF lecturers and the development of training strategy	**Completed:** 12 college lecturers (10 male and 2 female) went through PFM refresher. The refresher course equipped lecturers with PFM skills and methodologies to enable them teach extension workers in modern approaches in the management of fisheries resources. This will result in improved capacity of extension workers for fisheries management.
b	Training FISH Techs. and DoF extension workers in group dynamics and leadership	**Completed:** 17 sub-FAs, 16 TAs, underwent the leadership and group dynamics training on Chambo and Usipa management. The training has facilitated local level trainings for LFMAs on sustainable management of key fisheries such as Usipa and Chambo
c	Repeat CPI in the four lakes, 30 BVCs	**Completed**: 41 BVCs and 9 VNRMCs out of the 30 BVCs planned were trained in CPI assessment. The assessment showed levels of performance of the BVCs and VNRMCs and gaps to prioritized as we build sustainable options in fisheries management

d	Develop IEC & documentary on best practice BVC Case Studies for awareness sharing	**Not completed:** IEC and documentaries being worked on, and will support awareness campaigns aimed at reducing illegal fishing methods and practices, deforestation, postharvest fish loss management and success stories or best practices.
e	Mentor BVCs and FAs to use by-laws to do self-financing e.g. landing fees, benefit sharing	**Completed**: 15 traditional authorities and 4 DFOs developed an action plan for self-financing to be implemented in 4 targeted water bodies. The self-financing strategies will help to increase funding in BVCs and FAs to enable them run their functions without depending on external support.
f	Exchange programs for revitalized BVCs of Lake Malawi (SEA) to learn from functioning BVC models of Lakes Chiuta, Mbenji Islands and Nkhata Bay	**Completed:** 4 sub-FAs 8 traditional leaders, 3 DFOs and 4 technicians participated in learning visit during the opening of Mbenji Island in Salima district. This has facilitated peer learning on best practices and self-financing advocacy.
2.3.3	*Support Department of Fisheries to develop and implement targeted biodiversity conservation & CCA capacity building plans for relevant institutions and individual*	
a	Support DoF in the development of management plans fisheries and by-laws in four ecosystems of lakes Malawi, Upper Shire and Lake Malombe, Lake Chilwa and Chiuta	**Completed:** 3 management plans for SE & SW arms of Lake Malawi, Upper Shire, Lake Malombe, and Lake Chiuta were developed and circulated to DoF for inputs. Management plan for Lake Chilwa and Mpoto Lagoon was already developed with support from World Fish. The management plans will support bylaw formulation and empowers LFMAs to monitor compliance of the by-laws thereby creating an enabling environment for the conservation and management freshwater ecosystems
b	Build capacity of DoF College for training of Fisheries Extension workers (and BVC).	**Not completed:** MCF curricula for extension & environmental education reviewed and implementation will commence in 2018. This will contribute improved delivery of extension services in the fisheries sector
c	WORTH model introduction to beneficiaries	**Not completed:** 24 extension workers and 12 empowerment workers were trained. 25 WORTH groups will be formed in the four targeted FISH project areas. This will lead to empower the groups to developing saving culture and improve their livelihoods.

Output 3: Priority threats to freshwater ecosystem biodiversity reduced

Output 3 focuses on protection of critical fisheries biodiversity conservation sites, rehabilitation of critical breeding habitats, reduction of land based soil erosion impacts on fish breeding sites and establishment of ecosystem based LFMAs to implement PFM and fisheries biodiversity conservation best practices.

Contribution to outcomes

Community managed fish sanctuaries established: Building upon the ETOA which identified critical fisheries biodiversity sites in the four lakes, FISH embarked on trainings of BVCs on sanctuary management using the sanctuary guide that was developed in Y2. As a result of the trainings, 334ha (200ha confirmed as chambo sanctuaries) were established in Lake Malawi, Malombe, Chilwa and Chiuta to protect breeding habitats around river mouths leading to enhanced fish recruitment and

productivity. 153 Brushparks were installed in the sanctuaries to act as silent policemen to deter illegal fishing and increase fishery biodiversity and productivity. Biophysical assessment conducted during the year show increased species composition and diversity in all sanctuaries in Lake Malombe suggesting enhanced protection of fisheries biodiversity

Rehabilitation of riverine areas for fish breeding and regeneration of indigenous forests on-going: Building upon the training of VNRMCs in the 6 policy steps of forest co-management and their revamping, FISH implemented activities to rehabilitate degraded river banks for key fish breeding areas identified by the ETOA. In total **58 VNRMCs around Lake Malawi, Malombe, Chilwa and Chiuta were trained** on the principles of planting bamboo and their environmental benefits and catchment management and forest regeneration. The VNMRCs trained actively participated in planting of bamboos and truncheons on **106 hectares** of riverine area **and brought 394.3 Ha of forest** under natural regeneration. As the process of tree growth and natural regeneration is a long-term process, interim measures protecting the rehabilitated riverine areas such as cessation of river bank cultivation and forest areas under regeneration (forest management best practices that prevent wildfires and use controlled burning) will contribute towards soil erosion reduction which in turn will reduce negative impacts of siltation on fish breeding in key breeding areas.

Foundations for reduction of land based soil erosion impacts in place and operational: 179 lead farmers (80 males and 99 females) were trained in soil and water conservation technologies and 1100 farmers (399 males and 701 females) were trained in and applying soil and water conservation technologies on 426.5 ha of farmland. The key focus areas for reducing land based soil erosion impacts are around critical fish breeding and fish biodiversity conservation areas such as fish sanctuaries. Activities in these areas therefore will enable the project to demonstrate the integrated benefits of land based soil and water conservation practices and forestry restoration on reducing soil erosion impacts on key fish breeding areas.

Fisheries Associations operational to implement PFM and fisheries biodiversity conservation best practices: Building upon the training of BVCs in six policy steps of fisheries co-management, revamping of the BVCs in line with the PFM guide and training of BVCs in fisheries governance, FISH established 3 FAs and 15 sub-FAs t**o** implement PFM and fisheries biodiversity conservation best practices thereby enabling protection of key fisheries biodiversity from illegal fishing and land based threats.

Progress and key achievements

Details on progress for each sub-output the project against the quarterly plan

Output Code	Planned for the year 2016/17	Progress during the year 2016/17
3.1	**Improved natural resource management practices evaluated and promoted**	
3.1.2	*Implement biodiversity conservation catchment activities in key fisheries target areas and collaborate with on-going plans*	
3.1.2.1	86 VNRMCs trained in planting bamboo.	**58 VNRMCs around Lake Malawi, Malombe, Chilwa and Chiuta were trained** on the principles of planting bamboo and their environmental benefits and catchment management. **4262 (1505M 2757F)** people were involved in planting over 37,724 vegetative stems and 54,550 trees were planted along riverbanks, covering an area of **106 hectares** to reduce soil erosion impacts on fish breeding sites.
3.1.2.2	30 lead persons trained in catchment	**48 lead persons (14M and 34F) from 28 VNRMC were trained in riparian river bank protection and catchment forest management**. In order to enhance integrated catchment management BVCs leads were also

	protection and forest regeneration	included in training to focus on implementation on the river banks/lakeshore protection in hotspots.
3.1.2.2	200 VNRMC members trained in bamboo cultivation and catchment management	**539 VNRMC members (147 males and 392 females) were trained** in riparian river bank protection and catchment forest management. There was an increase in the numbers trained because other catchment conservation CBOs i.e. BVCs as well as Community leaders were involved in line with integrated catchment management approach.
3.1.2.2	52 lead farmers trained in improved s-+oil and water conservation	**179 lead farmers (80 males and 99 females) trained in soil and water conservation technologies** including pit planting, check dams/box ridges. The number of leads was overachieved because the 91 leads trained by FISH in turn trained 2 minor leads to support mentoring of 4 farmers each. The minor leads were trained at village level so as to reduce the pressure on the leads who were travelling long distances in providing technical support to fellow farmers.
3.1.2.2	500 farmers trained in improved soil and water conservation	**1100 farmers (399 males and 701 females) were trained** in soil and water conservation technologies (pit planting, contour ridges, check dams/ box ridges, zero tillage and tree planting). The number trained was overachieved due to mentoring of other farmers by minor leads.
3.1.2.2	350 ha under improved soil and water conservation	**426.5 ha under soil and water conservation**. 21.28 ha under improved soil and water conservation demonstration around Lake Malawi, Malombe and Chiuta. These results show that for each ha of demonstration plot, 20 ha of additional land would be put under improved soil and water management through radial adoption.
3.1.2.2	9 ha of regenerated river bank using bamboos	**19.2 ha of river banks were put under regeneration** during the year through planting of 21,105 bamboos (*oxytenanthera abyssinica)* (65% survival rate) to prevent river bank cultivation, reduce soil erosion and promote emergent aquatic vegetation for optimal fish breeding conditions. 13 VNRMCs and 7 RVCs around Lake Chilwa in Zomba and Machinga Districts and 14 from Lake Malawi were involved in planting and managing bamboo for rehabilitation of fish breeding areas. Survival rate for these planted bamboos is estimated to be around 65 % despite the heavy water logging conditions that affected most of the areas during the rainy season.
3.1.2.3	23 collaborations with catchment NRM projects.	**18 collaborations with other organizations** involved in natural resources management continued during the year. The projects that were involved in collaborations shared resources and technical support in implementation of activities which enhanced communities capacity to manage their natural resources.
3.1.2.3	165 ha of indigenous forest under regeneration practices.	**394.3 Ha of forest regeneration has been achieved**. 257 Ha under regeneration in Mpyupyu hill managed by 16 villages. Other regenerated forests in Nsambamanja, Nkhande, Mtumbwadzi rivers and Chiusi Hill around Lake Malombe and Chinyasa river, Chilembwe and Mang'umbi hills in SEA. The regeneration of forests will prevent upstream high energy soil erosion emanating from steep slopes thereby drastically reducing downstream siltation of fish breeding areas.

		The target under this activity has been over achieved because of the interest and commitment by communities around Mpyupyu hill in Zomba to include the whole hill under the approach having realized its importance both upstream and downstream i.e. Supplying various materials for household uses as well as firewood for fish processing.
3.1.2.3	46 VNRMC lead facilitators trained.	**47 VNRMC Lead facilitators (32M, 15F) have been trained in forest regeneration.** The variance between Male and Females actively participating can be attributed to higher illiteracy levels for women in the target areas which make them less confident and unable to take up leadership roles even where the women are chosen, they usually turn down roles.
3.1.2.3	780 people trained and applying forest vegetative regeneration technology.	**1516 people (644M 872F) have been trained in various forest regeneration technologies.** These households were trained on how they can use tree sprouts as means of forest regeneration. More people were trained in Zomba from the 16 more villages that are promoting regeneration on Mpyupyu hill. Through PFM trainings and subsequently development of management plans communities around the hill have displayed a strong commitment in conserving the hill which resulted in increase in number of people trained.
3.1.3.1	Update VNRMC Manual	**1 Forest Field Manual developed** and peer reviewed by the Department and other relevant institutions of higher learning technical teams. The guide was submitted to Pact for subsequent forwarding to USAID for approval and printing. The guide is being used to train VNRMCs and thereby enhance their capacity to undertake forest management activities that lead to regeneration of forests and rehabilitation of riverine areas for fish biodiversity conservation.
3.2	**Habitat restoration and riparian conservation measures stimulated and supported**	
3.2.1	*Stakeholders evaluate fisheries habitat SWOT on BDC & include best practice in DDP of 2 lakes (Links 1.2.2)*	
3.2.1.3	20 BVC villages trained in aquatic habitat restoration and EAV management.	**17 BVCs that were involved in establishment of sanctuaries have been involved in conservation of Emergent Aquatic Vegetation (EAV) found within the sanctuaries.** Communities have realized the benefits of the EAVs for fish breeding hence the enforcement to protect the vegetation. Beach village members were sensitized around Lake Malawi National Park and Lake Chiuta (Small and Big Chiuta) in aquatic habitat restoration and EAV management. EAV and SAV are important for enhancing fisheries productivity and acting as refugia for juvenile fish.
3.3	**Sustainable Fishing Practices Evaluated and Promoted**	
3.3.1	*Promote best practices in fisheries co-management with front-line workers (BVC and FA)*	
3.3.1.3	4 lake wide closed season campaigns.	**3 lake-wide closed season campaign conducted for Lake Malawi, Chilwa and Malombe.** 132 BVCs around the three lakes were involved in the observance of closed seasons. In L. Chiuta this was not observed because there is no closed season. **123 people (94 males, 29 females) were trained in closed season management.** Closed season is a PFM strategy for reducing fish effort during breeding and

		contributes towards sustainable fish production and conservation.
3.3.2	*Promote best practices in fisheries co-management with front-line workers (BVC and FA)*	
3.3.2.1	160 BVCs lead committee members trained (approx. 300-400).	**143 lead committee members (116 M, 27F) from the BVCs were trained** in 6 steps of co-management using the PFM guide so as to enable them champion PFM activities with the rest of BVC members in their respective areas. BVCs trained in 6 steps have the necessary capacity to implement PFM for sustainable fisheries biodiversity conservation.
3.3.2.1	4 fisheries Association and 13 sub-fisheries associations established.	**3 FAs and 15 sub Fisheries Associations established** The sub-FAs will oversee all fisheries management issues at TA level while the FA will oversee fisheries management issues at ecosystem level. One FA along middle Shire wasn't established as there are only 2 BVCs in the area which are going to be incorporated to an FA under Mangochi District.
3.3.2.1	83 BVC strengthened by a nested governance system	**176 BVCs (117 BVCs from Lake Malawi and 25 BVCs from Lake Malombe and 34 from L. Chilwa) have completed PFM 5 steps and by laws have been signed at district level.** The over-achievement is due to the ecosystem approach which necessitated working with all the BVCs. Sensitization meetings on the by-laws were also conducted paving the way for BVCs and district councils to enforce fisheries regulations and collect various fines and fees to support PFM implementation.
3.3.2.3	17 school wildlife clubs facilitated around LMNP and LNP	**12 school wildlife clubs were facilitated around LMNP, LNP and in Makanjira (Ntondo and Magang'a).** The latter were facilitated to participate in CSA and NRM while the former were sensitized in aquatic habitat restoration and EAV management an illegal fishing using mosquito-net as a fishing gear along the shores. Although the plan was to work with 15 school clubs logistically it proved not feasible such that it was felt that the activity should phase the engagement with the clubs and hand over management to PaMawa in 1st quarter of Y4.
3.3.2.3	17 key village BVCs/FAs closed season campaign organized *(Refer activity 3.3.1.3 4 lake wide closed season campaigns. above)*	**17 BVCs from Lake Malawi and Lake Malombe were sensitized on closed season**. 405 people in total were reached (225 males and 180 females). This activity involved key BVC members who positively and actively participated in it since it was in line with what is in their lakes respective by-laws.
3.3.2.3	6 VNRMCs in the 2 NP and 2 FA trained and revamped.	**13 VNRMCs around Liwonde National Park and LMNP were trained in 6 steps of co-management**. These VNRMCs have been involved in coming up with their Constitutions and Management Plans with a view of formulating Byelaws for Forestry management. All the 13 VNRMCs are now at step 4 whereby they are coming up with Management Plans for their areas. All these 13 VNRMCs are

		involved in Beekeeping for Income generation. **Note**: these are only those around protected areas.
3.3.2.3	120 VNRMCs trained in forest regeneration around biodiversity hotspots	**87 VNRMCs trained in forest regeneration around biodiversity hotspots**. **1516 people (644M 872F) were trained** on how they can use tree sprouts as means of forest regeneration. The underachievement is due to the focus on VNRMCs in ECAs only. Other VNRMCs will be trained in Y4.
3.3.2.3	5 community led sanctuaries near enclave villages mounted	**4 community led sanctuaries near enclave villages at Cape Maclear (under GVH Msaka and Chembe) were created.** These are Dwale, Madothi, Chisenga and Bulangete. Each sanctuary covers 2.5 hectares. Sanctuaries are beneficial because they contribute towards fisheries biodiversity recovery and diversification.
3.3.2.4	2 study tours to Makanjira and Msaka to witness brush parks and sanctuaries.	3 study tours were conducted to Mbenji, Makanjira and Liwonde National Park to learn about the role of traditional leaders in conducting closed season and the importance of sanctuaries in protecting threatened species and enhancing biodiversity. The visits contributed to increased interest in establishment of community-managed sanctuaries.
3.3.2.4	6 demos of brush parks established	**15 demos of brush parks were established in SEA, SWA and Malombe.** 153 brush parks in total have been constructed to serve a spawning and nursery habitat in Lake Malawi and Lake Malombe. There has been rising community interest in sanctuary creation and brush park construction due to community sensitization and traditional leaders interest to curb the decrease in fish population and increase its availability through sustainable fisheries management
3.3.2.4	430 people trained in brush parks and sanctuaries.	**1181 members (745M, 436F) from the BVCs were trained on the importance of brush parks and sanctuaries as a strategy of conserving fish in Lake Chilwa, Malombe and Lake Malawi**. There was demand from all BVCs to establish sanctuaries. As such trained members started training other BVC members hence they were overachieved.
3.3.2.4	40 ha sanctuaries established for Chambo production.	**200ha confirmed as chambo sanctuary by the biophysical survey.** Chambo stocks have collapsed and protection of their breeding habitats through sanctuaries will promote their recovery
	307 ha of fish sanctuaries	**A total of 334.4 ha of sanctuaries established in Lakes Malawi, Chiuta, Malombe, Lake Chilwa and some rivers in Machinga**. Each sanctuary in Mangochi District has management plans and by-laws that were approved by district council. Over achievement is as a result of the interest demonstrated by communities as they see that this is the only natural approach to conserving and replenishing stocks in their lakes.

Output 4: Ecosystem-based adaptation solutions identified, evaluated and promoted

Activities under output 4 focused on diversified natural resource based enterprise, drought resilient crops and climate smart agriculture and fish processing activities to enhance resilience of communities and ecosystems supporting fisheries biodiversity productivity. Activities further focused business, entrepreneurial and marketing skills to enhance performance of the various value chains (fish, rice, honey, mushrooms) promoted by the project.

Contributions to outcomes

Bee-keeping activities underway: Bee-keeping activities were implemented with the establishment and training of 16 beekeeping groups in Mangochi, Zomba, Machinga and Balaka. 344 people (188 males and 156 females) were trained around Chilwa, Chiuta, Lake Malawi and Malombe. 315 beehives were distributed to 27 beekeeping groups. The groups achieved the first steps of honey production and marketing when 12 beekeeping groups (44% of groups established) from Lake Chilwa harvested their first 806 Kg of honey valued at MK2, 418, 000 during the first cycle of their honey harvesting. Implementation of bee-keeping activities will enable VNMRC members diversify income sources in forest conservation areas and indirectly contribute towards the wanton cutting of trees for firewood and charcoal.

Shoreline communities trained and applying climate smart agriculture and soil and water conservation practices. 6880 people (1355M 2354F) were trained in Climate Smart Agriculture technologies and 2196 farmers (803M, 1893F) started applying beating the set target of 984 farmers. With the reduction of government farm inputs support to rural households there is a remarkable increase in adoption of soil and water conservation in order to efficiently manage and restore degraded lands and use agricultural biodiversity in a sustainable way while improving agricultural production, rural livelihoods and food security.

Farmers applying climate smart Integrated Aquaculture Agriculture (IAA). Eighty households were trained (40 as ToTs who trained 40 others) and applying climate smart in existing fish ponds and winter cropping areas to showcase IAA as a technology for diversifying fish production and livelihoods. The area of demonstration ponds (0.2ha) relative to agriculture was very small and below the minimum efficient scale of 0.1ha per farmer. The results of the demonstration IAA were expected to be reported in a workshop to draw an investment road-map for investment in commercial aquaculture. This was not done due to delays in start-up of the IAA demonstration. About 75% of activities to achieve this outcome have not been undertaken and will be completed during the first half of Y4.

403 people (265M and 138F) from 18 RVCs trained in fish refugia protection and taken through 6 steps of participatory fisheries co-management mentorship to enable protection of fisheries biodiversity during lake recession events and drought years. FISH also shared results and recommendations of the deep-hole fish refugia study which communities used to inform the formulation of by-laws for managing fish refugia.

Farmers applying water efficient SRI practices in growing NERICA rice. 70 members (36 males and 34 females) trained and 7ha of demonstrations were established. The target of 125 farmers applying SRI practices based on water efficient NERICA was surpassed because 321 farmers (168 males and 153 females) from Lake Malombe and Lake Chiuta applied SRI practices on 32.1ha and harvested 115 bags of rice. SRI practices based on water-efficient NERICA rice variety enable farmers to reduce of water use for rice farming and thereby increasing water supply to support fisheries ecosystem services such as fish breeding sites.

50 government extension officers from forest and AEDOS were trained in VSLA methodology with the aim to assist the technicians to support the communities especially their relevant thematic groups (CSA and NRBEs i.e. Bee keeping) to develop their own community savings to increase access of loans to community members in order to increase the income sources for the fishing communities.

Cumulatively, the VSL groups have managed to save up to **MK 51,239,294.** Some members have bought iron sheets for their houses whilst others have started some small businesses around the Lake. The total amount that was shared out during the year was **MK 28,095,665** and the amount in Loans is reported to be **MK 27,321,051.00**. Some groups have not shared out whilst the groups that shared out are in the second cycle of their savings.

Worth groups formed to increase business, literacy, entrepreneurship and numeracy skills of savings groups. 19 groups formed out of the planned 20 groups for the year were formed (10 groups around Lake Malawi, 3 Lake Chiuta and 6 around Lake Chilwa. 390 members (107 males and 283 females) have joined the Worth groups and received initial trainings. In Y4, there will be 25 comparative VSL groups against the 25 pilot WORTH groups within the same ECA. The aim is to measure how each of the models contribute to economic empowerment of respective group members. Key elements of the comparative analysis will be savings, loans and businesses.

Households adopt fuel-efficient *changu-changu* domestic stoves and fish processors adopting fuel efficient smoking kilns and cookers: The achievement on individuals applying was far higher than 2623 people (461 males and1385 females) have adopted changu-changu and 1523 stoves have been constructed around the Lake Malawi, Malombe, Lake Chilwa, Lake Chiuta and along Middle Shire for household use. 41 demonstration modified changu-changu parboiling stoves were mounted. As a result of the demonstrations, 381 stoves constructed (167 for fish smoking 214 for fish frying/parboiling around Lake Malawi, Malombe and Chilwa). There is an increase in the number of demos constructed as this was due to more stoves that were constructed during the practical sessions of the trainings so as to build capacity of those trained to construct the stoves on their own. Adoption of domestic changu-changu was enhanced through the provision by FISH of 91 brick molds to groups already implementing changu-changu stove (for domestic use) for further scaling up in their respective areas. The adoption fuel efficient smoking kilns and cookers will enable a 30% reduction in firewood use for domestic use and fish smoking, and 70% reduction in firewood use for parboiling and fish frying.

Development of policy recommendations for wide adoption of model beach elements by DoF. 3 model beaches integrating sanitation, safety at sea, fish handling, use of onboard fish crates and processing best practices (solar driers, kilns and cookers). In total 133 people participated in these activities (79 males and 54 females). Monitoring of the model beaches commenced on the fish processing elements and will be complimented with beach sanitation, on-board handling in Y4to enable the development of policy recommendations for wide adoption of model beach elements by DoF.

Application of improved fish handling and processing best practices to reduce post-harvest losses: Nine fish processing groups and 8 trader groups formed in four model beaches and applying improved fish handling and processing best practices were formed against a target of 20 fish trader groups in the four model beaches. The drying of Lake Chilwa resulted in decline in fish catches which had an impact on the traders to carry out their business. This resulted in formation of only 2 Trader groups as opposed to 8 groups that were planned. In Lake Malawi, a decision to focus on fish processing and on-board handling to address the fish post-harvest losses reduced the number of trader groups formed. Therefore only 40% of target was achieved. Pilot on-board handling trials show that a 20% reduction in fish post-harvest losses can be achieved through use of plastic buckets to handle fish on-board compared to existing practice of storing fish on the boat floor board suggesting that the target of at least 10% reduction in fish post-harvest losses could be met in Y4.

Progress and key achievements

Details on progress for each sub-output the project against the quarterly plan

Output Code	Planned for the year 2016/17	Progress during the year 2016/17
4.1	**Ecosystem-based adaptation solutions identified, evaluated and promoted**	

4.1.2	*Promote, pilot and scale up smart land based CCA best practices (Within 10km of shoreline*	
4.1.1.1	Districts include pilot action in DDP of 'fisheries resilient livelihoods" and CCA in key hotspots'.	**4 districts include pilot actions in DDP.** 48 DESC members developed final frameworks for presentation to 4 DESCs for inclusion of CCA and BDC issues in their DDP. The frameworks developed include all the findings that FISH identified in all the FISH project studies. Final SEP framework has been handed to respective District Directors of Planning. However, LGAP project (USAID District Governance Project) through the activity Coordinator (The DPD for Zomba) has supported other sectors to develop their own SEPs so that the DDP consolidation and printing is done together in October 2017 since all DDPs are almost outdated.
4.1.2.1	90 VNRMCs active in PFM as guided by the VNRMC manual	**87 VNRMCs have been trained in 6 steps of co-management as per the VNRMC manual.** This training has enabled the VNRMC to understand their roles and how they are supposed to be operating in their respective areas.
4.1.2.2	41 ha of forested critical catchment replanted using vegetative stems.	**85.2ha has been planted with vegetative stems along Middle Shire in Balaka and around Lake Chilwa in both Zomba and Machinga Districts**, around Lake Malawi, Malombe and Chiuta. Communities have been encouraged to plant these trees around their homesteads which has resulted in increase to the area covered. **4264 (1505M 2757F)** people were involved in planting over 37,724 vegetative stems. Replanting will reduce soil erosion and enable protection of key fish breeding areas
4.1.2.3	984 farmers trained in climate smart agriculture.	**6880 people (1355M 2354F) were trained in Climate Smart Agriculture technologies** and **2196 farmers (803M, 1893F) started applying.** With the reduction of government farm inputs support to rural households there is a remarkable increase in adoption of soil and water conservation in order to efficiently manage and restore degraded lands and use agricultural biodiversity in a sustainable way while improving agricultural production, rural livelihoods and food security. The quick adoption of technologies can also be attributed to increase in the number of demo plots as well as the reduction of the number of farmers per lead (one to four)
4.1.2.3	47 ha demos under resilient crop.	**44 Ha demos under resilient crop. 4673 farmers (1680 males and 2993 females) applied the technologies on 306.9 ha of land around Lake Malawi, Lake Malombe and Lake Chiuta.** Crops grown include maize, OFSP sweet potatoes, cassava, vegetables, beans, cow peas and pigeon peas. Drought resilient crops ensures food security of fishing communities during drought and reduces the impetus of illegal fishing to meet household food security requirements.

4.1.3	*Promote, pilot and scaling up of climate smart fishery-based CCA best practices in 2 lakes.*	
4.1.3.1	140 people from 14 RVCs trained in fish refugia protection.	**403 people (265M and 138F) from 18 RVCs trained in fish refugia protection** to enable fisheries biodiversity conservation during dry season and drought years
4.1.3.1	14 RVCs reactivated and active in applying some of the 6 steps.	**18 RVCs with 403 members (265M, 138F) were mobilized from Zomba, Machinga and Balaka**. These RVCs have been taken through 6 steps of co-management mentorship.
4.1.3.1	14 lead persons from existing RVCs trained by FISH techs and counterparts to train BVCs.	**10 lead persons from existing RVCs were trained by FISH Technicians in fish refugia protection and 8 Leads were elected to be spearheading RVC activities in their respective area**. These Leads are waiting to be trained during the first quarter of FY18.
4.1.3.2	125 farmers from Lake Malombe and Lake Chiuta trained and adopting SRI practices.	**70 members (36 males and 34 females) trained and 321 farmers (168 males and 153 females) from Lake Malombe and Lake Chiuta applying SRI practices on 32.1ha.** 115 bags were harvested in Ngokwe, 82 at TA Chowe and 18 at TA Chimwala.
4.1.3.2	4 ha demo plots in NERICA rice.	**7 ha of NERICA rice was cultivated (3 ha. at Lake Chiuta and 4 ha at Lake Malombe).** NERICA is a drought tolerant rive variety which enables farmers to harvest during drought years and to reduce water use during normal years therefore making available adequate water to support fisheries biodiversity.
4.2	**Alternative, scalable and sustainable climate resilient livelihood options stimulated, evaluated and promoted**	
4.2.2	*Promote, pilot and scale up alternatives climate smart livelihood for fisheries communities based on CCA best practices in two lakes*	
4.2.2	80 people trained and applying climate smart IAA.	**40 farmers (33 males and 7 females} from Kwacha and Chitapa GVH in Lake Chiuta were trained and 80 people (52 males and 28 females) are applying IAA.** 0.2 hectares is under fish ponds and 7 hectares under crop production.
4.2.2	1900 people adopt changu-changu.	**2623 people (461 males and 1385 females) have adopted changu changu and 1523 stoves have been constructed** around the Lake Malawi, Malombe, Lake Chilwa, Lake Chiuta and along Middle Shire for household use. Adoption was enhanced through the provision by FISH of 91 brick molds to groups already implementing changu-changu stove (for domestic use) for further scaling up in their respective areas.
4.2.2	4 model beaches integrating sanitation, safety at sea, fish handling, use of onboard fish crates,	**3 model beaches integrating sanitation, safety at sea, fish handling, use of onboard fish crates and processing best practices.** In total 133 people participated in these activities (79 males and 54 females). Model beach approach will be monitored to develop policy recommendations to DoF to enable post-harvest reduction

	and processing best practices.	and fish processing under hygienic conditions for quality certification and hence value addition
4.2.2.1	6 suitable sites from LDF fishpond sites identified for IAA.	**3 suitable sites identified for IAA around L. Chiuta** and these were supplied with 12,000 fingerlings and 80 farmers are practicing. The number of suitable sites was reduced to focus pilot activities around Lake Chiuta rather than in all project sites. **3 model beaches integrating sanitation, safety at sea, fish handling, use of onboard fish crates and processing best practices.** In total 133 people participated in these activities (79 males and 54 females).
4.2.2.2	20 WORTH groups established in EC areas	**19 groups formed** (10 groups have been formed around Lake Malawi, 3 Lake Chiuta and 6 around Lake Chilwa 390 members (107 males and 283 females) have joined the worth groups. Worth approach enhances business management, literacy and numeracy skills of participants and increases the likelihood of successful fisheries and NRBE business.
4.2.2.3	6 ha under CSA winter cropping.	**173.2 ha under CSA winter cropping (137 ha in CSA groups around Lake Malawi, Malombe and Chiuta, 25.6ha around Lake Chilwa, 4.8 in middle Shire and 10.6ha in Makanjira).** 2877 people (1028 males and 1849 females) The overachievement is because the target was under-estimated and due to provision of maize seed to members, successes in OFSP pass on scheme, winter maize and vegetable harvests in Y2.
4.2.2.4	17 bee keeping groups within forest areas and around national parks.	**16 Beekeeping groups have been mobilized in Mangochi, Zomba, Machinga and Balaka, and were trained in beekeeping management.** 315 beehives were distributed to 27 beekeeping groups. 11 groups were trained in FY17. 344 people (188 males and 156 females) trained around Chilwa, Chiuta, Lake Malawi and Malombe. 806 Kg of honey valued at MK2, 418, 000 have been harvested by 12 Beekeeping groups during the first cycle of their honey harvesting.
4.2.2.4	305 people trained in beekeeping and 195 people trained in financial management.	**344 people (188 males and 156 females)** trained around Chilwa, Chiuta, Lake Malawi and Malombe. **90 (58M 32F) farmers were trained in Honey harvesting and marketing**.
4.2.2.5	15 demos on modified changu-changu stoves for fish processing	**41 demonstration modified changu-changu parboiling stoves** were mounted. As a result of the demonstrations, 381 stoves constructed (167 for fish smoking 214 for fish frying/parboiling around Lake Malawi, Malombe and Chilwa). There is an increase in the number of demos constructed as this was due to more stoves that were constructed during the practical sessions of the trainings so as to build capacity of those trained to construct the stoves on their own.

4.2.2.5	20 leads trained in changu-changu to train 1180	**52 leads (26M 26F) were trained in modified changu-changu smoking kilns and stoves for fish frying/parboiling.** The leads have trained 961 fish processors (251M and 710F) who are applying the technology.
	520 people trained in portable smoking kilns	**76 fish processors were trained in use and 7 carpenters were trained in construction of portable smoking kiln**. Under performance is due to discontinuation of the training after concerns were raised about suitability of the portable smoking kiln for small-sized fish which are dominating the catches. In conjunction with the local artisans and with technical backstopping by Local artisans with backstopping from URI are currently making adjustments to the kiln. Training and adoption support to resume in Y4.
4.2.3	*Promote, pilot and scale up of climate smart fisheries value chains and cross-cutting CCA best practices around the four lakes*	
4.2.3.1	10 fish processing groups formed in 4 model beaches	**9 fish processing groups formed in 4 model beaches in SWA, SEA and Lake Chiuta.**
	1 pilot trial on improved on-board handling of fish using fish crates.	**1 pilot undertaken in Malindi.** 75 people (56M and 19F) participated in the pilot trial on the use of fish crates for on board handling of fish.
4.2.3.2	20 trader groups formed	**6 trader groups formed** with the aim of linking them to markets **(**4 in Malindi SEA (Chindamba and Steven Sindo) and Malembo SWA (Chilimba and Kholowele) and 2 trader groups from Kachulu and Mchenga beaches). The drying of Lake Chilwa resulted in decline in fish catches which had an impact on the traders to carry out their business. This resulted in formation of only 2 Trader groups as opposed to 8 groups that were planned.
4.2.3.3	2500 people reached with HIV and health sanitation messages and prophylactic bilharzia treatment.	**3352 people (1801M and 1551F) around Lake Malawi, Malombe and Chiuta participated in beach sanitation activities.** 5 BVCs around Lake Malombe have been sensitized on Cholera, Bilharzia and HIV/AIDS. A sensitization meeting conducted in collaboration with One Community on HIV/AIDS and HIV testing was attended 95 people attended (73M and 22F) in SWA and SEA.
4.2.3.3	30 BVCs trained in safety at sea, proper use of mosquito nets, toilet construction.	**26 BVCs around Lake Malawi and Malombe were trained in safety at sea, proper use of mosquito nets and toilet construction**. 4 BVCs around Lake Malombe and SWA Lake Malawi have constructed toilets on their beaches which are also being used for BVC revenue generation.
4.2.3.3	At least 200 community members access voluntary HIV testing and referred for ART	**745 (190males, 455females), accessed Voluntary HIV Testing through community targeted testing conducted in collaboration with Baylor College of Medicine.** The exercise was conducted in fishing communities in the beaches around Maganga area under

		STA Lulanga as well as Litufu area under TA Makanjira along Lake Malawi.

DREAMS Contributions to Outcomes

In FY 2017, Pact and partners began implementing DREAMS in association with the FISH project. The FISH DREAMS activities are a targeted response in Machinga and Zomba among the high-risk fishermen population. In the areas where the fisheries sector is a primary source of livelihoods, adolescent girls and young women (AGYW) are at high risk for HIV infection and these activities target their male sexual partners. During FY17, FISH DREAMS successfully launched activities recruiting and training staff, peer mentors, and representatives from FISH Beach Village Committees (BVC). During the launch of activities, FISH DREAMS completed a barriers assessment which was used to inform activities and SBCC materials. 'Test and Start' services were delivered to communities through Wellness Days and trained BVC representatives helped to mobilize and follow-up with the community around these days. The Peer Mentor Manual, with SBCC messaging and informed by the Barriers Assessment, was used to train 55 Peer Mentors who are now conducting outreach and referrals in their communities. Engagement with traditional leaders and health care workers were key to enhancing HIV service platforms, mobilizing communities, and preparing facilities and partners to provide fisherman friendly health services.

Objective 1: Increased understanding of barriers to uptake of and adherence to ART among high risk men in fishing communities

Barriers Assessment: Pact completed and submitted the barriers assessment to USAID. Pact received final approval for the preliminary assessment in Q4. The findings have been shared within Pact and has commenced with the Beach Villages Committees (BVC) and Peer Mentors. Among the BVCs and Peer Mentors, the findings are being used as evidence for community mobilization. The final document has also been shared with District Health Offices and there are plans to share the barriers assessment with other implementing partners, District Health Offices, and traditional leaders. The formal data validation and results dissemination forum will be held in the first quarter of FY18 with the District Executive Committee and District Health Offices for Machinga and Zomba and will include traditional leaders. The barriers assessment informed Pact planning and implementation of evidence based and tailored activities. With this engagement, Beach Village Committees are demanding comprehensive HIV services from the project and we will adapt to more demand-driven and flexible wellness days instead of only having the planned bi-monthly wellness days to monthly beach wellness days.

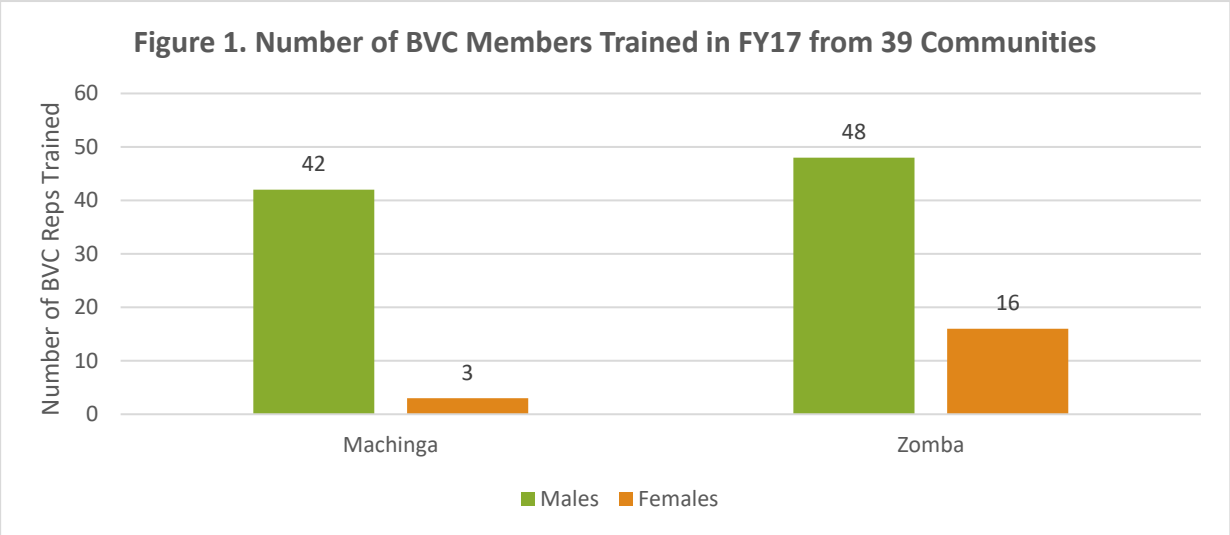
Refinement Social Behavior Change Communication (SBCC) Tools: The Peer Mentor Manual incorporates Social Behavior Change Communications (SBCC) relevant to fishermen and was submitted to USAID for comments. Since the Peer Mentor Manual wasn't available until July 2017, some of the targets where data is generated by Peer Mentors is lower during this annual reporting period. The Peer Mentor manual was used to train 55 members of the fishing community as Peer Mentors. 25 Peer Mentors are based in Machinga and 30 Peer Mentors are based in Zomba. The training for the Peer Mentors was conducted in collaboration with counterparts from the Malawi Government, specifically with the Ministry of Health, to ensure consistency of messaging and complementarity of the project activities to the existing Ministry of Health programs and for sustainability.

The Peer Mentor manual was developed based on the findings of barrier assessment and on guidelines from the Ministry of Health. Some HIV thematic areas such as the importance of ART adherence and condom use were included in the manual after it was noted that fishers are often defaulters of ART as identified in the barrier assessment. They migrate from one area to the other in an effort to realize a higher catch, as a result they do not have time to go to the health facility to collect drugs. Hence the large number of defaulters. In addition, the assessment also revealed that fishers do not have adequate

information about HIV and AIDS as such the project includes basic information about HIV in our messaging.

Objective 2: Introduction of HIV Test and Start service delivery supported in fishing communities

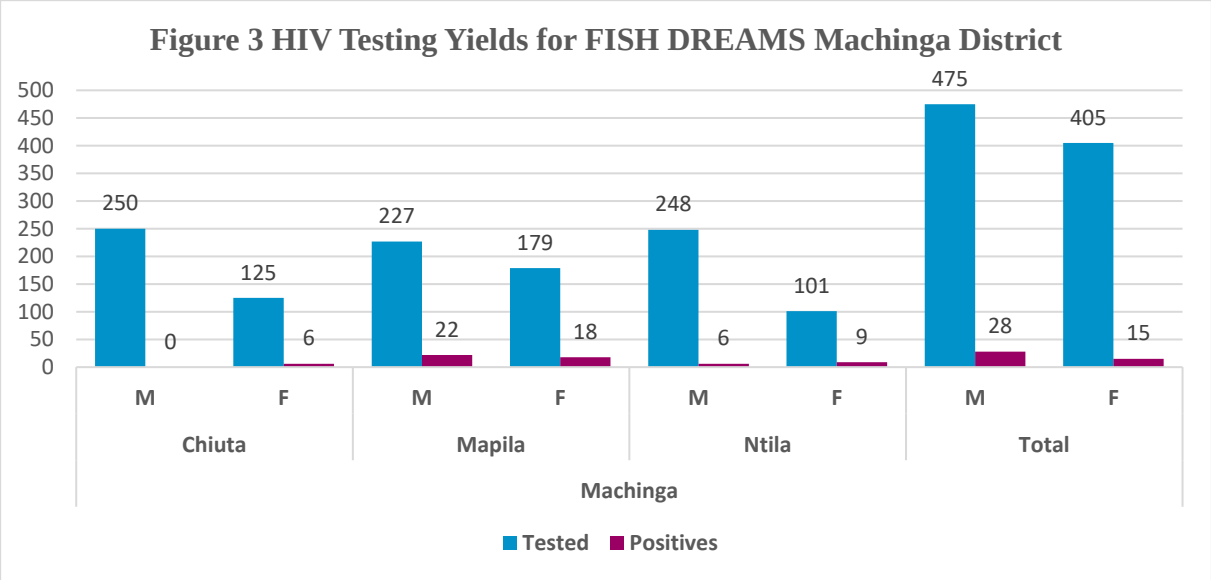
Training BVC Representatives on Referral Systems and Community Mobilization: In the reporting period, FISH trained 93 BVC representatives from 39 BVC communities to work hand in hand with Peer Mentors to support referral activities in the fishing communities). The graph below (Figure 1) shows the disaggregated information across the two districts. As seen in the graph, 3 women in Machinga and 16 in Zomba were trained. The small number of women is explained by gender disparities prevalent in rural socio-economic activities. In addition, 48 males in Zomba compared to 42 in Machinga were trained.



The BVC representatives are the link between the community and the Peer Mentors. The BVC representatives are also trained to refer and counsel fellow fishermen directly to the health facilities or through a Peer Mentor. The BVC Representatives have been instrumental in mobilizing community members to participate in Beach Wellness Day activities.

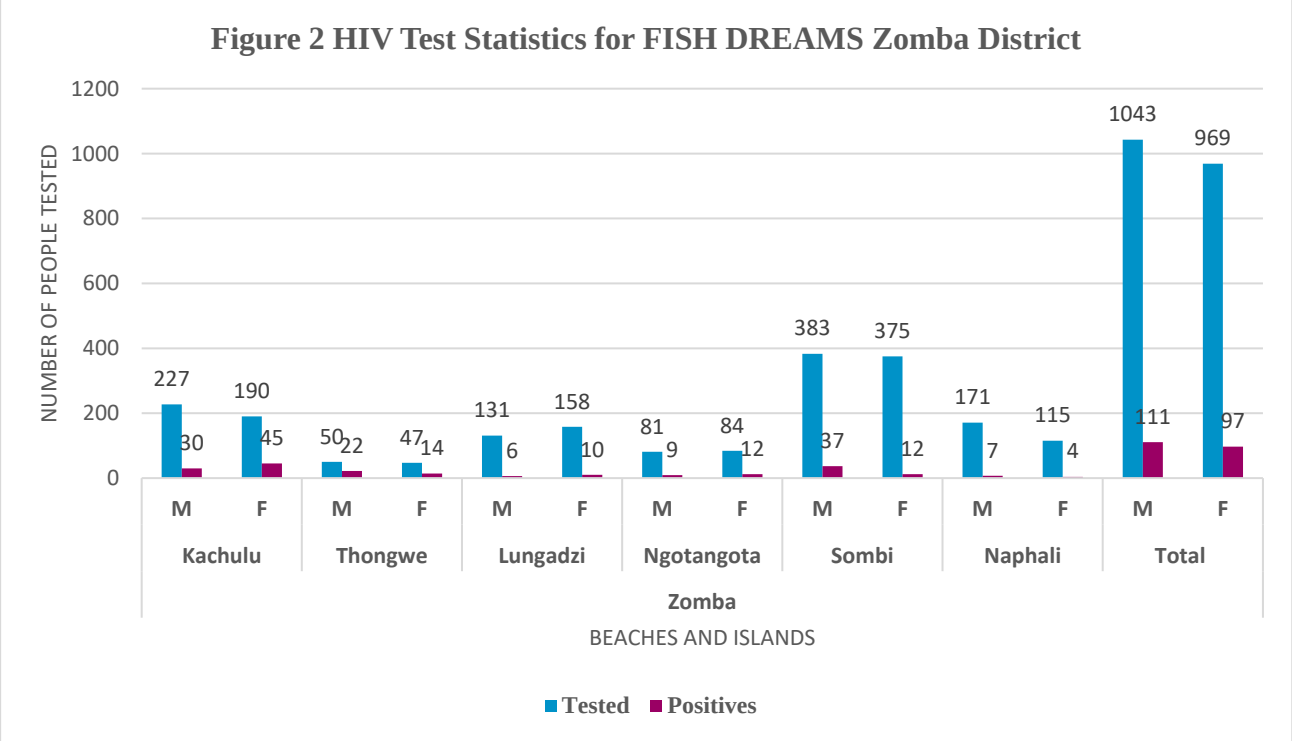
Wellness Days

Machinga: In FY 17, Wellness Days in Machinga, started from Mapila Beach then to Ntila Beach, and finally Chiuta Beach in partnership with Population Services International (PSI), the Machinga District Health Office (DHO), and Girls Effect. The graph below (Figure 2) depicts the number of people who were tested and the yield results for HIV in the district. As can be seen, a total of 475 males were tested, 28 of whom were tested positive. In addition, out of 405 females who were tested, 15 were diagnosed HIV positive. The graph further shows that when disaggregated along beaches, Mapila registers a high yield of 9.6% while Chiuta records the lowest yield rate of 0%. The lowest yield recorded was due to the fact that a community test had recently been done in a neighboring community, resulting in fewer new positives or defaulters being identified.



Lastly, Pact organized a soccer match that generated demand for HIV services. However, the match took place later in the day and PSI stopped provision of testing services at precisely 16:30 pm to comply with organizational policies. Pact has since learned to organize such matches earlier in the day to ensure that testing and the resultant counselling are conducted simultaneously. In addition, Pact will ensure that PSI tents and staff are invited to reach females interested in being tested, but a second partner will also be identified to support men from the community.

Zomba: In Zomba District the Wellness Days were conducted at Kachulu, Ngotangota, Sombi, Naphali, and Lungadzi beaches. Pact partnered with Dignitas International, the Zomba DHO, YONECO (Youth Net and Counselling), and Banja la Mtsogolo (BLM). Dignitas, the DHO, and YONECO provided testing services. During the Wellness Day, testing was conducted among community members present. Findings of the HIV test support in terms of number of people tested and diagnosed positive are presented in the graph below (Figure 3). The Wellness Day activity at Kachulu beach coincided with a visit by US Congressional Staffers, US Ambassador Virginia Palmer, and USAID Malawi's Mission Director.



Objective 3: Enhanced HIV service platforms for reaching high risk men in fishing communities

Peer Mentor Guide Development: In FY17 FISH developed a Peer Mentor Manual which was received comments from USAID on 10 July 2017. This has been used for a training for Peer Mentors. All Peer Mentors signed an oath of confidentiality and are working across the lakes of Chiuta and Chilwa. In total, 55 Peer Mentors have been trained. The table below shows that out of the 55 that were trained, 45 were males and 10 were females. In addition, Zomba had 30 peer mentors trained compared to 25 in Machinga. These numbers also correspond to the area of project coverage in the two districts including the number of beaches and islands.

Table 1. Number of Peer Mentors Trained Across the FISH DREAMS Districts

District	Females	Males	Total
Zomba	6	24	30
Machinga	4	21	25
Total	**10**	**45**	**55**

Engagement with Traditional Leaders: DREAMS staff joined FISH's quarterly meeting with 15 traditional leaders from the FISH implementation districts. During the meeting in May 2017, the DREAMS Program Manager introduced the new activities and formally requested support and permission to work in the fishing communities. The Traditional leaders from Zomba and Machinga were supportive. Traditional Leaders from Mangochi demanded that similar activities be conducted in their communities, where need for such services is high. The traditional Leaders from Mangochi reported risky behaviours and limited access to HIV testing services among fishing communities.

Orientation for Health Care Staff in Health Facilities: FISH organised training and an orientation for the health workers within our catchment area on fisherman friendly health services. The guidelines for the orientation were drawn from Ministry of Health guidelines as well as the findings from the Barriers Assessment. The health care workers were drawn from the health facilities which are within the 10 Kilometres radius the lake shores. The trainings were facilitated by the HIV AIDS Coordinator, the Prevention of Mother to Child Coordinator, the ART Coordinator for Machinga and Zomba DHO's, the Youth Friendly Health Services Coordinator and Pact staff. Staff from Dignitas were also invited as clinical partners on the project. Pact focused on training on the monitoring and evaluation tools to ensure documentation of referrals is followed. The following table (Table 2) displays this information. As can be seen, a total of 81 health care workers were trained (58 males and 23 females). Out of these, 39 were from Zomba and 42 were from Machinga.

Table 2: Number of Health Care Workers Oriented across FISH DREAMS Districts from 22 Health Centers

District	Females	Males	Total
Zomba	12	27	39
Machinga	11	31	42
Total	**23**	**58**	**81**

Activity Management

Conduct Districts Executive Meeting with District council and DHOs: Pact presented at the District Executive Committee meetings for Machinga and Zomba to introduce the FISH DREAMS project. The two District council welcomed the project including the DHO for Zomba and Machinga. The meetings were held in conjunction with the main FISH project and partners implementing with FISH in the concerned districts.

Area Development Committees in Zomba and Machinga: Pact also conducted introductory meetings with Area Development Committees in Zomba and Machinga. The project team made detailed presentations on the program and received full support and authorization to begin implementing activities. Also, a vehicle and two motorcycles for DREAMS were successfully procurred. Program Officers have been outfitted with the requisite safety materials including helmets, reflector jackets, and boots to ensure their safe use of the motorcycles.

Monitoring and Evaluation

During FY17, Pact hired two Monitoring and Evaluation staff to support DREAMS activities. The staff are divided between Lilongwe and Mangochi, with one staff member field based in Mangochi to support field activities and one based in Lilongwe to participate in coordination activities with USAID and other implementing partners as well as coordination with FISH's M&E team. The team has developed data collection tools and referral mechanisms based on the DREAMS model and a data flow map to guide the collection and review of all data. These tools and processes are in effect and are regularly assessed to ensure that they continue to be effective and responsive to the project's needs. Two Pact staff were trained in DATIM and will be able to submit the required data on time. In FY17 Pact submitted an updated PMEP inclusive of final targets for DREAMS activities in Zomba and Machinga. The Program Manager and the M&E Officer were both trained in DATIM in a one day training by USAID during this reporting period.

Monthly meeting with Peer Mentors: Two monthly meetings with Peer Mentors were held; one in each district. During the meetings project officers had an opportunity to review the data which was collected across the referral centres against what was captured in the Peer Mentor registers. Feedback was given accordingly to those who had not yet mastered the tools that are being used in the project to reduce future errors. Peer Mentors were allocated targets to achieve every month. Each Peer Mentor will aim to have 40 new entrants (enrollment forms) clients that should be reached with message and 20 successful referrals for each Peer Mentor to be recorded at the health facility.

Progress and key achievements

Details on progress for each sub-output the project against the quarterly plan

Output Code	Planned for the year 2016/17	Progress during the year 2016/17
Objective 1: Increased understanding of barriers to uptake of and adherence to ART among high risk men		
1.1.	*Carry out preliminary assessment*	
a	Carry out preliminary assessment	**Completed:** The assessment was conducted and a report produced. The report has been adopted to inform the development of SBCC tools, work planning, and the Peer Mentor Manual.
b	Adapt Work Plan Accordingly	**Completed:** Work plan approved by USAID.
1.2.	*SBCC Plan*	
a	Adapt existing SBCC materials and referral guides.	**Completed:** Development of Peer Mentor Manual completed. During the Candle Light Memorial Ceremony FISH DREAMS adapted materials and messages to align with the Districts' planned Candlelight Vigil activities.

Objective 2: Introduction of HIV Test and Start service delivery supported in fishing communities		
2.1.	*Provide training to BVCs on referral linkages*	
a	Facilitate training workshop for BVC Representatives	**Completed:** 93 BVC representatives have been trained. (45 in Machinga-3 females and 42 males- and 48 in Zomba-16 females and 32 males).
2.2.	*Support HIV testing during beach health days*	
a	Organize bi-monthly wellness days to integrate HIV testing and treatment linkages with blood pressure screening /STI /TB /bilharzia testing, etc.	**Completed:** During Wellness Days, 2012 were tested and 208 were diagnosed positive and 980 were tested and 43 were diagnosed positive in Zomba and Machinga respectively. Immediately after receiving positive results, clients were started on ART.
Objective 3: Enhanced HIV service platforms for reaching high risk men in fishing communities		
3.1.	*Support Peer Mentor Peer Mentors to carry out outreach at community level*	
a	Develop/adapt manual and training materials	**Completed:** Developed the Peer Mentor Manual and received comments from USAID.
b	Train Peer Mentors	**Completed:** 55 Peer Mentors have been trained, 10 females and 45 males. 30 from Zomba and 20 from Machinga
3.2.	*Engage with traditional and religious leaders to promote health seeking behaviors*	
a	Join FISH to engage with traditional authorities and faith leaders to promote risk reduction and health seeking behaviors	**Completed:** The DREAMS staff joined the quarterly FISH meeting with traditional leaders from the catchment. During the meeting, the DREAMS activities were presented to the Chiefs, and FISH formally requested their support for the initiatives, which was given.

II. Challenges, Solutions, and Actions Taken

FISH

Challenge(s)	Solution
Village headmen are allegedly collecting bribes from illegal fishers and this may pose challenges to the operations and authority of BVCs and sustainability of PFM	**Continued dialogue with traditional leaders through inter-BVC meetings and quarterly traditional leaders meeting** to sensitize them on the problem of corruption and its impacts on sustainability of PFM. As a result of these meetings, Traditional Authorities took action on corrupt village heads in Msaka (Senior Chief Namkumba) and Lake Chiuta (TA Ngokwe).

Allowance syndrome that has developed in the communities because of Local Development Fund (LDF) projects affected some project activities implementation. The District Assemblies during the year have been implementing some activities with funding from LDF and paying some allowances in the course of implementing those activities. Due to some misunderstandings, some communities that the project is working with started demanding allowances to implement project activities.	**The project clarified to the communities the differences in nature of LDF and FISH project and the reasons why FISH wasn't providing allowances for activities implementation**. Communities were encouraged to participate in IGAs promoted by the project to ensure self-sufficiency and sustainability of activities beyond the lifetime of the project.
Continued Lake Chilwa recession despite experiencing heavy rains during the last season. This resulted in some planned activities such as: • Establishment of sanctuaries and brush parks not to take place in Machinga. Sanctuaries have only been established in Zomba as the water levels are still very low in most parts of Lake Chilwa in Machinga. • Construction of modified changu-changu smoking kilns in Machinga did not take place as most beaches in Machinga have not resumed their operations due to low water levels.	**Affected activities were put on hold as the project doesn't have any direct control over the situation.**
Late colonization of beehives due to technical problems arising from poor adherence to best practices by communities resulting into low honey production.	**Cleaning of beehives, sealing of any openings on beehives and hanging again of the beehives to boost colonization rate**.
Passive participation by some village headmen and some Village headman not recognizing CBOs and their importance in their villages.	Enlighten them about the direct outcome of the FISH project into their area by setting up meetings with the community leaders and concerned CBOs to discuss a way forward.
Outbreak of Fall Army worms attacked on maize which is the most popular crop.	**These were referred to agriculture extension workers who in addition to providing technical advice supported some of the farmers with Cypermethrine pesticide.** In addition, farmers learnt from each other about local solutions. (e.g. adding a mixture of sand and sugar to the maize tussel)
Illegal gold mining in STA Lulanga ECA increased soil erosion in Lugola, Unga and Litisa Rivers and encroachment and deforestation in the Kalunso forest. The gold mining activities negatively impacted forest and river bank restoration efforts and left	**A multifaceted approach was adopted whereby CISER through the Mangochi District CSO Network created awareness of the issue at district level and persuaded the District Commissioner to refer the issue to the relevant authority, the Department of Mines.** This process led to a fact-finding mission to the site for concerned parties (Mines, District Council, TAs, Police, CISER and CSO network) This led to cessation of mining

unregulated would roll-back the gains achieved in the ECA.	operations. As a result of this process, the Department of Mines declared the mining operations illegal and told all miners to vacate the site. At time of reporting all illegal mining activities had ceased.

DREAMS

Challenge	Proposed Solution	Action
CHAM facilities turning away referred clients as they are charging a fee for their services	Pact will work with the Zomba DHO to negotiate with St Luke's Hospital (CHAM operated) so that medication for clients are available, utilising the service level agreement available in the districts.	A meeting has been planned with both Zomba and Machinga DHO in the first quarter of FY18.
Shortage of condoms in both districts	Pact will meet the Zomba DHO and Machinga so that PACT is included in the supply chain systems for the condoms and will request adequate condoms ahead of activities Pact will source condoms from other USAID/PEPFAR partners	Pact successfully negotiated with the Machinga DHO for an allocation of 32000 every month
Drying and receding of water levels for lakes Chilwa in Machinga District has made fishermen relocate from beaches in Machinga to beaches in Zomba District	Pact will follow the fishermen where they are concentrated with fishing activities	Pact will coordinate closely with BVCs who will notify Pact staff on the movements of fishermen
Shortage of HIV test kits during Beach Wellness Days	Pact will plan with the District Pharmacist Assistant, HIV Coordinator, and the DHO to increase supply of HIV test kits during wellness days.	Meeting scheduled with two DHOs in the first quarter of FY18

III. Lessons, Best Practices, and Recommendations

FISH

a. Promotion of natural regeneration

FISH promoted natural regeneration which is the most effective and economic way to expand patches of native vegetation and improve their condition. Natural regeneration is relatively cheap and native plants that grow from this method have high survival rate.

The communities are expected to benefit from these conserved forests in the long run through:

- Collection of dead wood for firewood.
- Hanging of beehives for beekeeping enterprise.

b. Vegetative Propagation Planting of stems (truncheons)

FISH is promoting planting of stems (truncheons) that germinate using less water and can be planted all year round. The method has been adopted from local initiative where these types of

trees have been used for constructing homestead fences and local bathroom fences. In these instances trees germinate and survive harsh weather. The other benefit is that their survival rate is better than tree nurseries due to the fact that livestock cannot eat the stems.

c. Out-scaling/ adoption strategy for promoting technologies i.e. smoking kilns

FISH is promoting the use of modified changu-changu stove for fish processing that reduces firewood use by 75%. In view of this, training was organized for Emmanuel International FISH Technicians and DoF field counterparts on construction and operation of these stoves to enable them train communities on the importance and construction of the stoves.

The participants (FISH Techs and DoF field officers) were split into groups. Each group was assigned a minor stratum to train BVC members and fish processors. This arrangement was designed to reach as many fish processors as possible and those who participated (in the communities) could construct at least one stove. The team with most kilns constructed within two days would win a study tour to Lake Chilwa in the next quarter to appreciate the adoption level. By the end of the training, the following were achieved

- FISH Techs and DoF field staff acquired knowledge and skills in construction and application of the technology.
- Community members (BVCs and Fish processors/traders acquired knowledge and skills in construction and application of the technology.
- Over 500 modified changu-changu stoves were constructed across the minor strata where the communities were trained.

The strategy proved effective as more kilns were constructed and the study tour was an incentive for the teams to promote adoption of kilns.

d. Use of data entry clerks

Employing of temporary data entry has assisted in clearing backlog data that could have otherwise delayed owing to the workload over FISH technicians. The approach has potential to guarantee continuous and timely data entry. It is being proposed therefore that there is need to allocate a budget for permanent data entry clerks for the project so that data is captured in real time.

e. Learning tours

Learning tours have proved to be very effective as proved by the learning tour to Makanjira and Msaka, where upon return, members mobilized themselves to identify, establish and replicate formation and construction of sanctuaries and brush parks.

f. Illegal gear

It will be difficult to abolish capture of juvenile fish if the demand side is not addressed. The recommendation is to also enforce fish size regulations to fish processors and traders. The bylaws will help a lot in addressing this problem

g. Addressing demand side drivers of illegal fishing

It will be difficult to abolish capture of juvenile fish if the demand side is not addressed. BVCs in Chiphoole have shown the way of addressing the demand side drivers of overfishing by successfully implementing penalties and fees for fish processors and traders who buy juvenile fish. These penalties have significantly reduced the processing of juvenile fish at the landing beach. The recommendations from the BVC to enforce fish size regulations to fish processors and traders have been incorporated in the recently approved Lake Malawi Fisheries bye-laws.

h. Multi-stakeholder collaboration is critical to success of the ecosystem approach

FISH through CISER was able to address an upstream gold mining activity which had started to cause significant deforestation and soil erosion in key fish breeding rivers in the Makanjira area by mobilizing different stakeholders (the District Council Environmental Stakeholder Committee, The Civil Society Network, the Police, traditional authorities and central government) to stop illegal mining which would have reversed the nascent gains achieved by the project in forest restoration and river bank rehabilitation for fisheries biodiversity conservation.

DREAMS

a. **High-demand for services needs coordination for materials**
Pact-DREAMS learnt during the preliminary assessments that there was high acceptance and demand among fishermen of HIV/ AIDS interventions into their own communities. There is high demand for HTS on the part of fish folks when the services are close to them hence the need to continue with wellness days and to locate wellness days on and near beaches. This high demand in communities led to challenges with having adequate supply of condoms and testing kits in some cases. This

b. **Mobility of fishermen means flexibility in activities**
Beach Wellness Days need to be planned in conjunction with the BVCs to reach fishermen who may have left one lake with receding water to fish elsewhere. Pact will work better to follow fishermen and meet their needs where they are especially as it is a mobile community. In addition, Wellness Days when conducted in collaboration with partners attract more people including fishers to uptake the service as it becomes easy to provide integrated comprehensive services

IV. Success stories

Fishing, Farming, and Saving: Building Resilience of Fishing Communities, On and Off the Water

Osman Chibala has been a fisherman from the lakeside village of Chindongo for his whole life. “I am really, originally from here. My parents were fishers here. I was born here. I was married here. I had 6 children here. I’ve always fished here, like everyone else.” Osman is even the Secretary of his local Beach Village Committee (BVC), the community group that is responsible for protecting the beach and lake in their local area.

Osman Chibala, Secretary of the Beach Village Committee in Chindongo Village, Ntonda, in Mangochi District

However, over the past decade, him and other fishermen of Malawi's four main freshwater lakes began to worry about their livelihood. 22 percent of the surface area of Malawi is covered by freshwater ecosystems, and the fishing sector employs over 500,000 people, the majority of whom are artisanal fishers and fish processors from local villages. However, the larger, valuable fish species have shown dramatic declines since the 1980s, further encouraging over-fishing and smaller mesh sizes for nets in order for local fishers to sustain incomes. This in turn, accelerated the decline of fish stocks, as smaller mesh is catching smaller, immature fish without sufficient time to spawn. Climate change has further exacerbated the problem, as temperatures increase and rainfall becomes inconsistent and unpredictable. This has a significant effect on conditions, such as siltation, stream flows, and the water levels of the lake. In 1968, 1995, and 2016, Lake Chilwa completely dried up, and fishermen began rapidly migrating, causing increased pressure on neighboring lakes.

Several years ago, Osman and other BVC were called to a meeting at nearby Lake Malombe, where they officially learned that fish were officially disappearing from the lake. They were alarmed that their own Lake Malawi was on the same path. "Before there was so much fish in the lake, we could just scoop out lots of fish, even with your hands or in a bottle. It's not like that now. The fish have been in decline. Some species we didn't see anymore," recounted Osman sadly. As fishers Lake Malombe began migrating to Lake Malawi, Chindongo saw their fish catches rapidly decline to unprecedented levels.

When the USAID Fisheries Integration in Society and Habitats (FISH) project arrived in Chindongo in 2014 offering guidance on conserving the lake and support to fishing communities, Osman and other BVC members, eagerly became involved. "We learned so much about conservation. We learned conservation must start with the land and move to the water."

Fishermen on the shores of Lake Malawi in Mangochi District

Osman and other members work to plant trees and other vegetation to preserve the lakeshore and prevent excessive siltation into shallow, fish breeding areas. With FISH, they demarcated stretches of these shallow waters as fish sanctuaries, and worked with FISH to develop bylaws, indicating, for example, legal fishing gear, seasons, and areas, in order to ensure the larger community understood and abided their restrictions and recommendations for improved conservation.

Significantly, FISH takes an integrated, ecosystem approach to conserving and restoring the biodiversity of Malawi's lakes, working both in the lake with village level Beach Village Committees, like that of Osman's to 10 kilometers inland reinforce the shores, preventing run-off, mudslides, and increased siltation. Activities in the villages also help fishing-dependent communities to build alternative and supplemental livelihoods in order to aid in income smoothing when faced with economic shocks. These livelihoods include fish processing technologies that require less time, money, and wood to burn; agricultural practices that require less water to accommodate unpredictable climate shifts; as well as village savings and loans groups that create affordable lending options and new business opportunities.

Osman, like many others, participates in all of these activities, both on land and shore. "There really isn't just one activity that is most beneficial," explains Osman, "All the activities link together to create a benefit. A person's life depends on food, so when we can't just fish, we must also farm. We have to plant trees to prevent floods, which can damage land and fish and bring more hunger. Our village savings and loans group helps me to find means to repair my fishing gear; otherwise I could never afford to replace it. This group also lets us start other small businesses to help, things we would never dream to do before. I have sheep now! And the fish sanctuaries, that is the food for my children – this is our savings for our children for the next generation."

"There really isn't just one activity that is most beneficial. All the activities link to together to create the benefit."

Osman Chibala is still a fisherman, but now, is also a farmer and a proud owner of four sheep. He knows that himself, his family, and the community still face a major challenge of reviving the environment around them, but he now feels like he has all the tools to find a solution.

Ownership, Osman insists, is the most important lesson Osman has learned from FISH. "Once we started working with FISH, I, all of us, had a realization that this lake is for us – not just for the government, not just for big companies. It is mine and it is my children's. I can own it. You can own it. Once we understood that, we made the decision to look over the lake." He will continue to work with communities, and hopes to reach out to communities on other lakes as well, to share this message. Together, they can make the change and protect their lakes for future generations.

From Fish to Farm: How Climate Smart Agriculture Offers New Opportunities for Fishers

Standing in front of two hectares of tall maize stalks, sprouting okra plants, and green beds of orange-fleshed sweet potatoes, James Sita explains how he was a fish trader for fifteen years. He had a small plot of maize and millet on the side, on and off, over the years, but he was never much of a farmer. He spent most of his time away from home, visiting different lakeside beaches to buy and sell small amounts of fish. Then six years ago, he quit.

“The profit I was getting from selling fish was getting smaller,” explained James, “There was such a scarcity of fish.” Due to climate change, population pressures, and overfishing, the entire fisheries sector, from fishermen to fish traders, face declining fish stocks. Many feel that their livelihood is threatened, and are seeking new ways to support their family.

As profits decreased, fish trading took a bigger toll on James. The extensive travel required meant less time with at home, and despite the time he dedicated, he still struggled to provide food consistently and pay school fees. Tired, he took a risk, and quit.

James returned home, but was not sure what to do on his farm. His yields had never been enough to support his family. When seeking guidance from other members of the community, he learned of a farming group in his community receiving guidance and mentorship from FISH, the Fisheries Integration in Society and Habitats project funded by USAID. He immediately asked to be involved.

FISH takes an integrated approach to conserving Malawi’s freshwater ecosystems and supporting fishing communities to adapt to the impacts of climate change. FISH does not only work on solutions based in the lake, but also works with communities within 10 km of the lakeshore to both protect the ecosystem and to find new livelihoods or supplements to their declining income from fishing.

Titandizani is one of FISH’s climate smart agriculture groups, that plant drought resistant maize and Nerica rice, a rice variety that requires less water, among other crops, while utilizing climate smart techniques, such as physical soil conservation structures, designed to minimize water requirements and improve soil fertility. With new crops and farming techniques, farmers are able to maximize yields despite increasingly erratic rainfall.

“I used to plant my maize in any way, with four seeds in one spot even,” said James, “but now I have learned to space my maize. I’ve planted one seed at a time. I know the right techniques. And look at my

success!" He gestures at the large stalks of maize flourishing. It is rare, explains to have maize this time of year, and with so little rain.

Success on the Farm to Happiness at Home

In two years of farming, James's farm is flourishing. The success extends beyond the field to his home. "You can see improvements in our house, in our food, and our clothing," comments Patuma. "In the past we couldn't provide food all the time, and now, we can. And our home is finally finished, even the floor is cemented."

"Would you believe," says Mr. Sita, "with my profit, I've been able to purchase four goats!" This he explains ensures that their family is food secure. And, though Mr. Sita struggled to put his four oldest children through secondary school, he now has no trouble paying school fees for his younger three children. He insists that they will complete their studies.

“Farming has not only been more profitable, it is better for me personally,” he says. Now family comes first. His wife, Patuma, agrees, “The family is happier through farming than through fish.”

Farming for Fishes

Mr. Sita has a long-term plan. He’s already preparing for the next planting season, having set aside seed and money to invest. Other people, he says, are inspired by his success and interested to follow his lead. However, many still see their main livelihood as the fishing sector, while others are limited by available land. However, he hopes to increase his profits, as a form to better support the fishers who seasonally work as hired labor on farms.

From FISH, Mr. Sita and Titandizi group have become increasingly aware of the close link between what they do on the land and what happens in the lake, especially as their community remains on largely dependent on the fishing sector. The edge of Mr. Sita’s land lies in stark contrast to the lush green rows of vegetables and maize of his farm.

FISH works with farmers and fishing communities to understand the importance of protecting the lake, by improving vegetation around the lake and keeping the lakeshore intact. This will minimize the heavy runoff and siltation during rains that are damaging the shallow breeding grounds of fish. Even as fishers turn to enhance their farm activities, they need to ensure there is no unintended negative impact on the lake.

“People used to farm on the lake edge. Now we all keep a 20m barrier between all farms and the lakeshore. Otherwise, we will hurt the fish breeding at the lake,” Mr. Sita insists. “I have land and farming, but fishing is important to many people, and to our community. We work together to protect it.”

V. Management Issues

FISH

Financial management

Budget Item	Original Total Estimated	Obligated Amount to 10/02/2017	Costs Incurred from inception to 09/30/2017
Personnel	2,095,967		1,167,746
Fringe Benefits	872,017		434,880
Allowances	303,770		240,608
Travel	413,194		274,251
Equipment	167,778		105,111
Supplies	182,436		141,102
Consultants	79,190		107,607
Workshops	526,365		401,328
SubAwards	6,435,906		4,028,540
Other Direct	948,817		469,819
Subtotal Direct Costs	*12,025,440*		*7,370,992*
Indirect Costs	1,967,034		1,281,338
Subtotal Direct & Indirect Costs	*13,992,474*	-	*8,652,330*
TOTAL	**13,992,474**	**12,850,000**	**8,652,330**

As shown in the table above, by the end of year 2, a total $12,850,000 had been obligated to support program delivery. This was after an additional obligation of $3,894,142 resulting to a total $12,850,000 obligated to the project by the end of this reporting period. Of this amount obligated, $8,652,330 are expenses incurred from inception to the end of FY17. The program has seen a steady increase in implementation in FY17 resulting in increased reported reach and in reported expenditure.

The sub-partners were all funded on time to facilitate implementation of activities in this period which also accounts for the increased expenditure. In this period under review, Pact supported the partners through mentoring and site visits to enable them to receive and account for donor funding.

Only 1 budget line, consultants, is currently overspent at the end of year two although this over-expenditure is less than 1% of the estimated budget. Pact is already monitoring spending closely to manage this overspent budget line and ensure we continue to stay on budget. In addition, Pact submitted a budget re-alignment request to USAID on 27 October 2017 that is pending review and approval by USAID.

In this period, Pact was also oriented on developing the expenditure analysis. The program recently submitted the DREAMS expenditure analysis and will be submitting the same for FISH soon.

Human Resource & Equipment

In Y3, Pact recruited a new Chief of Party, Alan Brooks to replace John Balarin who had left the project on 30 September 2016. Pact also recruited additional M&E staff for all the partners except URI that has no activities requiring M&E in country. This was in response to the Data Quality Assessment conducted in July 2016 that identified gaps in M&E capacity at partner level.

Recruitment of Deputy Chief of Party, Finance, Admin & Compliance
Effective September 27, 2017, the current FISH Deputy Chief of Party for Finance, Administration & Compliance (DCOP/F), is leaving after serving FISH for almost two years. Recruitment for a replacement is already underway with a candidate to be on board in early Y4.

Recruitment of Communications Officer
The capacity development and learning assessment (CDA) conducted by Pact in July 2016 revealed that the project had made limited progress in developing the range of significant IEC materials envisioned for supporting awareness-raising and advocacy activities. This includes both IEC materials targeted at the community level, as well as policy-oriented IEC materials targeted at district and central and high-level decision-makers. The development of effective IEC materials requires specific skill sets, especially when targeting low-literacy communities, which need highly visual messages. At the recommendation of the CDA, in Y3, Pact has recruited a Communication Officer responsible for developing the communication, learning and advocacy IEC materials. These will be for explaining various FISH activities for internal and external audiences. The officer will shape the emerging work in advocacy by contributing to the design and implementation of an advocacy plan and developing lobbying material. The position is currently being filled by a consultant with the plan to transition to a full time local staff member in Q2 of FY18.

Partner Field Staff
In Y3, Christian Aid recruited 6 field-based staff that had been working as Interns attached to WESM and EI and one Monitoring and Evaluation officer. CISER, as per 2017 plan, 1 new FISH Technician and a Field Officer were recruited. Further recruitments were done following resignations by Project Officer and Monitoring and Evaluation Officers. A new M & E officer was recruited.

Deployment of Equipment
In Y3, USAID provided Pact with a second-hand vehicle from DAI that was given to CISER to assist with its expanded activities. Six (6) Motor bikes were bought for Christian Aid that were deployed to its partners, WESM and EI to be used by the additional field staff that were attached to the partners.

DREAMS

During FY17, FISH established partnership relationships with Dignitas International in Zomba and Machinga, BLM in Zomba, PSI in Machinga, and with the District Health Offices in both districts. These partnerships have enabled Pact to hold effective Beach Wellness Days during which members of fishing communities receive HTC and can immediately be started on treatment if they are positive. In addition, Pact participates in the DREAMS coordination sessions in Zomba and Machinga. These sessions led to joint advocacy meetings with the DHO in Zomba for greater medical support for communities on the islands in Lake Chilwa and a joint HTS visit to all the islands with the delegation including staff from the DHOs office, public health clinicians, as well as staff from One Community and

Dignitas. Joint sessions such as this ensure the cost effectiveness of the intervention and that sufficient support is provided to these remote communities

FISH has co-located all DREAMS staff in FISH offices thereby allowing for close coordination and cooperation between the larger FISH program and structure and the new DREAMS activities. The DREAMS Program Manager is based in Pact's field office in Mangochi, and two Program Officers are based in Zomba and Machinga, one each respectively. Having these staff locally based better enables FISH to coordinate with DREAMS partners such as PSI in Machinga, BLM in Zomba, Dignitas, YONECO, and One Community as well as with district and community based health providers.

PACT FISH DREAMS recruited a Program Manager for the project, a Senior M&E Officer, two Program Officers, one for each district, and a driver for the project. A motor vehicle, two motor cycles, three HP laptop computers, two HP printers, and 55 push bicycles and 55 carrying bags for Peer Mentors were procured. FISH DREAMS hosted USAID officials on 18th August who interacted with health workers at Likangala, BVC members and Peer Mentors at Kachulu beach before proceeding to encourage Peer Mentors for Machinga during their training at Chilema. Another official, visited on the 12th of September in Zomba and had an opportunity to chat with Peer Mentors and BVC members. The officials had an opportunity to interact with Peer Mentors and BVC representatives and appreciated the documentation of referrals at Likangala Health Facilities. They also interacted with health workers. During the two visits, the FISH- DREAMS project got helpful feedback including the need to increase the frequency of Wellness Days and availability of condoms.

Pact FISH signed of Memorandum of Understanding (MOU) with the Zomba District Health Office. The MOU stipulated the roles of Pact working with the Zomba District Council through the District Health Office for effective delivery of essential health packages as well as proper coordination in planning, implementation, monitoring, and evaluation of project activities. Pact engaged in the MOU through the Health and Environment Committee for which the District Health Officer is the secretary.

VI. Update of the PMEP

During the year, more effort was put on uploading the backlog data into IFORM builder. More monitoring Visits were conducted targeting the CBOs secretaries, lead farmers and technicians in efforts to get all the data accurate and all the unreported data reported and uploaded into IFORM builder. All CBOs (groups) have updated their registers and the data was uploaded but this is an ongoing process as new members are still joining the groups. During the year, training of CBO secretaries was conducted which also included CBO chairs and VDC representatives. The content covered data capturing, filling beneficiary registers and data use.

Data spot checks were also conducted regularly during the year. Registers and training forms were properly checked and feedback was given to technicians on where corrections were to be made, to ensure high quality data is captured and entered in IFormBuilder.

Supporting data entry into IFormBuilder: Data entry clerks were hired to enter backlog data, both trainings and CBO beneficiary data in Q3 and Q4. PACT and CA facilitated the training of these data entry clerks. The CA M&E team supported by supplying tablets to the partners for entering the data and technical support.

Identification of community data lead persons: Data lead persons were identified by the technicians to work hand in hand with CBO secretaries, assisting them in data collection from beneficiaries, ensuring data captured is of good quality.

Improved filling system: Following frequent M&E support from CA to partners and on clarification of indicators, all indicator source documents, reports and other project documents were properly filed and are constantly updated.

PMEP Table: Progress against FY17Annual Targets

FISH

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
Goal: To increase resiliency to climate change and to improve biodiversity conservation through effective sustainable fisheries co-management.				
EG.10.2-1	Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance	307	363	During the biophysical monitoring of sanctuaries 13 sites with a total hectarage of about 363 showed improved biodiversity indices from the baseline
EG.10.2-1a	Terrestrial-Freshwater		363	
EG.10.2-1b	Coastal-Marine		0	
EG.10.2-1c	Wildlife Trafficking		0	
EG.10.2-1d	Illegal Logging and associated trade		0	
EG.10.2-1e	Illegal, unreported and unregulated (IUU) Fishing		0	
EG.11-6	Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by USG assistance	20,676	19,888	Data for this indicator was collected through FISH Annual Beneficiary Survey. 76% of the respondents reported using climate information sourced from FISH Project.
EG.11-6a	Male		8,847	
EG.11-6b	Female		11,041	
Purpose: Institutions, individuals, and community actively and effectively engaged in good practices				
EG.11-2	Number of institutions with improved capacity to assess or address climate change risks supported by USG assistance	70	162	

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
EG.11-2a	National governmental		0	
EG.11-2b	Sub-national governmental		162	
EG.10.2-3	Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance	16,540	43,571	Data for this indicator was collected through FISH Annual Beneficiary Survey. 37% of the households reported higher levels of household income than at baseline. We use an average household size of 4.5 (as reported in the 2015-16 Malawi Demographic Health Survey) to determine the total number with improved economic benefits.
EG.10.2-3a	Male		19,382	
EG.10.2-3b	Female		24,189	
EG.3.2-17	Number of farmers and others who have applied improved technologies or management practices with USG assistance	16,540	25,122	Data for this indicator was collected through FISH Annual Beneficiary Survey. 96% of the respondents reported use of at least one improved technology promoted by FISH Project.
EG.3.2-17a	Male		11,175	
EG.3.2-17b	Female		13,947	
EG.10.2-6	Number of people that apply improved conservation law enforcement practices, as a result of USG assistance	1,378	358	A total of 37 BVCs reported confiscating over 800 fishing gears during the reporting period. It is expected that the number of BVCs engaged in patrols will improve in FY18 once their bylaws and user rights are endorsed at District Council level.
EG.10.2-6a(i)	Male		250	
EG.10.2-6a(ii)	Female		108	
EG.10.2-6b(i)	Wildlife Trafficking		0	
EG.10.2-6b(ii)	Illegal Logging and associated trade		0	
EG.10.2-6b(iii)	Illegal, unreported and unregulated (IUU) Fishing		358	

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
EG.10.2-2	Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance	250,000	248,985	The results for this indicator are based on the hectares of the four lake bodies with South Arm of Lake Malawi (131,774 hectares, Lake Malombe (37,069 hectares), Lake Chiuta (5,927 hectares) and Lake Chilwa (74,215 hectares). FISH has provided multiple support such as closed seasons, training of BVC members in fisheries conservation, developing management plans, bylaws, and constitutions, establishing sanctuaries, and enhanced catchment areas.
EG.10.2-2a(i)	Terrestial-Freshwater		248,985	
EG.10.2-2a(ii)	Coastal-Marine		0	
EG.10.2-2b(i)	Wildlife Trafficking		0	
EG.10.2-2b(ii)	Illegal Logging and associated trade		0	
EG.10.2-2b(iii)	Illegal, unreported and unregulated (IUU) Fishing		248,985	
Component A1: Utilization of science, analysis, and information for decision making increased				
4.8.3-2	Number users accessing FISH website and databank for information on fisheries best practices in BDC & CCA	1,500	250	The server hosting the website has been persistently down affecting public to access to log onto the website. The project is exploring a cloud-based option as a remedy to this problem. Also currently the digital repository is being hosted locally and accessible through an IP address. It is planned in FY18 to purchase a domain name for the repository to improve its visibility and accessibility.
4.8.3-2a	Biodiversity conservation		250	
4.8.3-2b	Climate change adaptation		0	
4.8.3-1	Number information documents (i.e. guides, IEC materials, studies, case studies, etc.) addressing CCA and/or BDC officially proposed, adopted or implemented as a result of USG assistance	25	34	

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
Component B2: Enabling environment for conservation and management of freshwater ecosystems enhanced				
EG.11-3	Number of laws, policies, regulations, or standards addressing climate change adaptation formally proposed, adopted, or implemented as supported by USG assistance	374	302	This indicator is measured through tracking of laws, plans, and publications. To date 302 documents have been produced as follows: 88 VNRMCs have constitutions, 84 have boundary maps, 78 have done resource assessment, 39 have management plans, and 13 have formulated their bylaws awaiting user rights
EG.11-3a	National, Proposed		0	
EG.11-3b	National, Adopted		0	
EG.11-3c	National, Implemented		0	
EG.11-3d	Sub-national, Proposed		214	To date 84 VNRMCs have boundary maps, 78 have done resource assessment, 39 have management plans, and 13 have formulated their bylaws awaiting user rights
EG.11-3e	Sub-national, Adopted		0	
EG.11-3f	Sub-national, Implemented		88	To date 88 VNRMCs have constitutions which guide their operation
EG.11-3g	Regional or International, Proposed		0	
EG.11-3h	Regional or International, Adopted		0	
EG.11-3i	Regional or International, Implemented		0	
EG.10.2-5	Number of laws, policies, or regulations that address biodiversity conservation and/or other environmental themes officially proposed, adopted, or implemented as a result of USG assistance	274	327	
EG.10.2-5a(i)	National, Proposed		0	
EG.10.2-5a(ii)	National, Adopted		0	
EG.10.2-5a(iii)	National, Implemented		0	
EG.10.2-5a(iv)	Sub-national, Proposed		144	To date 144 BVCs have formulated their bylaws awaiting user rights
EG.10.2-5a(v)	Sub-national, Adopted		0	

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
EG.10.2-5a(vi)	Sub-national, Implemented		183	To date 183 BVCs have constitutions which guide their operation
EG.10.2-5a(vii)	Regional or International, Proposed		0	
EG.10.2-5a(viii)	Regional or International, Adopted		0	
EG.10.2-5a(ix)	Regional or International, Implemented		0	
EG.10.2-5b(i)	Wildlife Trafficking		0	
EG.10.2-5b(ii)	Illegal Logging and associated trade		0	
EG.10.2-5b(iii)	Illegal, unreported and unregulated (IUU) Fishing		0	
4.8.4-1	Number FISH CBOs (i.e. BVC, FA, etc.) actively participating in co-management of fisheries	125	198	183 BVCs/RVCs, 3 FAs, and 12 sub-FAs are at various stages of the six-steps of the PFM process.
4.8.4-2	Number integrated project collaborations undertaken in shared catchments that benefit fisheries habitats	23	18	
Component C3: Priority threats to freshwater ecosystem biodiversity reduced				
EG.10.2-4	Number of people trained in sustainable natural resources management and/or biodiversity conservation as a result of USG assistance	11,125	4,699	Distinct number of individuals has been reported here to avoid double counting. However there were multiple trainings in natural resource management and/or biodiversity conservation targeting the same individuals.
EG.10.2-4a(i)	Male		2,144	
EG.10.2-4a(ii)	Female		2,555	
EG.10.2-4b(i)	Wildlife Trafficking		0	
EG.10.2-4b(ii)	Illegal Logging and associated trade		0	
EG.10.2-4b(iii)	Illegal, unreported and unregulated (IUU) Fishing		900	These are individuals who participated in the following training topics: sanctuaries/no-take zones management, brushparks construction and closed season
Component D4: Adoption of climate change adaptation measures increased				

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
EG.11-1	Number of people trained in climate change adaptation supported by USG assistance	12,251	8,063	Distinct number of individuals has been reported here to avoid double counting. However there were multiple trainings in climate change adaptation targeting the same individuals.
EG.11-1a	Male		3,048	
EG.11-1b	Female		5,015	
EG.11-5	Number of people supported by the USG to adapt to the effects of climate change	20,676	26,169	
EG.11-5a	Male		11,641	
EG.11-5b	Female		14,528	

DREAMS

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
Purpose*: To strengthen the link between HIV-positive men and HIV treatment and support and to increase acceptability and expand availability of HIV testing, treatment, care and support services targeted to men*				
	Proposed Indicator: Number of successful referrals made by peer mentors linking fishers to health facilities.	1222	529	The data is for only two quarters. Aggregate data is less than disaggregated data because some age groups have been excluded e.g. Male 18 to 18.= (772)
	Men 18-19		75	
	Men 20-24		103	
	Men 25-49		301	
	Men 50+		50	
	CARE_COMM Number of HIV positive men receiving care and support services outside of the health facility	N/A	N/A	Still under discussion with USAID
	COMM_MOB Number of men actively participating in community mobilization activities related to HIV prevention, treatment, and other services	15,413	14700	
Component O1. *ART uptake and adherence practices better understood as informed by research*				
	Number of SBCC tools refined and piloted based on findings of barrier assessment	2	1	A peer mentor training manual has been developed And used to train the peer mentors for Machinga and Zomba Districts. In FY 18 SBCC tools will be

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
				refined to include leaflets and radio messages targeting fishing community
Component O2. ***Linkages into treatment for HIV-positive males improved***				
	Number of BVCs trained on referral linkages other relevant indicators	19	39	20 BVCs in Zomba and 19 BVCs in Machinga. (In total 93 BVC members were trained 48 from Zomba and 45 for Machinga)
	HTS_TST_ Proposed Indicator Number of men who received HIV Testing Services (HTS) and received their test results during wellness days disaggregated by HIV results	375	1706	The data is for the two districts of Zomba and Machinga. These include the age groups 10-14 and 15-18
	<1	0	0	
	1-9	0	0	
	10-14	100	100	
	15-19	266	266	
	20-24	403	403	
	25-49	811	811	
	+50	126	126	
	Negative	1584	1581	
	Positive	125	125	
	Proposed Indicator: Number of health facilities oriented to deliver male friendly services.	16	22	22 health facilities have been oriented as follows with 88 health workers orientated on male friendly services (46 from 10 health facilities in Machinga and 42 from 6 Health Facilities in Zomba). In addition to this, 4 health posts from the islands along Lake Chilwa in Zomba were also oriented and these are Msombi, Ngotangota, Lingadzi and Chisi.

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
				Makwapala health centre in zomba was left out during the initial training as it does not appear on the FISH document. However after engaging the ADC it was noted that one of the BVC's namely 'Tiyese" is very close to this health facility hence the inclusion.In mbanila, Chipolonga, Namanja were included in the as newe health facilities for machinga
Component O3. ***Community level HIV prevention, care, and support services enhanced***				
	Number of people reached by mentors through one-on-one or small group activities	7425	802	The Peer mentors were trained in Q4 hence the figures are on the lower side.
	Number of community mobilization activities conducted	7	9	
	Number of people reached through large group community mobilization activities	7987	14700	The increase is due to demand for wellness days
	Number of condoms distributed	15,412	30574	PACT FISH was informed that the partners are distributing condoms hence the target was underestimated but it's not the case. PACTFISH has become the primary vehicle for condom distribution
	Male condoms		30574	
	Female condoms		0	

Code	Indicator	FY17 Annual Target	FY17 Annual Results	Comment
	HRH_CURR Number of health worker full-time equivalents who are working on any HIV-related activities i.e. prevention, treatment and other HIV support and are receiving any type of support from PEPFAR at facility sites, community sites, and at the above-site level.	***Clinical*** 0.019	0.6	
		Lay 20.625	13.6	
	PP_PREV Number of the priority populations (PP) reached with the standardized, evidence-based intervention(s) required that are designed to promote the adoption of HIV prevention behaviors and service uptake.	9,972	483	The figure is attributed to the late conduction of the peer mentors training who are responsible for the generation of this data on the ground

VII. Environmental Compliance (EMMP) and Construction Update

FISH: During the year no any issues of environmental mitigation measures were undertaken because most of the activities implemented were straight forward and were assumed to have no any negative impact to the environment. Most of these activities were aimed at addressing the environmental challenges that are affecting the communities around the Lakes the project is working.

DREAMS: The issue raised by USAID on disposal of biohazards generated during wellness day was addressed in the EMMP which was submitted to USAID. The biohazards are collected and incinerated at the nearest health facility.

VIII. Planned Activities for Next Year October 2017 to September 2018

FISH Output 1

Output code	Activity	Oct	Nov	Dec
1.1.1.4	Update digital repository	X	X	X
1.1.2.2	Develop and Manage digital repository/virtual knowledge management platform for sharing technical materials, human resource directory, etc.	X	X	X
1.2.4.1	Facilitate a working group meeting with DoF to approve the Chambo management plan revisions and adopt the Usipa management plan that were developed in Year 3	X	X	
1.2.4.1	Support DoF and LFMAs to monitor the implementation of the management plans. This may include research to fill knowledge gaps that are required to implement the management plan (e.g. research or monitoring of environmental cues)	X	X	X
1.1.3.3	FSTAP high profile multi-stakeholder dialogue sessions review, define and prioritize fisheries best practices.	X		X
1.1.3.4	Promote & include in DDP best practices in riparian conservation with front-line workers (including lakefront developers, farmers, and fisherfolk)		X	

FISH Output 2

Output code	Activity	Oct	Nov	Dec
2.1.1.1 a.	Partner planning/review meeting	X		
2.1.1.1 b.	Review supporting legal frameworks for the plausible financing scenario of local institutions (as appropriate)	X	X	

2.1.1.1 c.	Mobilize support for implementing plausible financing scenarios through the engagement with the Parliamentary Committee on Agriculture and Water Development		X	
2.1.1.2	Hold meetings with DoF to discuss proposed scenarios for meeting resources requirements of local institutions	X	X	
2.1.2.2	Finalize signing of by-laws in Lakes Chilwa and Chiuta		X	X
2.1.2.2	Disseminate evidence based messages on policy as per the "Communication Strategy".	X	X	X
2.1.3.1	Hold meetings with institutions involved in fisheries management to mobilize support for plausible financing scenario		X	X
2.1.3.2	Stakeholder meetings with traditional leaders, district councils and other stakeholders on gold mining, and heavy mineral sand mining in relevant FISH target areas	X		X
2.3.3.3	Build capacity of DoF College for training of Fisheries Extension workers (and BVC). *(Following up finalization and approval of the workplan)*		X	X

FISH Output 3 and 4

Output code	Activity	Oct	Nov	Dec
3.1.2.1	Protect and restore key breeding areas with focus on riverbank (Shoreline) protection using bamboo cultivation	X	X	X
3.1.2.2	Collaborate with "conservation agriculture" in prime erosion areas to protect key breeding grounds.	X	X	X
3.1.2.3	Collaborate with catchment NRM projects to tackle deforestation where fuel wood for fish processing is causing deforestation and siltation in key areas.	X	X	X
3.3.2.1	BVCs strengthened by a nested governance system (linked to 2)	X	X	X
4.1.2.1	Coordinate with districts and projects in climate proofing shoreline governance through VNRMC in critical catchments.	X	X	X
4.1.2.2	Promote through VNRMC all year round tree planting using vegetative stems.	X	X	X
4.1.2.3	Promote conservation agriculture and climate smart practices in shoreline community.	X	X	X
4.1.2.4	Collaborate with other projects to promote agro-forestry and intercropping on slopes to reduce soil erosion.	X	X	X
4.2.1.1	Assist Machinga District, in collaboration with other project partners, to develop an improved drought early warning system based on agreed models and datasets to improve predictions and forecasts	X	X	X
4.2.2.2	Support VSLA groups in fish farming and fishing communities, for women and men.	X	X	X

4.2.2.4	Support alternative livelihoods, like NRBE for BVC (bee keeping).	X	X	X
4.2.2.5	Fisher communities use more efficient climate smart energy sources for fish processing (i.e. improved stoves/cookers, smokers, solar dryers, etc.) and other hh use	X	X	X
4.2.3.1	Support improved and energy saving fish processing for value addition and post-harvest loss, including links to fish traders.	X	X	X
4.2.3.2	Work closely with 4-10 entrepreneurs per technology involved in value chain improvements and postharvest processing to document their work and business models	X	X	X
4.2.3.3	Engage BVCs in cross-cutting issues such as HIV/AIDS, bilharzia treatment, malaria prevention, improved beach market sanitation, etc.	X	X	X
5.0.0.0	M&E activities	X	X	X

DREAMS

Output code	Activity	Oct	Nov	Dec
2.1	Provide feedback of the preliminary assessments to Zomba, Machinga DHO	X		
2.2	Organize bi-monthly wellness da Provide feedback of the preliminary assessments to Zomba, Machinga DHOs to integrate HIV Testing and Treatment linkages with blood pressure screening/STI/TB/Bilharzia(Awareness)	X	X	X
3.1	Facilitate monthly review meeting with mentors for data collection, updates, support	X	X	X
3.2	Facilitate Pact Dreams monthly review meetings for planning	X	X	X
3.2	Provide condoms for mentors to distribute clients	X	X	X
4.1	Conduct monthly reviews of referrals to health centres	X	X	X
4.2	Conduct monthly review and planning meeting to share results and agree on annual plan		X	X
4.3	Roll out the adapted SBCC materials through Peer Mentors/FISH staff/FISH activities/Beach Wellness Days	X	X	X
5.1	Conduct monthly supervision and data review with peer mentors and BVC members	X	X	X
5.2	Provide on-site training on HIV referral and follow, adherence support, monitoring	X	X	X