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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Evaluation of the Pilot Project On the Use of Smartphones For Fisheries Data Collection in Ghana



February, 2018

THE
UNIVERSITY
OF RHODE ISLAND
GRADUATE SCHOOL
OF OCEANOGRAPHY



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Cover photo: Data collectors in field (Photo Credit: Coastal Resources Center)

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Hen Mpoano: <http://www.henmpoano.org>
Resonance Global: <https://resonanceglobal.com/>
SNV: <http://www.snvworld.org/en/countries/ghana>

ACRONYMS

CCM	Centre for Coastal Management
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CRC	Coastal Resource Center
CSLP	Coastal Sustainable Landscape Project
DAA	Development Action Association
DFAS	Department of Fisheries and Aquatic Science
DMFS	Department of Marine Fisheries Sciences
DQF	Daasgift Quality Foundation
FtF	Feed the Future
GIFA	Ghana Inshore Fishermen's Association
GIS	Geographic Information System
GNCFC	Ghana National Canoe Fishermen's Council
HM	Hen Mpoano
ICFG	Integrated Coastal and Fisheries Governance
MESTI	Ministry of Environment Science and Technology
MOFAD	Ministry of Fisheries and Aquaculture Development
NDPC	National Development Planning Commission
NGOs	Non-Governmental Organizations
SFMP	Sustainable Fisheries Management Project
SMEs	Small and Medium Enterprises
SNV	Netherlands Development Organization
SSG	SSG Advisors
STWG	Scientific and Technical Working Group
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development
WARFP	West Africa Regional Fisheries Development Program

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WORKSHOP GOAL

The Goal of the workshop was to evaluate the pilot project of the electronic fisheries data collection system implemented by the fisheries commission in four locations. The FSSD will benefit from this evaluation in deciding on future directions for improved fisheries information and management system in Ghana.

The Event

The workshop included group discussions on various elements and stages of the pilot project launched in March 2017 by the Fisheries Commission to collect fisheries catch and effort data using smartphones. It was held February 14-15, 2018.

The FC presented the lessons learned and challenges encountered in this implementation and develop a future direction for the electronic data collection and management initiative. The FCWC will present their current status, lessons learned and challenges in regional efforts to improve electronic data collection and management using smartphones.

The workshop was organized by SFMP in collaboration with:

- Ghana Fisheries Commission-FSSD.
- Fisheries Committee for the West Central Gulf of Guinea (FCWC).
- Food and Agriculture Organization-TCP project (FAO-TCP).
- West Africa Regional Fisheries Project (WARFP).
- University of Cape Coast (USAID-FCMCBS Project).
- University of Ghana (MESA project).

Context

The ability of the Fisheries Commission to achieve management objectives for the National Fisheries Management Plan is contingent on being able to collect high quality, timely and cost effective fisheries data.

Fisheries monitoring is an important, yet a complex component of fisheries management in Ghana. For each fishery, the Fisheries Commission is responsible for fisheries data collection necessary for monitoring the status of landings and fish stocks. The lack of staff and declining budgets and other drivers have highlighted the need to improve the existing fisheries data collection programs. Several approaches have been proposed by the various ongoing projects (WARFP, FAO-TCP, USAID/SFMP, FCWC, UCC and UG) to implemented parts of the emerging electronic technologies which seems to offer a better opportunity to collect data in ways that improve cost-effectiveness and efficiency in the long term.

This workshop offers an opportunity for the Fisheries Commission to evaluate the pilot project implemented in fourteen selected sites and decide on a forward strategy to scale up the implementation at the national level.

The workshop is sponsored by USAID/SFMP in support of the Fisheries Commission's planning and implementation of the national fisheries management plan (2015-2019). The SFMP is a fisheries food security project funded by the United States Agency for International Development (USAID)/Ghana. The goal of SFMP is to rebuild targeted marine fisheries stocks through the adoption of sustainable fishing practices and reduced exploitation to end overfishing.

Participants

There were 21 participants in the workshop, mainly from the Fisheries Commission and FSSD. A full list of participants is found in Appendix 1

Agenda

The agenda for the meeting can be found in Appendix 2.

PRESENTATIONS

Fisheries Statistical Survey Division (FSSD)

Emmanuel Dovlo began with a presentation on status of the fish landing data collection program resources, economics, and markets. Field staff are held as the backbone of the entire program. Training of field data collections is key to the quality and effectiveness of the field collectors and supervisors. Field staff continue to suffer from financial issues such as delayed or non-payment of salary and lack of payments by the Fisheries Commission for the SIM card usage credits. The field staff working as enumerators are gathering the data using a cell phone app but need usage credits on the phones to submit the collected data to the cloud database. Without credit on the phone some staff are bringing the phone to the office and uploading using the office Wi-Fi system. This results in lower motivation causing a problem in the overall moral of field staff. Additionally, lack of training and funding for mobility within the survey areas each staff is charged with monitoring has led to degraded performance in many cases.

Office staff in the Fisheries Statistical Survey Division are charged with monitoring data from the field and taking corrective action as needed to maintain accuracy of the data flowing into the data system. They store primary data as well as manage the derivative data for statistical analysis and preparation of reports, bulletins, and yearbooks. They are the point of contact for dissemination of data to national, regional and international user groups. Internally, regional and zonal officers often request data from the office staff.

The strengths of the system result from local knowledge, adaptation of collection systems, co-operation of local fishermen and chief fishermen as well as a strong community spirit.

Frequent problems include selection of landing sites for monitoring. Some are not representative of all boat/gear types and certain fisheries. Boats may operate different gears in one trip and the basis of the collection is fixed at a single gear type. Data collection challenges include: arithmetical errors, precision, insufficient field supervision as well as fish identification issues.

National Pilot Project (FSSD)

Smart phones for fisheries data collection in Ghana were implemented in this pilot project beginning March 2017. Data from 12 field enumerators were collected on a phone app and sent to the ODK server in Accra, then downloaded to the FSSD platform and uploaded into Open ArtFISH. Phone advantages were: improved data quality, cost reduction, reduced data loss, ease of use due to small size, and time savings. Disadvantages are reported as possibility of phone theft (none have occurred), mishandling of the phones resulting in damage (none have occurred), and an unstable cellular network. Overall data collection was improved with the increased speed and quality of the data coming into the landings app to the server system.

The major drawback to the system still is the lack of enumerator salaries and payment for SIM card minutes on the data collection phones. Additionally, some changes are needed in the phone application to minimize problems with fish ID data sets. FSSD is interested in

migrating the app to a tablet platform and to add some additional variables to those that are collected routinely. Some interest was expressed in a second app for collecting data from environmental sampling efforts.

FCWC

A brief presentation was made by Abena Asante of FCWC on the efforts to implement electronic fisheries landing data collection in the Western Gulf of Guinea countries. Currently 3 nations are running pilots or have adapted their system to electronic collection only. Cote D'Ivoire has 10 landing sites, Ghana has 16 and Benin has 4 that are operating electronically. Note that only 12 may be running in Ghana. Liberia, Togo and Nigeria have not been successful in implementing electronic landings data collection due to a mix of issues including: funding; internet supply, quality, and stability; as well as an insufficient number of trained enumerators. They singled Ghana out for the problems in funding field enumerators and acknowledged SFMP for supporting the pilot in Ghana.

FSSD Field Enumerators

Two of the FSSD field enumerators presented on their experience going from paper data collection to using the phone app. Each felt it was an improvement that was more efficient, faster and prevented delays in getting data reported to FC. Challenges mentioned include the species data set instability on the phones, unavailability of credit for the mobile data on the SIM, and a lack of periodic updates and training. Both felt the way forward was to move to mini-tablets from the phones, setup pay and SIM card allowances for the enumerators and implement a regular refresher program for enumerators and field supervisors.

RECOMMENDATIONS

In August 2016 SFMP held the first of several workshops with FC and FSSD to scope out the transition from paper form based landings data collection to an electronic system. During this workshop in Pram Pram, FSSD staff interacted on a design for an electronic landings data collection system. These plans were brought forward at a second workshop run by SFMP and held in January 2017 in Aburi, Ghana. The goal of that workshop was to develop an implementation plan and a timetable for a coordinated electronic fisheries data collection system with focus on the use of electronic data collection tools notably tablets and smartphones, and also discuss the differences in the various project's priorities and interests and established synergies to leverage available resources towards achieving the Fisheries Commission's Fisheries Management Information Systems (FMIS) targets.

Recommendations from this workshop include:

- The group stressed on communication among members on progress of work to be coordinated by SFMP.
- Action on remuneration of the field enumerators. There are several enumerators in the field that have worked for the Fisheries Commission for more than 2 years and they have never been paid a salary.
- The group discussed the use of fisheries data for compliance purposes. The group recommended to maintain the proper use of data for scientific and statistical purposes only and that compliance is not within the scope of this project. Enumerators are not to collect data for enforcement purposes.

The FSSD staff adopted the FAO/FCWC plan to work with cell phones instead of tablets and the pilot project started 2 months later in March 2017.

Implementation of the Pilot Project has shown a number of negative outcomes. First and foremost is the fact that payment to field enumerators is still problematic. Even with all of the previous workshops pointing this out, the Fisheries Commission and FSSD have not made improvements in the payroll status of the field enumerators. Further, the electronic landings data collection, being fully dependent upon cellular network access, was hobbled by the fact that the Fisheries Commission and FSSD did not provide a reliable payment plan for the cellular network accounts used by the field enumerators. These problems were brought up in August of 2017 when SFMP worked on budgeting for the FY18 year starting in October 2017. As a result, SFMP declined to fund further work on the electronic data collection activity of FSSD unless these problems could be resolved.

Our recommendation is for SFMP to continue to monitor the implementation of the electronic landings data collection effort but to provide no further funding for the activity until Fisheries Commission improves financing for the data collection at an appropriate level.

SFMP could continue limited support for the paperless data collection as FSSD uses WARFP funds to procure field tablets, then support modification of the data forms to include additional field variables and address the issue with the fish species ID photos getting lost in the application. It is our belief that the noted improvements in the speed and efficiency of the electronic landings data collection makes this a desirable direction for FSSD to move towards. However, it would first require improved financial support from the Fisheries Commission for operating funds.

APPENDIX 1 PARTICIPANT LIST

Name	Organization
Michael Arthur-Dadzie	FC – Headquarters
PapaYaw Atobrah	MoFAD
Thomas Insaïdo	FC- Headquarter
Rebecca Sackey-Mensah	FC- Headquarter
Paul Bannerman	FSSD – Tema
Emmanuel Dovlo	FSSD – Tema
Reynolds Obeng	FSSD – Tema
Dedi Nadjé seraphin	FCWC
Abena Asante	FCWC
Martinus Vanderknaap	FAO
Eric Agyeyeman	WARFP
Maurice Knight	SFMP
Socrates	SFMP
Najih Lazar	URI-CRC
Bob Bowen	URI-CRC
John Azu	Africa Lead
Enumerator from Western Region	FC
Enumerator from Central Region	FC
Enumerator from Volta	FC
Enumerator from Greater Accra	FC

APPENDIX 2 MEETING AGENDA

Agenda

February 14, 2018

0900-0940	Opening Welcome by the Fisheries Commission Remarks by SFMP – CoP	
0940-1030	Current Setting Meeting purpose and goals Fisheries data status and challenges	Moderator Paul Bannerman
1030-11:00	Break	
1100-1300	Lessons Learned and Challenges National Pilot Project Regional Pilot Projects	Paul Bannerman Dedi Sepharine
1300-1400	Lunch	
1400-1500	Lessons learned and challenges (Users perspectives) Western Region Central Region Greater Accra Volta	Moderator - John
15:00-15-30	Break	
1530-1630	Discussions Wrap-up	Moderator

February 15, 2018

0830-0900	Opening	Moderator
0900-0930	Discussion on a way forward -Develop a list of recommendations -Draft a summary report to the FC	Moderator
1030-11:00	Break	
1100 – 1300	Continue with summary report	Moderator
Adjourn Lunch		