DROUGHT EARLY WARNING SYSTEM
INFORMATION COMMUNICATION TECHNOLOGY PILOT EVALUATION

Jennifer L. Chan, MD, MPH
Independent Consultant
May 2014
As part of our commitment to accountability and learning, Oxfam will share conclusions and recommendations from evaluations. Internally we will share with relevant stakeholders, ensuring that they have an opportunity to participate in discussion of those results in meaningful ways. We will also publish the evaluation reports on our website in accessible language.

As a rights-based organization, accountability, particularly to the communities we seek to serve, is of the highest importance to us. For Oxfam, accountability requires Oxfam to regularly and honestly assess the quality of its work, share and learn from its findings with primary stakeholders, and apply that learning in future work.

This is an evaluation of Oxfam America’s pilot project on integration of Information Communication Technology (ICT) into the Drought Early Warning System (DEWS) project. The DEWS pilot project has been operating in Ethiopia since 2007 and the ICT component with the use of digital data collection tool started in 2013. This evaluation covers the work undertaken between February 2013 and March 2014.

The major evaluation activities took place between February 7 and March 31, 2014. The evaluation was carried out by Jennifer Chan, consultant and reflects the findings as reported by her as validated with stakeholders. The evaluation was managed by Myra Foster, Humanitarian Response Department Senior Public Health Specialist and Nazareth Fikru, Horn of Africa Regional Humanitarian Coordinator from Oxfam America, and commissioned by Darius Teter, VP of Programs.

For additional information regarding the evaluation Terms of Reference, please refer to the report appendices.
CONTENTS

Abbreviations and Acronyms ................................................................. iv
Glossary of Technical Terms ................................................................. v

Executive Summary ............................................................................. 01
Overview of Intervention ................................................................. 01
Objectives .......................................................................................... 01
Methodology ....................................................................................... 01
Findings and Recommendations .................................................... 02
Evaluation for Learning and Action Oriented Next Steps ............... 03

Introduction – Overall Program Status .............................................. 05
  Overview
  Purpose
  Background
  Evaluation Approach

Evaluation Process and Findings ....................................................... 10
Effectiveness
 Efficiency
Relevance and Appropriateness
Decision-Making and Scale
Technology
Planning and Preparation
Information Security and Privacy
Implementation
Integration
Outputs
People

Value for Money and Cost Effectiveness ............................................ 32
Understanding and Anticipating Value for Money and Cost Effectiveness
Value for Money

General Program Outcomes and Perceived Broad Impacts ............... 37
Gender and Empowerment
Resilience and Credit Savings Groups
DEWS Outcomes and Perceived Early Warning Action

Process Evaluation and Recommendations ....................................... 39
References .................................................................................................................................................45
Annex 1 – Water Mapping Project .................................................................46
Annex 2 – New Graphs, Maps and Information Products .....................51
Annex 3 – Efficiency ...............................................................................................54
Annex 4 – Relevance and Appropriateness ...............................................59
Annex 5 – Technology .........................................................................................61
Annex 6 – Assessment and Preparation ......................................................62
Annex 7 – Information Security and Privacy ...........................................64
Annex 8 – Implementation ...............................................................................66
Annex 9 – Integration .........................................................................................68
Annex 10 – Outputs ..............................................................................................70
Annex 11 – Audio Files and Data Analysis ..............................................73
Annex 12 – Mapping and Analysis .................................................................74
Annex 13 – People .................................................................................................76
Annex 14 – Methodology ..................................................................................77
Annex 15 – Terms of Reference .................................................................80
Figure 1 – VAS Scale Errors ........................................................................87
Figure 2 – Instance Filenames ........................................................................88
Figure 3A – Variable Formats ......................................................................89
Figure 3B – Data Transformation .................................................................90
# LIST OF ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>Data Collectors</td>
</tr>
<tr>
<td>DEWS</td>
<td>Drought Early Warning System</td>
</tr>
<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
</tr>
<tr>
<td>FOTWOG</td>
<td>Field Operations Working Group</td>
</tr>
<tr>
<td>GPDI</td>
<td>Gayo Pastoral Development Initiative</td>
</tr>
<tr>
<td>HARO</td>
<td>Horn of Africa Office</td>
</tr>
<tr>
<td>HEW</td>
<td>Health Extension Worker</td>
</tr>
<tr>
<td>HRD</td>
<td>Humanitarian Response Department</td>
</tr>
<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
</tr>
<tr>
<td>ICT4D</td>
<td>Information Communication Technology for Development</td>
</tr>
<tr>
<td>KI</td>
<td>Key informant interview</td>
</tr>
<tr>
<td>MEL</td>
<td>Monitoring Evaluation &amp; Learning</td>
</tr>
<tr>
<td>OA</td>
<td>Oxfam America</td>
</tr>
<tr>
<td>ODK</td>
<td>Open Data Kit</td>
</tr>
<tr>
<td>PA</td>
<td>Pastoralist Associations (aka Kebeles or villages)</td>
</tr>
<tr>
<td>SMS</td>
<td>Simple Messaging System</td>
</tr>
<tr>
<td>T4D</td>
<td>Technology for Development</td>
</tr>
<tr>
<td>VAS</td>
<td>Visual Analogue Scale</td>
</tr>
</tbody>
</table>
GLOSSARY OF TECHNICAL TERMINOLOGY

**ICT**: information communication technology

**MOBILE TECHNOLOGY** is the use of technology that is mobile (moveable) in nature. The DEWS program mobile technology uses SMART phones that have the ability to connect to mobile communication networks, but the pilot digital data collection was actually “offline” from both the mobile networks and the internet.

**FEEDBACK LOOPS** are defined as the information communication pathways and environments for which DEWS information is shared with DEWS stakeholders. The following are examples of feedback loops and example descriptions can be found in the 2012 ICT Assessment report:

1) Monthly report sharing via email, SMS, paper, voice communications of report findings between the GPDI coordinator and DCs/HEWs
2) Conversations between stakeholders in quarterly meetings, village meetings, task force meetings
3) Learning events and workshops at the HRD/HARO level
4) Quarterly meetings (see below)

**QUARTERLY MEETINGS** are an example of a broadly recognized DEWS feedback loop. Key stakeholders and decision makers convene at the kebele and zonal levels in both Moyale and Taltal to discuss DEWS findings. It is believed that collective priority setting and decision-making occur at these meetings for response and participatory projects. Further information about quarterly meetings can be found in prior evaluation reports, project reports and general DEWS documentation.
EXECUTIVE SUMMARY

OVERVIEW OF INTERVENTION (PROGRAMS, CAMPAIGN, OR HUMANITARIAN RESPONSE)

Oxfam America’s Drought Early Warning System (DEWS) was designed in 2007 to facilitate bi-directional information flows between Moyale pastoralist communities, government partners, local partners, and Oxfam America. The system complements existing early warning systems by providing a community-level information system that supports situational awareness and collective decision-making. In February 2013, the ICT pilot integrated a digital data collection tool beginning in July 2013. It focuses on two regions, Moyale and Teletele in Borena, southern Ethiopia.

In order to fully understand the ICT evaluation findings in the context of general programming, the ICT evaluation is accompanied by a brief informal overview of general program findings & recommendations. A recent formal program evaluation of the program was not available and the last comprehensive evaluation was performed in 2010. General Program Findings & Recommendations can be found at the end of the executive summary and on page 38.

OBJECTIVES OF THE EVALUATION

The purpose of evaluation is to gain an understanding of the progress of the pilot project and its integration into the pre-existing DEWS system. The project logic is the belief that ICT integration can positively influence and advance DEWS goals. The Pilot goals & objectives were to:

1. Improve the efficiency and quality of information collection, analysis, sharing and ultimately decision-making
2. Integrate a digital data collection tool using KoBoToolbox
3. Use KoBoToolbox to visualize the DEWS data and
4. Advance capacity building.

EVALUATION METHODOLOGY

Three OECD/HIF criteria (i.e., efficiency, effectiveness, and relevance/appropriateness) and complementary methods & criteria were used to evaluate the pilot project. A conceptual framework for evaluation using the 90/10 rule of technology was also applied.
EVALUATION FINDINGS AND RECOMMENDATIONS

Effectiveness - The Pilot was highly successful in integrating KoBoForm, KoBoCollect and KoBoSync into the existing DEWS system as well as building technical capacity among almost all of the stakeholders in the DEWS system. KoBoMap was a failure during the pilot period because maps were not created with this aspect of the KoBoToolbox. KoBoMap is a product under development and it is anticipated that the new version will have a more developed tool. Other mapping platforms were used including ArcGIS and efforts with geographic visualization focused on the Water Mapping Project (see Annex 1). Members of the DEWS system felt that the ICT pilot improved the overarching DEWS goals of community-based information sharing, but it did not clearly advance the goals of bringing stakeholders together through a two-way information exchange including the highly regarded quarterly feedback meetings. It was difficult to discern how the pilot influenced DRR activities. There is a high likelihood for a confounding effect where the perceptions of limited DRR participatory projects were a result of general programmatic issues rather than the ICT pilot itself. The pilot strongly enhanced capacity building with general ICT training, data management training and data analysis training activities during the pilot period.

Efficiency - The DEWS ICT Pilot was very successful at improving the efficiency of community level data collection and somewhat successful at improving efficiency of Partner data collection and transfer. Time was saved at the community level using the Smartphones and digital data collection. Time was also lost due to unanticipated electricity limitations in one district. The audio recording function of KoBoForm/Collect improved data quality. Despite some technical errors in the new KoBoVAS tool, it appears to have had little effect on overall data quality, likely due to pre-existing knowledge of women informants.

Relevance & Appropriateness- The pilot was highly relevant in its aims to improve the pre-existing goals of information collection & sharing but fell short in addressing other pressing needs of the program. Digital data collection was highly relevant for data collection but less appropriate for feedback loops, specifically quarterly meetings where stakeholders from the community government are able to come together and share DEWS findings for decision making. Solar power electricity was highly relevant when recognized as a need during the pilot period. The selection of digital data collection for the DEWS information system was highly appropriate for addressing the information collection needs of the project. The ICT Pilot project was not able to address the overall project needs of the beneficiaries/end users.

Decision Making & Pilot Scalability- Information sharing decision-making and actions are occurring in the DEWS program, but the evaluation was not able to determine if the ICT pilot directly affected necessary programmatic actions during this time period. The evaluation findings suggest that decision-making challenges may not be technical but human centered, such as trust in data and information. It was technically difficult to address ICT scale since the pilot period has only been collecting data for less than 6
months with variable outputs for visualization. Identified weaknesses in feedback loops, specifically quarterly meetings and sharing monthly reports with some government stakeholders which may be programmatic in nature which should be addressed prior to scaling ICT (see General Program Findings & Recommendations on page 38). More importantly the way forward with scaling ICT will depend upon the general program’s ability to scale or transition itself and ability to either transition or scale, which appears to been unresolved for over 2-3 years. Delineating these challenges is outside the scope of this evaluation and should be addressed in a formal program evaluation. If programmatic issues are resolved there are opportunities to scale the ICT within DEWS programming. How scalability should be approached will need to be readdressed, but short term measures to sustain existing successes are outlined in the “High priority brief findings and recommendations” section and below.

EVALUATION FOR LEARNING AND ACTION ORIENTED NEXT STEPS (PROCESS EVALUATION)

Key findings & recommendations if the Pilot transitions into ongoing programming:

- The solar power charger ReadySet in Sarite has been successful for the past 1-2 months. A high priority next step is to create a monitoring, contingency & maintenance plan for this new technology. It is recommended to assess the feasibility of purchasing more ReadySets once the maintenance and monitoring costs are identified.
- KoBoCollect is a user-friendly application for data collection, but at the time of the field evaluation, the application has been unexpectedly deleted on 2 tablets preventing data collection on those devices. Further investigation is needed in the next few months to determine the cause of this problem and then create an action plan.
- KoBoMap was a failure during the ICT Pilot period likely due to development stage of the tool. Contributing factors were the lack of user-friendliness, potential bugs in the system, limited user community and limited support from the KoBoTeam.
- Much progress has been made with exploring different mapping technical platforms, particularly with the Water Mapping project. If efforts are made to advance geographic visualization for DEWS specific data, an exercise on “what do we want to map” is strongly recommended.
- Humanitarian ICT projects, especially those in conflict environments, should assess, plan for and integrate an information, security and privacy plan. There appears to be no formal plan or policy for the DEWS ICT Pilot, but per interviews an overall organizational OA policy is in process. An information security and privacy plan, and protocol are a high priority for the ICT Project moving forward.
- Implementation success was tightly linked to funding commitments and the hard work of the DEWS team, including the ICT consultant, HRD PH specialist, HARO/GPDI coordinators, and DC/HEW & women informants. The “building upon existing strengths” approach likely set the stage for the successes to date.
• There were obstacles integrating Tablets during the pilot period, but data collection has been successful due to dedicated HEW & DEW staff. Next steps should work to integrate more feedback mechanisms and user-centered process design to mitigate future implementation challenges.

• Implementing new visualization approaches not only faced technical challenges, but likely also faced some design and planning limitations.

• The SMS feedback system created by the GPDI coordinator was an unplanned feedback loop sharing monthly report findings back to communities during the pilot period. A great success and example of a user-centered approach. Next steps to build simple more efficient solutions such as integrating FrontlineSMS should be considered.

• Digital data collection has created a large volume of files (over 2300 files at the time of evaluation), which is currently managed in an ad hoc manner. A data management plan and strategy for managing information expansion and overload is a high priority recommended next step. This should also include a data storage plan and assigning instance filenames moving forward.

• Some livelihood indicators (6.1, 21.2, 22.2) have fallen out of the monthly analysis despite being collected each month. A process, plan and review of the impact of the most recent refresher training should be high priority to reintegrate this data back into the system.

• Audio datasets are valued and of good quality, but a process to analyze and process the data is needed as soon as possible to use the data for its intended purpose. Decreasing the number of audio questions from 7 to 2 questions could be considered.¹

• Despite some challenges with data transformations between previous DEW Excel datasets and new KoBo Excel datasets, monthly reports were still generated.

• The Pilot brought some stakeholders together during frequent Skype, email & phone communications, but others at the HARO level appeared less involved. Ongoing efforts to build trusted relationships and ongoing communications between key stakeholders at the managerial level are necessary to close this gap. This should be reviewed and readdressed at Oxfam America before any future steps are taken.

• After staffing challenges are resolved, HARO leadership along with a commitment from the DEWS HARO coordinator should train the Partner staff on monthly analysis and transition this to the Partner Organization.

¹ Women informants in Mudhi Ambo responded positively to this idea, and feel that they will be able to share their perspective adequately and appeared to understand the current challenges with information overload.
INTRODUCTION – OVERALL PROGRAM STATUS

OVERVIEW

Since 2006, DEWS has achieved some remarkable accomplishments. It is possible to overcome the challenges outlined in this evaluation with a willingness to work together, communicate and make collective decisions on the best way forward.

Note: General programming findings (below) were requested by Oxfam America and should be part of a comprehensive evaluation. This evaluation focused primarily on the Pilot ICT Project. The last general program evaluation was 2010.

Similar findings were identified during the ICT feasibility assessment 2 years ago

Leadership and management do not appear to have a clear strategic plan or way forward. Despite a strong interest in the program, stakeholders are unaware of program next steps. It appears that those in leadership and management positions attribute the responsibility to others in leadership positions. This likely is a major factor for a lack of a strategy and ongoing challenges with budgeting and planning.

Stakeholders have felt positive about DEWS. Community members felt that the DEWS system positively impacted their communities and frequently cited the Partner’s (i.e. GPDI’s) valuable role. Stakeholders in government offices, OA, and the Partner recognize the value of the program. These positive feelings are now almost ubiquitously coupled with concerns for limited feedback loops, identified by many stakeholders as quarterly meetings. Participatory projects which frequently result from these meetings were also cited as a concern during the field trip. These components are felt to be very valuable parts of the system.

Member of the DEWS project feel that project interruptions and lack of continuous funding have negatively impacted the program over the years. DEWS faces ongoing deterioration of feedback loops, in particular quarterly meetings that support the decision-making mechanisms for planning participatory projects. These challenges are multi-factorial and likely related to differing perspective at primarily the HRD/HARO on funding responsibility, procurement and allocation of funds.

This is not a new finding but the growing uncertainty regard whether the challenges will be addressed appears more apparent. Despite the successes with the ICT Pilot, the patchwork approach by dedicated individuals to keep the project going for short intervals
is not a sustainable strategy or solution to the ongoing challenges with overall DEWS programming. For example, the ICT Pilot allocated funds toward general programmatic needs such as quarterly meetings and staffing salaries.

OA HARO/Boston and GPDI staff should immediately determine a strategy that first addresses the existing internal programmatic challenges. Assigning an accountable leader/manager with the commitment of the OA organization and Partners is recommended to transition the program. They would be responsible to determine a strategy for long-term programming or allow the program to be shared with other organizations that are willing to invest leadership, management and funds to establish a future strategy and plan. Pursing immediate government transition without a strategy and further strengthening the program will likely result in overall program failure.

PURPOSE

The purpose of evaluation is to gain an understanding of the progress of the pilot project and its integration into the pre-existing DEWS system. Specifically, the evaluation will focus on approaches to gain lessons learned and action-oriented recommendations to guide next steps in programming. It will also focus upon the pilot's early influence on efficiency and effectiveness. Specifically, improving gathering, analyzing and sharing monthly information for decision-making using a digital data collection tool in two districts in the Woreda of Oromia Regional states in southern Ethiopia.

Primary Purpose

To further understand the functioning of the ICT DEWS pilot project by evaluating the efficiency and effectiveness of integrating digital data collection technology into the pre-existing Drought Early Warning Surveillance system (DEWS). When possible the Water Mapping project will also be evaluated.

Secondary Purpose

The below objectives were addressed when feasible.

- Explore the opportunities for scaling up DEWS ICT and water mapping project using ICT in other districts.
- Assess to what extent the DEWS/water mapping pilot project may already be influencing pre-existing DEWS programming effectiveness, and when possible, how this may begin to help communities better cope and be prepared to emergencies.

(General program findings should not be interpreted as an adequate or formal program evaluation)
BACKGROUND

Oxfam’s Drought Early Warning System (DEWS) was designed in 2007 to facilitate bi-directional information flows between Moyale pastoralist communities, government, local partners, and Oxfam America. The system complements existing early warning systems by providing a community-level situational awareness and collective decision-making. After 5 years of programming, Oxfam America and Gayo Pastoralist Development Initiative began to explore ICT options for the DEWS program. The category 1 emergency which began in July 2011 was a major event that ended in November 2012. In 2013 the ICT pilot focusing on the digital data collection KoBoToolbox began with the aim and hope to improve the efficient and effectiveness of gathering, analyzing and sharing monthly information. The project was supported by multiple funding sources over the project life cycle. It focuses on two regions, Moyale and Taltalle in Borena, southern Ethiopia. Moyale villages have been involved in DEWS programming since its inception in 2007 and Taltalle villages have been involved since 2011.

EVALUATION APPROACH

The project logic is the belief that ICT integration may have the potential to positively influence and augment the pre-existing DEWS system by improving or complementing the system’s ability to advance its overarching goals:

1. To leverage community-based and participatory reporting and information sharing of changes in Moyale and Taltalle for early warning of impending drought.
2. To bring stakeholders together through bi-directional information exchange to engage in
   a. disaster risk reduction projects and activities in deteriorating but pre-emergency setting to mitigate impending disasters
   b. when emergency situations emerge facilitate early assessments during emergency settings and to take the next steps toward early response.
3. To enhance capacity building at many stakeholder levels (community, government offices, HARO, Boston) vis-a-vis the DEWS system.

ICT integration into humanitarian programming requires multiple steps and frequently takes time to realize the actual impact on overall program goals. The 90/10 rule was used as a driving conceptual approach for the evaluation framework. The framework is also guided by evaluative experience, ALNAP documents and Humanitarian Innovation Fund documents.

The 90/10 rule is the belief that 90% of a successful ICT project comes from the “non-technology” parts of a project and 10% is attributable to the technology itself. The 90% includes, capacity building, feasibility assessments, planning, project management, and training.
The ALNAP guide for evaluating humanitarian action outlines 7 key criteria. The Humanitarian Innovation Fund, an entity within ALNAP highlights 5 of 7 OECD criteria best fit for humanitarian innovation evaluations. While these criteria apply to broad humanitarian programming and humanitarian technology influenced activities, the criteria’s scope is best fit for established programming rather than pilot projects. Three criteria (i.e., efficiency, effectiveness, and relevance/appropriateness) are best fit for the DEWS ICT evaluation project. Complementary methods & criteria were used for evaluation and learning unique to humanitarian technologies and pilot projects.

3 OECD Criteria to consider when evaluating humanitarian ICT Pilot Projects

- **Effectiveness** is concerned with the degree to which the project achieves its stated objectives in a timely manner. It is generally a measure of outcomes.

  - **Efficiency** is a measure of the quality and/or number of outputs compared to the inputs (often money or time) required. The more efficient the project, the more and/or better the outputs created with the same amount of inputs, or the fewer inputs used (OECD 2011).

  - **Coverage** measures the degree to which the project reaches the highest proportion of those who need it, and ensures that priority of access based on needs (so that particular groups are not excluded)

  - **Relevance and appropriateness** are concerned with assessing whether an intervention is in line with the needs and priorities of the intended end-users/beneficiaries
The following conceptual framework sets the stage for the remainder of the evaluation report:

**Goals**
- Improve the efficiency/quality of DEWS information
- Analysis, sharing, decision-making
- Capacity building with stakeholders

**Objectives**
- Implement digital data collection
- Integrate data into existing DEWS analysis & reporting
- Improve DEWS data visualization & enhance monthly information products.
EVALUATION PROCESS AND FINDINGS

EFFECTIVENESS

Effectiveness was measured from two different perspectives:

1. Using context appropriate general OECD/HIF criteria specific to the ICT Pilot goals
2. Approaching pilot project effectiveness as it relates to specific pre-existing DEWS programming goals. (underlined below)

OECD/HIF Criteria- Effectiveness

The Pilot was highly successful in integrating KoBoForm, KoBoCollect and KoBoSync into the existing DEWS system as well as building technical capacity among almost all of the stakeholders in the DEWS system. It was somewhat effective in improving the efficiency of information collection as stated in the subsequent section, primarily at the community and partner level. It was less successful in achieving the objectives of advancing new analysis. Geographic visualizations were a failure with KoBoMap. Other methods of geographic visualization (GoogleEarth, ArcGIS, GoogleFusion) were explored with the Water Mapping project. (Annex 1). Few changes were made with geographically visualizing the DEWS specific data. The KoBoToolbox had little direct influence on the effectiveness in improving the feedback loops. Other technologies such as SMS positively affected the feedback loops between the Partner and data collectors. Quarterly meetings, a valued feedback loop by the majority of stakeholders, were not directly affected by the ICT Pilot technology itself but were indirectly affected by funding to support the ICT project.

Overall DEWS Programming and Pilot Effectiveness

Community-based information sharing and warning of drought related changes

DEWS stakeholders felt that the ICT pilot improved the overarching DEWS goals of community-based information sharing such as time saved in data collection, and improvements in information quality with new audio data. They also felt that there was an overall increase in confidence in community-based data. Overall it was less clear if the new Pilot broadly affected early warning. One partner comment identified SMS texting as an opportunity to communicate early warning findings from the DEWS system back to communities. This is an example of how a Pilot can open up creative opportunities for information sharing and feedback. Opportunities to
explore village level data analysis were also recognized by some stakeholders. New village-level geographic DEWS maps and analysis were explored during the evaluation period. (Annex 12)

**Bring stakeholders together through two-way information exchange with feedback quarterly meetings**

The Pilot ICT project did not clearly advance the goals of bringing stakeholders together through two-way information exchange including quarterly feedback meetings. Digital data collection may not have the direct ability to bring stakeholders together in these meetings for which 1 meeting occurred in each woreda during the pilot period. The pilot goal of “improving information collection analysis, sharing and ultimately decision making” is multi-factorial. KoBoToolbox has strengths in data collection while SMS technology has been leveraged to some degree for simple feedback loops from the Partner to DC/HEWs.

**Inform disaster risk reduction (DRR) activities**

DRR activities and participatory projects occurring during the Pilot period. It is difficult to discern from the evaluation whether or not the effect is due to the pre-existing DEWS system or directly related to the ICT Pilot. While the ICT Pilot provided funding for the participatory projects the actual technology does not appear to have directly impacted these activities. There is a high likelihood for a confounding effect. Key informant interviews& observations point toward the pre-existing role of DEWS and DRR activities rather than the ICT project itself. There were various comments from multiple stakeholders regarding the lack of adequate quarterly meetings and participatory projects, but these perceptions may stem from ongoing program challenges that preceded the Pilot period.

**Identify impending emergency/crisis situations**

It is unclear to what degree the current ICT Pilot project has improved DEWS stakeholders ability to identify impending crisis. Recent DEWS trends from November 2013 – March 2014 will likely help clarify the potential role of the pilot in not only identifying impending crisis, but also communicating alert and facilitate decision-making. Early findings suggest that the pilot has strengthened communications between specific decision-makers and heightened the awareness to perform village level analysis for early warning.²

² Although village level data was available for analysis before the pilot, but the pilot period resulted in trend toward more village level comments in the monthly report. This may partly be due to the KoBoToolbox technology but more the effects of the overall ICT project where data knowledge was strengthened and
Enhance Capacity Building

The Pilot enhanced capacity building with ICT training, data management training and data analysis training activities during the pilot period. Capacity building occurred with multiple stakeholders advancing both analysis and visualization skills.

EFFICIENCY

Efficiency is measured not only for data collection but also for the feedback loops. This is because the purpose of the DEWS system relies heavily upon the speed and accuracy of the data collected and the information shared in feedback loops for multi-level decision-making. DEWS Feedback loops occur in multiple formats such as 1) sharing the monthly reports with the Partners and HRD members 2) sharing findings with DC/HEWs, 3) sharing with community members/leaders 4) sharing with government stakeholders and 5) collective sharing and discussion with multiple stakeholders in a shared space (i.e., quarterly meetings)(see 2012 Assessment for feedback map). OECD quality and output measurements were applied to both digital data collection and information sharing.³

The DEWS ICT Pilot was very successful at improving the efficiency of community level data collection and somewhat successful at improving efficiency of Partner data collection and transfer. There was less improvement in the efficiency of creating monthly reports and little change in the efficiency of feedback loops (quarterly meetings, report sharing to stakeholders), except for an innovative SMS feedback loop from the DEWS partner coordinator and the DC/HEWS. Based upon key informant interviews, surveys and observations, there are various and differing opinions among DEWS stakeholders as to the pre-existing timeline for monthly report sharing and occurrence of quarterly meetings. Some feel that this was an improvement from no meetings; others feel that this is an ongoing challenge.⁴

Unfortunately the visualization component of KoBoToolbox (KoBoMap) was a pilot failure for a technology in development. More success with GoogleEarth, GoogleFusion and ArcGIS map was seen in the Water Mapping Project.(see Annex 1)

³ KoBoToolbox, while described as a digital data collection tool, acts as both an information/data collection tool as well as an information sharing tool, particularly as it relates to the KoBoMap.

⁴ This evaluation was not aimed to fully evaluate previous programmatic issues along these lines, and a formal evaluation is necessary to fully determine the contributing factors.
**Time**

Time was saved at the community level using the Android smartphone, KoBoForm, KoBoCollect, and KoBoSync. Digital data collection, data transfer and data aggregation each month was more time efficient. But time was lost, and cost was incurred to recharge Android tablets in Taltalle district which negatively affects HEW daily lives.

<table>
<thead>
<tr>
<th>SAVED</th>
<th>LOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using KoBoForms &amp; KoBoCollect with smartphones saved ~30-90 minutes for women informants &amp; DC/HEW</td>
<td>Hours→days were often lost to recharging tablets in Taltalle. Surveys were sometimes lost/deleted because tablets would “run-out” during actual data collection.</td>
</tr>
<tr>
<td>Time was saved each month by the Partner collecting data from 16 DC/HEW and GPDI staff using KoBoSync</td>
<td>More time was spent producing monthly reports during the pilot period(^5)- causes are likely ICT &amp; non-ICT related.</td>
</tr>
<tr>
<td>The KoBo VAS scale saved time because the tool automatically measures VAS indicators previously measured with a ruler &amp; recorded using pen &amp; paper.</td>
<td>NO CHANGE</td>
</tr>
<tr>
<td>Excel training to analyze KoBo data helped the GPDI DEWS coordinator average select indicators at the village &amp; district level. This saves analysis time, which was previously performed partially on paper &amp; with a traditional calculator.</td>
<td>Time to share monthly reports sharing with district/zonal offices were frequently unchanged, and sometimes delayed.</td>
</tr>
<tr>
<td>SMS of monthly report recommendations saved time require to physically meet with DC/HEW.</td>
<td>No changes were seen in the timeliness of quarterly meetings compared to the pre-pilot phase.</td>
</tr>
</tbody>
</table>

**Quality**

There were strong general sentiments that introduction of audio recordings (a function of KoBoToolbox) which replaced written monthly comments were a great improvement in survey data quality. The KoBoVAS tool has some technical errors (see Figure 1), but did not appear to have impacted the overall data quality in the system or impacted the monthly reports.

<table>
<thead>
<tr>
<th>IMPROVEMENTS/STRENGTHS</th>
<th>WORSENED/CHALLENGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement in monthly data quality using audio functions with KoBoCollect&amp; Android smartphones. This is felt by many stakeholders in the system, especially at the</td>
<td>KoBoVAS Slider is visually incorrect at this stage of development both with the visual scale, qualifiers on the phone and tablet and rotation function. (Phone or</td>
</tr>
</tbody>
</table>

\(^5\) Compared to the prior 6 months, the evaluation revealed that there was no recognized set of expectations for report writing
community level. Women information & data collectors replay audio comments to ensure accuracy of their reports & view this as a valuable form of quality control & information validation.

KoBoForm’s required response functionality has likely maintained a high response rate for monthly surveys. This is a valuable function if there are plans for expansion to new districts.

Tablet) (See Figure 1) This did not appear to impact the overall data quality & is likely due to pre-existing knowledge & familiarity with VAS from paper forms.

KoBoVAS Slider- Non-response and “no change” are both assigned a zero value in the dataset. This creates 2 challenges. Quality analysis cannot differentiate the number of non-responses vs. the respondents who report “no change” for that indicator compared to last month/season, because the value is both assigned a zero. Secondly, when averaging values for these indicators across olas and villages, those who didn’t respond to the question (but the dataset has a zero) will create an incorrect average.

Survey quality is maintained due to the non-technical face-to-face confirmation of the number of monthly surveys & date stamps of instances between the GPDI coordinator & DC/HEW at the point of data transfer. This is due to duplication of instances on the devices & the lack of specific filenames on instances.

The lack of respondent/village specific filenames survey instances assigned by KoBoCollect requires the need for a manual confirmation of survey instances to ensure data quality & minimize duplication. (see Figure 2)

Final datasets used for analysis/monthly reports are manually checked by the HARO Coordinator, maintaining data quality but at the cost of efficiency.

The Water Mapping project explored different mapping platform and findings are found in Annex 1)

Some decline in the overall quality of DEWS data due to difficulties in transforming digital data formats to previous database formats to produce monthly reports. (see process evaluation section for details)

No Change/Did not reach expectations. Improving the quality of DEWS by using KoBoToolbox to visualize DEWS data was not met with KoBoMap. The quality of non-geographic monthly information with Partner data in graphical format showed some advancement but potentially at the cost of contributing to information overload at the decision-making level. The Water Mapping project explored different mapping platform
RELEVANCE & APPROPRIATENESS

Relevance

The Pilot was highly relevant in its aims to improve the pre-existing goals of information collection & sharing but fell short in addressing other pressing program needs. Reviews of the ICT project documents revealed a more direct link to the information collection and data generation needs of the project. When reviewing the ICT pilot document goals with respect to broad program needs of end-users and beneficiaries (including government stakeholders and communities) these documents were less well defined. Despite documents and key informant interviews that pointed toward the expectation of the pilot having impact on broad decision making and early response, the Pilot was likely not fashioned to address the multitude of the feedback loops or equally focus upon the information to decision-making aspects of the DEWS program (i.e., specifically quarterly meetings/participatory projects and decision-making challenges at the HRD level). This is a complex issue that brings up core questions of what an ICT pilot can and should achieve, and how and when a pilot of this nature should be integrated into an existing community-based program. The program was already facing significant feedback loops and decision-making challenges at various levels of the program. This is likely linked to a need for a short & long term strategic planning, more engagement among HARO/HRD stakeholders and appropriate budgeting. Nonetheless, even despite these challenges, there have been notable successes with the Pilot that point toward considering continuation with a potential transition to ongoing programming, in conjunction with an overall plan for general DEWS programming.

Digital data collection as the primary pilot technologies was highly relevant. Solar power electricity was highly relevant as well when recognized as a need. The feasibility assessment provided a strategic approach and an introductory set of DEWS ICT options. OA’s technology working groups also played a valuable role in tool selection. It did not appear that the communities or local partners were fully consulted prior to the decision to selected Option 3—digital data collection. This reflects the limited approach to user-centered design across various stakeholders. The evaluation did reveal that the integration of digital data collection as an ICT tool was accepted widely at the community level, and coordinators/managers involved in the project would all have chosen digital data collection again. There were varying sentiments among stakeholders regarding

---

*It’s important to note that the feasibility study was performed by the evaluator of this project. This surfaces issues of objectiveness of evaluation, but also can be viewed as an internal/external assessment/evaluation approach where the consultant who has been involved since the inception of the DEWS program can provide added value, but it should be clearly noted that this does not exclude bias.*

“KoBo, in its current form, has many technical issues...(except for…) …there do not appear to be any advantages to using KoBo over ODK….The release of the new toolbox is planned for mid-2014. If the issues are not resolved, ODK (or another tool) might be more suitable.”
KoBoToolbox as the choice option for digital data collection again. Those most involved with choosing the specific digital data collection platform expressed reservations and the ICT consultant has recommended considering another ODK platform if technical challenges remain after the new release of KoBoToolbox in 2014.

**Appropriateness**

*While digital data collection for DEWS was highly appropriate for information collection, the overall ICT Pilot project was imbalanced in addressing the needs of the beneficiaries/end user.* Most stakeholders, those who were champions for technology and the few who were somewhat unsure of its overall value, expressed concerns about the lack of adequate feedback loops, specifically quarterly meetings. A coordinated set of discussions are needed among stakeholders at the managerial/leadership level to outline the overall program goals/objectives. A subsequent discussion should occur regarding the future role of ICT recognizing its successes and potential for future benefits and the cost for doing so. This will likely better integrate the already recognized ICT tool for the project activities into overall program, resulting in an improved overall appropriateness for general program goals. KoBoToolbox was felt to be somewhat to very appropriate but members with the most familiarity and experience in digital data collection platforms felt other tools may be more appropriate.
DECISION-MAKING & SCALE

The following section focuses upon two elements that are related to general and Pilot specific effectiveness; decision-making and scale.

Decision-Making

Many information systems (e.g., early warning systems) and humanitarian ICT projects goals aim to positively impact decision-making. Especially in humanitarian programming there are high expectations that it will directly influence early action.

While the DEWS system shares information between stakeholders, the links to situational awareness, understanding monthly findings, and recognizing impending crisis is only half the battle. The subsequent result of bringing decision-makers together to discuss issues, agree upon actionable next steps and enact a plan is the link to action.

Information sharing, decision-making and actions related to disaster risk reduction and early warning are occurring during the infrequent quarterly meetings. But the evaluation was not able to discern if the ICT pilot directly affected necessary programmatic actions during this time period. This is partly due to the short pilot period but also due to the lack of a formal program evaluation. Without adequate knowledge of the pre-existing decision-making occurring in the DEWS program, it is difficult to attribute effects from the ICT pilot project alone. This evaluation has also not been able to fully evaluate these issues at the HRD & HARO level. The linkages of information to action may be facing the following challenges:

1. Differing perspectives about the role goals of the DEWS project
2. Differing perspectives and knowledge of the strengths/weaknesses of non-traditional information sources (e.g., community perceptions)
3. Varying degrees of trust in the information provided by the system all potentially affected decision-making pathways

Some stakeholders directly involved in the project and/or ICT activities at the HRD DEWS believe that the pilot itself has heightened the organization awareness about ICT and DEWS. Survey findings were unable to complement these initial findings because the response rate was low. There are future opportunities to explore this further.

Scale

While the importance of scale for funders, policy makers and NGO agencies is an important and highly relevant issue, addressing this within 6 months of a pilot ICT
program can place the importance of evaluation for learning and actionable next steps for the DEWS community based program in the backseat.

It is technically difficult to address ICT scale for DEWS when the core issue of scaling DEWS as an overall program appears to have been unresolved for over 2-3 years. What is likely valuable for evaluation and learning at this stage is a roadmap for determining:

1. the value of scale for DEWS as a program with ICT
2. and if so, what issues should be monitored and further evaluated with respect to scale for DEWS
3. specific lessons to be learned about how digital data collection, Smartphones, tablets and solar power chargers can scale in other programs.

As noted in the preceding section, the recommended next steps for the ICT Pilot relate more to sustaining existing successes, and judiciously make adjustments in the next phases if the pilot project continues to be funded.

The annex and HIGH PRIORITY BRIEF FINDINGS & RECOMMENDATIONS sections outline recommended next steps for a 2nd phase of a pilot project if the overall programmatic needs are addressed. Scaling the pilot ICT project to additional locations or changing the major technologies is not recommended at this time because of the current status of the general program.

TECHNOLOGY

This section focuses on specific technology that was used in the DEWS ICT Pilot. (See Annex 5 for complete findings and recommendations)

Electricity, specifically the solar charger Readyset has been successful for 1-2 months since its first use in Sarite, Taltalle. The use of Android tablets and lack of accessible electricity has affected HEWs negatively placing notable demands upon their time as well as personal financial expenses. Once it was recognized this new technology was integrated in 1 of 4 PA villages. While the successes are encouraging, **high priority next steps are to create a monitoring, contingency and maintenance plan for this new technology.** There currently is no security, maintenance and contingency plan for the Readysets. If feasible, Readysets should be considered for other Taltalle villages with the least access to electricity.

Android phones and tablets have been functioning well with no battery failures to date. Other tablet/smartphone functions are being used by the DC/HEW (SMS, video, audio, photo). **While users explore additional functionalities monitoring is necessary to anticipate and manage file and storage availability.** It is possible that the over time the device will run out of storage space and this can negatively affect data collection. The
tablet size, perceived and real costs for charging them are limitations to their use. There are concerns for tablet theft due to the larger size and lack of bags to hide them, but no tablets have been stolen to date. There were no cracked screens on both phones/tablets during the field visit.

The transition from paper to digital with KoBoForm was relatively smooth but has some limitations. The offline application is less user friendly for those with limited technical skills. With diligence and training and access to online user support communities, this can potentially be overcome. Currently it may be difficult for Partners and even HARO staff to fully use the Form builder without training or support from ICT specialists.

Overall KoBoCollect is a user-friendly application for DEWS stakeholders, but recent deletions of KoBoCollect on 2 tablets have occurred and the cause is unclear. The VAS slider tool has errors in properly viewing the scale and positioning of the qualifiers on both the phone and tablet. (See Figure 1) The automatic instance file name assignments are not specific enough for DEWS data management needs and are contributing to data management challenges. Further investigation is needed as soon as possible with an ICT specialist to determining why Kobo Collect appears to be auto-deleting. A data management specialist should also pursue how best to assign instance filenames moving forward.

Kobo Sync's manual offline syncing of the phones/tables is working well, but the instance aggregation function has interoperability limitations, especially with Java. Current variable name assignments (i.e., variable codes) may pose potential challenges for less advanced data managers and analysts. The current format is better fit for researchers, specifically those familiar with SPSS.

KoBoMap was a failure for the ICT Pilot project. It is thought to be multi-factorial. The lack of user-friendliness, potential bugs in the system (where shapefiles could not be uploaded), a limited user community and limited support from the KoBo team contributed to the challenges.

---

7 For full details refer to the ICT Specialist Lessons Learned document
8 For full details refer to the ICT Specialist Lessons Learned document
The use of additional mapping platforms (ArcGIS, GoogleFusion, and GoogleEarth) were also used, but an in-depth evaluation is limited in discerning what component of these platforms were successful and to what degree challenges were associated with the technology itself, skill sets and familiarity with each specific mapping platform.

PLANNING AND PREPARATION

The ICT consultant, OA ICT learning groups and the feasibility assessment played a large role in pilot planning and preparation. At the HRD level, the T4D group, and FOTWOG also provided additional information for planning and selection of KoBoToolbox. The recommended approach to “keep it simple,” “build upon existing strengths” appears to have been taken into account in the planning phase.

The feasibility assessment recommended a comprehensive assessment for any digital data collection tool prior to integration but the evaluation revealed no additional formal assessment was undertaken. While the integration was an overall success, electricity limitations, analytical capacity, and engagement challenges may have been identified with a formal assessment. There did not appear to be a visualization strategy for DEWS information during the planning phase. It was unclear from documentation and interviews if the lack of planning was due to the refocusing of visualization activities toward the Water Mapping project. The limited evaluation for the Water Mapping project did not reveal a formal visualization and mapping plan. Future steps should consider or further develop a general strategy and plan to take the next steps in further visualizing DEWS data.

Plans for purchasing hardware were guided by market place assessment, and the assessment focused on the in-country context. Interviews and feedback indicated that the in-country approach stemmed from 1) OA’s organizational practices to procure hardware locally 2) high import taxes for technology hardware, 3) lack of existing supply chain for international purchasing, and 4) limitations from HARO/GPDI staff to procure hardware regionally or internationally.

Regional and global marketplace assessments may have revealed more competitive pricing. Future plans for purchasing mobile technology should explore the internal capacities to procure hardware and the government policies for procuring hardware in regional markets, particularly because countries such as Kenya and Uganda have active technology markets, which may come at more competitive pricing. No organizational or government policy documents were provided that described either policy or government restrictions for in country purchasing or ICT policies for Partners purchasing hardware. Views provided by some stakeholder indicate that government and organizational policies played a role in the focus on in-country hardware assessments.

---

9 DEWS Information Communication Technology (ICT) Feasibility Assessment, Pg 23.
In the future, OA might consider a guiding policy document that supports the process of investigating the most feasible way to purchase technology at optimal pricing while matching the organizations missions and goals. The feasibility report provided regional and country-specific ICT community resources. These resources should be regularly updated and considered if the program and consultant staff are less familiar with this environment. The OA technology working groups could assist in this activity, as it will likely have implications across OA programs in the region.

Determining the most appropriate hardware and understanding community-level security issues during the planning phase faced a few challenges that may stem from variable user-centered approaches. It appears that decision-makers who provided feedback on whether to use tablets versus phones may not have been the actual users (i.e., data collectors/women informants). This may have contributed to the initial thought that tablets would be the preferred option. According to key informant interviews and project reports DC/informants expressed concern with the tablet during their training session, but the tablets had been already purchased.

INFORMATION SECURITY AND PRIVACY

Humanitarian ICT projects, especially those in conflict environments, should assess, plan for and integrate an information, security and privacy plan. Conflict in the DEWS districts is known. While there has been no reported breach in information privacy and security, it appears that thoughtful decisions were made to secure information flows and devices during the pilot period. Urgent next steps should be to create more formal plans and policies for the DEWS ICT Pilot and to incorporate these guidelines into training and learning sessions across all stakeholders.

When reviewing documents provided for the evaluation, this was neither addressed by the feasibility assessment nor documented in depth in the project documentation provided for the evaluation. Key informant interviews did reveal a plan to secure collected information and discussions regarding collecting private information in the DEWS system.

Stakeholders, especially those at the community and Partner level, appeared to be less aware of this issue or know of a plan for the project along these lines. A user-centered approach might be considered with a more comprehensive review of existing information, security, and privacy documents to establish a plan. Currently there are few widely accepted standard of practice\(^\text{10}\) at this time that incorporate 1) an approach to securing private information, 2) security around hardware devices, and 3) perceptions of information security privacy and risk. An information security and privacy plan, and protocol is a high priority for the ICT Project moving forward. This will bring together the activities put forth to date on information privacy and securing hardware. It will also allow multiple stakeholders to share these guidelines with one another in the

\(^{10}\) http://worlddisastersreport.org/en/chapter-5/index.html
system as well as keep abreast of changing needs and requirements for information security and privacy.

Recommended next steps are to plan to:

1. Investigate the strengths/weaknesses of the DEWS system and the Pilot as it relates to information sharing, privacy and risks to stakeholders
2. Map the technical and non-technical security breaches that can occur and contingency plans for action to mitigate harm.
3. Determine program thresholds for action when information, security and privacy breaches occur.

This should also be a capacity building activity for the Partner as it is likely that these skills and approaches are new.

IMPLEMENTATION

Successes

The Pilot implementation success was tightly linked to funding support and the dedication and hard work of the DEWS team, including the ICT consultant, HRD PH specialist, DEWS/GPDI coordinators, DC/HEW and women informants. The “building upon existing strengths” approach likely set the stage for the successes to date. Implementation had its greatest strengths in community-level data collection and data transfer. In additional very high quality training documents that focused on data collection provided the necessary and highly valuable transition into the new system and also set the stage for sustainable capacity building within the Partner and OA organizations.

Timeline

The timeline of implementation was delayed due to staffing availability at the HARO level and the intended initial training did not occur at the district or village level, but train-the-trainer session occurred in regional office. The etiology is multi-factorial. Despite the unanticipated delays the training was successful and was likely due to the commitment from the ICT consultant, and pre-existing relationships between the Partner, HEW/DC and women informants for which cross training likely occurred. Future ICT projects would benefit from incorporation buffer room for unanticipated delays.

Android tablets

There were obstacles during the pilot integration of tablets but data collection has been successful due to dedicated HEW and DEWS staff. Charging tablets with no replaceable batteries and long travel times to charging locations negatively affects the daily lives of HEWs. Also the charging times, and higher cost to charge tablets with no budget to support this also created unanticipated financial demands on HEWs who receive a notably smaller incentive compared to DC in Moyale. (See value for money section) While it appears that GPDI/community members identified these challenges
during the first training session, the tablets had already been purchased before their full consultation. **Future projects should attempt to integrate additional feedback mechanisms and user centered process design to mitigate future implementation challenges and improve value for money.**

**Visualization**

The document review indicated that new DEWS data visualization activities with KoboToolbox were a part of the pilot goals and objectives. Key informant interviews, observations, and project reports revealed that that scope was refocused to the Water Mapping project primarily. (See Water Mapping project specific findings in Annex 1) From document review, interviews and the field evaluation it appears that implementing new visualization approaches specifically for DEWS faced some technical and design challenges. The plan to acquire comprehensive geographic datasets (ways to map information other than a “point on a map”) prior to mapping DEWS data may have limited the team from exploring what to map, how and work through this learning with already available geographic datasets. **Sometimes imperfect datasets can be leveraged with a good working knowledge of data and careful review of its limitations.** Simple non-technical work-arounds could be explored to communicate key information even if the technology tool or dataset may be incomplete. Skills sets in non-technical and technical data fusion should be supported and sought out in external consultant and staff moving forward.

**INTEGRATION**

**Successes**

*The integration of KoBoForm, KoBoCollect, and KoBoSync was smooth during the pilot period. This is likely due to KoBo technology but also due to the 90%. This includes dedicated DEWS staff, the ICT consultant and support by the PH specialist at HRD.* The community’s familiarity with the monthly paper data collection, stakeholders pre-existing confident in the project and its purpose played a major role. Integration was very smooth at the community level. Despite training of women with only a few phones there was a smooth integration at this level. This is likely due to the pre-existing tight network between DC and women informants. There was a subtle lag in integration observed directly in Taltalle between HEW and women informants who may not be as tightly connected.

*The SMS feedback system by the GPDI coordinator was an unplanned integration of monthly report findings back to communities. A great success and an example of a user-centered approach.* Data transfer from DC/HEW to GPDI and HARO coordinators was going well with good non-technical quality checks.

**Information Expansion and Data Management**
Digital data collection has created a large volume of files (over 2300 files to date), which is currently managed and organized to date in an ad hoc manner. There does not appear to be a fully standardized system for file management or a central file system. Individuals have files organized on their own computers sometimes with different filenames and folders. Overwriting of data is infrequently tracked across individuals. Information expansion and ad hoc data management is a challenge often seen in digital data collection with multiple stakeholders. A data management plan and strategy for managing information expansion and overload is a high priority next step.

GPS Coordinates

One of KoBoForm’s strengths is its ability to collect GPS coordinates during data collection. While geographic information has been part of DEWS (village/district names), GPS coordinates provide an advanced level of accuracy for survey collection. While this was integrated into the project it was less clear what the pilot project intended to use ola or household-level GPS coordinates for. Communities and women informants feel that this improves the accountability of DC to come to the olas in the villages where they can observe the environment. This may also improve the feedback system from DC to community members at large. Despite these potential benefits, GPS acquisition and technical challenges are causing time delays in data collection. Many DC/HEWs report that collection GPS coordinates can take a long time and sometimes “it doesn’t work”. While the accountability gained from GPS coordinate within the olas may be valuable the benefits (accountability, potential for using the coordinates themselves) should be balanced with the drawbacks (time demand on DC/HEW, info-security risks). Acquiring GPS coordinates for the Water Mapping project has unique challenges as well and is described in Annex 1.

Missing Monthly Indicators

Based upon the desk review of datasets during the pilot period ending in January 2014, some livelihood indicators (6.1, 21.1, 21.2, 22.1, 22.2) have fallen out of the monthly analysis despite being collected each month. Questions about what types of animals are sick and dead (categorical data) showed a slow decline in the DEWS Excel datasets and the dataset from the last 2 months of the evaluation period were missing. From review of existing documents and the field evaluation this may be due to various challenges that were surfaced during the implementation period. This may partly be due to transforming KoBo data to pre-existing DEWS Excel data formats and also due to human behavioral and staff monitoring.

The training manual appears to focus upon scalar data amenable to averaging, and categorical data analysis (e.g., meals/day, audio, sick livestock type, dead livestock type) are mentioned but would benefit from further documentation in these manuals. Additional training was performed by the ICT consultant in January 2014. Next steps should include a monitoring and ongoing set of action plans to determine if the
troubleshooting training has impacted data quality and ensure that the data is reintegrated back into the system.

<table>
<thead>
<tr>
<th>Indicator #</th>
<th>Question</th>
<th>Comments</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>What is your Main water source?</td>
<td>Quality declined significantly with fully missing data (Jan/Feb) in excel data used for monthly reports</td>
<td>Create a protocol to calculate the mode for questions 6.1, 21.1, and 22.1 each month and design a trend analysis for the remaining indicators</td>
</tr>
<tr>
<td>8.1</td>
<td>When did it start to rain?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2</td>
<td>When did it stop raining?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3</td>
<td>Number of water sources dried up?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.1</td>
<td>Which livestock is diseased</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.1</td>
<td>Number of livestock deaths</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The keep it simple approach of maintaining monthly reports “as is” likely provided ample room to address unexpected integration challenges while maintaining one of the central aspects of information sharing. Although the information product (i.e., monthly reports) format remained the same, the precursor datasets that inform this product required some formatting revisions (e.g., variable names). Revisions occurred throughout the pilot period due to the dedication of the DEWS team, especially the ICT consultant. Monthly reports were still generated as planned although with some delay during a few months during the pilot period.

OUTPUTS

The efficiency of Pilot outputs is described in an earlier section of this document. Additional findings related to digital data collection datasets, monthly reports, visualization products, feedback and decision-making are discussed below.

VAS KoBoData

This output is high quality. Two issues pose a risk to quality moving forward.

1. Non-response and “no change” are both assigned a zero value in the dataset. This creates 2 challenges. Quality analysis cannot differentiate the # of non-responses vs. the respondents who report “no change” for that indicator compared to last month/season, because the value is both assigned a zero. Secondly, when averaging values for these indicators across olas and villages, those who didn’t respond to the question (but the dataset has a zero) will create an incorrect average.

2. Using the vertical view when answering VAS questions, where optimal viewing is in the horizontal position. (This can be addressed by refresher training)
Technical fixes are required for item 1 but can be accomplished in the medium to long term as long as new districts are not included.

**Audio Data**

*Audio datasets are valued and of good quality, but a process to analyze and process the data is needed as soon as possible to use the data for its intended purposes.* There were over 600 audio files generated during the pilot period and most of them have not been listened to or used in monthly reports. This is likely due to the lack of a formal plan, training and information overload. *Decreasing the number of audio comments questions each month from 7 to 2 questions should be considered.* The final plan should include the feedback from women informants/DC/HEWs and the GPDI coordinator. (Annex 11)

**Dataset Transformations**

*Despite some challenges with data transformations between previous DEWS Excel datasets and new KoBo Excel datasets, monthly reports were still generated.* The KoBo software assigns variables with code rather than more explicit variable names which was different than the pre-existing DEWS datasets. (Figure 3b) Despite planning and insightful efforts to transform that automatic variable name to fit the pre-existing format, there was likely some confusion among the staff analysts and may have contributed to delayed analysis and reporting. Categorical variable values were also accidently assigned incorrect values. It appears that categorical data with numbers was accidently interpreted as scalar data. *The diligence in manual updates, data quality checks and the dedication of DEWS staff have corrected many of these issues.* The lesson learned moving forward is to anticipate, assess and plan for data transformation obstacles despite similar file types (i.e., Excel) Frequently with new data systems, similar file types (e.g. Excel) do not equate to the same column/rows in new databases which may impact data analysis. Specifically for community-based programming, staff may have different skills sets in data management, data transformation and data fusion. Assessing this prior to implementation, and continually revising as was performed during this pilot. It is recommended to identify challenges and plan for redesign and training. Future projects should prioritize a full assessment of data analysis skills and a data process review before integrating new data focused technology platforms.

**Information Visualization**

---

Mudhi Ambo women feel that they will be able to share their perspective adequately and seemed to understand the current challenge
Great effort, dedication and learning resulted from trying to achieve visualization goals for the Pilot project. Despite not being able to use KoBoMap for the Pilot, many other visualization tools were explored and tested. It appears that the efforts to focus on visualization aimed to fit the needs of stakeholders at the HRD/HARO level.

The approach to mapping during the pilot project appeared to be a work in progress. While the project documents (concept note and scope of work) referenced visualization in relation to the DEWS project and Water Mapping project, more emphasis was placed upon exploring mapping options with the latter portion of the pilot. Multiple iterations of mapping were explored at the HRD level and capacity to further leverage ArcGIS skill sets at the HARO level became available at the end of the pilot period.

It is unclear whether communities were consulted regarding their priorities in advancing visualization in the Pilot phase. Despite intended minimal changes to the monthly reports there has been a slow but steady increase in reporting at the village/kebele levels. Efforts to disaggregate district level data using digital data collection will likely open up doors for a more focused situational awareness.\textsuperscript{12} The audio data exercise from Jan-Feb 2014 and sample maps generated for Feb 2014 may open opportunities for future visualization as well but require a focused feasibility exercise, process plan, and training. (Annex 7)

DEWS data may be more complex due to the perception-based quasi-quantitative methods. \textit{If efforts are made to advance geographic visualization for DEWS specific data, an exercise on “what do we want to map” is strongly recommended.} This will create a roadmap for how to use data, which variables to select and when. It will also help prioritize the building stages of visualization. \textit{It is also recommended to “take risks” with incomplete datasets} (e.g. geographic datasets with incomplete village level boundaries) to explore as a team how to best create maps for decision-making. Although one village is not visualized fully on the map (see right) the remaining data may still be valuable for decision-makers, and their feedback will help determine the way forward.

Stakeholder communications

\textit{The Pilot affected communications, bringing some stakeholders together during frequent Skype, email and phone communications.} This played a large role in the success of integrating ICT into the DEWS program. Non-shiny and less advanced technology (electricity, email, the web, Skype, Dropbox) should continually be leveraged.

\textsuperscript{12} Village level data was available for analysis in Excel sheets prior to digital data collection, but the Pilot phase with KoBo may have influences the awareness of the already available data and the perceive opportunity to push forward this analysis.
SMS communication as mentioned earlier in the report also plays a key role in monthly report finding feedback loops to communities.

The DEWS HARO members who were involved in the project since its inception appeared less involved in ongoing communications during the pilot period. The causes of this are somewhat unclear but should be explored internally. New ICT integration is often heavily loaded with process details that may be often taxing for senior managers or staff to keep informed. At the same time, a working knowledge and understanding of these process issues are necessary so that the overall project needs and goals are not overlooked by the needs of the specific ICT tool. An ongoing trusted relationship and communication between key stakeholders at the managerial level are necessary to close this gap. This should be review and readdressed at Oxfam America before any future steps are taken.

PEOPLE

User Experience

Overall the experience with the Pilot has been generally positive. The positive user-experience at the community and Partner level is more apparent. Women informants and data collectors feel very positive about using smartphones and feel that after training they are much more confident in using them and believe it fits their goals for information sharing. DEWS coordinators have also felt positive about using KoBoToolbox and have worked hard to identify, share and resolved issues during the pilot period. There were champions at the OA HRD level, who played a notable role in the Pilot project. Some members of the DEWS system anticipated the benefits but have felt less positive about the actual experience because they feel that they were less involved. The evaluation was unable to fully evaluate the user experience of stakeholders at the HRD level.

User Centered Approaches and User Centered Design

Many efforts have included data collectors/women informants and partners staff in the Pilot phase. There are many “users” in the DEWS system and this creates challenges in accomplishing many levels of user engagement and user centered design. Continued efforts to include users at different stages of the system should be a priority. Two groups of stakeholder appear to be less involved to date, government officers, and HRD staff not integral to the Pilot. Plans to further integrate them are recommended, when appropriate.

When considering user approaches and user-centered design with DEWS ICT, exercises can be undertaken as to which users are being addressed. For example when addressing issues with data collection and device use between women/DC it is more ideal to address this cohort directly, if possible. For example discussion with some DC
revealed an interest in exploring how they might print photos from their smartphones as an income generating activity. Considering a user centered design approach may be an interesting opportunity for DC/HEWs. Users of information at the HRD Boston level may have very different decision-making needs than community leaders and this may help design common or complementary visualization products.

While user centered design includes the tight engagement with communities coupled with fast-prototyping this may face significant challenges in specific humanitarian settings. Particularly when digital data collection is not coupled with project specific feedback loops and there are expectations for action and response. Based upon a key informant interview, the continued collection of water mapping data with little perceived shared feedback to communities with ongoing water source concerns have created growing frustration among communities. There are concerns by some local stakeholders regarding how this has impacted community perceptions of the Partner.

Recommended next steps are to further identify feedback loops to partners and communities who are providers of the monthly information and use the rapid prototype model to re-design the next steps into future phases of the project. For DEWS, the feedback loop type (e.g., shared meetings vs. SMS vs. interactive web platforms) should be explored and matched with various stakeholders and their decision-making needs. The existing digital data collection tools may not be the best fit for the needs, but other options technological or non-technological may fit the requirements.

Capacity building

Capacity building is a strength of the DEWS system. Effort and investment was placed in maintaining this during the Pilot. There were 4 different training sessions during the pilot. Valuable time was spent by the ICT consultant with remove and on-site training supporting staff. The last training session was January 2014. Training manuals are very high quality. Further training on KoBoForm builder has been requested by HARO/GPDI staff members. If the Pilot transitions to programming, ongoing monitoring is needed to continue to identify capacity and training needs and provide the adequate funding to create a sustainable ICT component to the program.

Recommendations include refresher trainings for women informant to maintain high data quality, workshops with user-centered approaches to leverage technology for other uses, skill training for DEWS coordinators in analysis and data management, and strategy and process design training for leadership and management to ensure appropriate and relevant ICT projects and pilots moving forward. One key capacity building activity is to transfer analysis skills to the Partner which has been recommended since 2012. If staffing challenges can be resolved, a high priority should be placed by HARO leadership along with a commitment from the DEWS HARO coordinator to train the Partner staff on monthly analysis. Training sessions by the HARO coordinator,
and further creating analysis and report training manuals are recommended next steps.

Leadership and Staffing

Adequate staffing and manpower is a crucial component to the success of an ICT Pilot and sustainability over time. Findings from the evaluation indicate that the DEWS GPDI coordinator needs more support to complete the DEWS ICT activities. Two coordinators at the Partner level may alleviate the existing travel and logistics demands to Taltalle as well as travel to additional sites required by the Water Mapping project and new partner data sites. HRD staff played an important leadership role in procuring the ICT pilot project funding as well as necessary support for DEWS programming and consultancies during the project period.
VALUE FOR MONEY AND COST EFFECTIVENESS

UNDERSTANDING AND ANTICIPATING VALUE FOR MONEY AND COST EFFECTIVENESS

While a full evaluation of the cost effectiveness of the DEWS ICT Pilot is not feasible at such an early stage of implementation, a brief overview of resources and funding mechanisms can provide a learning opportunity for all stakeholders moving forward. One challenge during the review was the changing funding environment that was likely related to the 2011 Horn of Africa Crisis that preceded this pilot project. There were also general programming challenges that could not be fully assessed in this evaluation report. A formal evaluation is needed to assess general funding issues.

From available project and budget documents the following timeline provides a snapshot of the funding and resources applied to the ICT project to date.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasibility</td>
<td>ICT Consultant - $5,800 (HRD)</td>
<td>HRD FUNDING+ TIF -$61,750(^{13})</td>
<td>TIF Extension $25,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment</td>
<td>$6,900- $9000 (HRD/H ARO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KoBo Consultant</td>
<td>$4,000 (HRD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A large proportion of the cost of the Pilot was allocated to 1) maintaining the existing DEWS

\(^{13}\) TIF funding appears to be embedded in the GLO 032/13 and still a TIF extension
program, 2) purchasing ICT related hardware and 3) leveraging expertise to integrate the ICT into DEWS.

**Personnel costs**

30% of the budget was allotted to personnel to maintain general DEWS programming. From available documents there appeared to be no additional funding lines for general programming. Reviewing available budget documents it appeared that personnel costs were doubled (10,000-22,383)$^{14}$ over an annual year period and this was thought in part to extend general programming funding needs. No documents were available to compare this to prior operational periods. The previous evaluation did no assess funding. Based upon the 90/10 framework, personnel is a key part of an ICT pilot. But with the lack of baseline information and general program evaluation it is challenging to fully elucidate what funding proportion is specifically linked to the outcomes related to the ICT pilot. The distribution of personnel costs between DC and HEWS is an example of the need for a more formal review of funding as part of a program evaluation. It appears that data collector salaries were $3004 USD per individual/year while HEW incentives were $175.08 USD/year. *Nonetheless the effort to integrate personnel costs into the ICT pilot funding lines can be viewed as a notable approach that may have contributed to the overall success of the pilot.*

**ICT Training**

ICT training which likely has the greatest return on investment and value for money was only 8% of the total budget.

**Participatory Projects**

The participatory projects, which are a highly valued mechanism for information sharing, feedback and decision-making comprised of only 14% of the budget. Again there was no additional funding line for general programming. Quarterly meetings felt by multiple stakeholders are an important feedback loop where key decisions are made for participatory projects. The available budgets did not appear to have funding to support these meetings. This finding is another reflection of the need for a general program evaluation to further understand this project element.

**ICT specific activities**

Over 50% of the budget focused upon ICT specific activities, such as purchasing of mobile phones, tablets,

---

$^{14}$ Financial Report Template - GLO 032/13

---

Examples of Funding:
- Consultant Fee (skills transfer)- $4000 USD
- Consultant Evaluation - $8000 USD
- Other costs listed in TIF extension
  - Additional mobile phones
  - Lessons learned workshop
  - International Conference
  - Extension of data collection
contracting ICT consultants and supporting training activities. External expert consultants comprised the majority of these funding allocations.

- **ICT hardware:** One fifth of the budget was used to purchase hardware. The upfront cost incurred should be recognized and a payback period (i.e. the time with which the initial investments will break even with the ongoing benefits) should be determined and integrated into ongoing MEL activities. In country policies may obligate the increased expenditure but these policies/restrictions can be continually reviewed to appropriately budgeted for future ICT projects and mitigate additional expenditures along these lines when possible. The need to repurchase hardware over time should be monitored and included in the return on investment calculations. The tablets used in Taltalle were of lower value for money as they were less appropriate for the context, may have risk to users and the added cost for this technology compared to phone show no current added benefit.

- **ICT consultants:** One quarter of the budget (25%) was used for expert consultants who support software development of the VAS scale, ICT integration and training, and ICT pilot evaluation. The pilot program ICT consultant was contracted through various funding lines as seen in the diagram above. The KoBo Consultant was supported to create the DEWS KoBoForm and VAS scale. The assessment and evaluation consultant was contracted through various funding lines prior to the pilot project as well as for the pilot evaluation.

**VALUE FOR MONEY**

The purchasing of phones, tablets and solar chargers are necessary investments for the specified ICT project, but a more comprehensive market assessment on devices would likely provide an improvement in value for money. These assessments require knowledge of the market, including country, regional, and global markets. Seeking staff and expert consultants with a working knowledge or access to ICT communities to these markets will likely result in more competitive pricing.

Regional ICT experts may provide a more competitive value for money in 1) purchasing devices, 2) assessing contexts they may be more familiar with and 3) designing integration and implementation plans in similar parts of the world. If US-based or European-based experts are chosen due to best fit, encouraging them to leverage regional networks should be strongly considered.

**The value for money in training and capacity building for the DEWS ICT Pilot project cannot be underestimated.** The time, dedication and effort placed forth by the ICT consultant who prioritized training, capacity building, and close communications with many stakeholders is a notable value for money. And if future external consultants are
sought for community-based projects, these skills sets and commitment should be sought in applicants for these positions.

The value for money of expert consultants can be viewed from two perspectives. Many believe this investment is necessary to get the projects “off the ground”. In the DEWS ICT project, the cost proportions remain notable however and it will be important for future stakeholders to strategically discuss future funding, budget allocations and to what degree ICT specific funding for external consultants should supersede any available funding for general programming. Attempting to balance this with ongoing general program funding should be considered in the next steps with DEWS. Across the OA organization, future discussions should also occur on how and when to leverage external consultants versus building HRD internal capacity to support partners across the regions.

There are 3 key issues at this stage of the pilot project which should be highlighted:

1. **Imbalanced Investments** - There are sentiments from stakeholders that the funding for the DEWS ICT Pilot was imbalanced compared to what was necessary for the overall goals for DEWS. The budgetary planning, and commitments by donors should be further reviewed and evaluated based upon the overall DEWS strategic goals. Discussion among DEWS leadership should occur regarding to what proportion of funding should be allocated for maintaining the general DEWS system and next steps, and what should be allotted to ICT itself, and what is shared.

2. **Intangible benefits and losses** - What is difficult to measure but notable are the intangible benefits and losses related to ICT integration.
   
a. **Time Saved**: There appears to be potential time saved to collect monthly information between women and DC/HEW as well as with the SMS feedback loops between the GPDI DEWS coordinator and the DC/HEWS. This should be monitored over time and measured with respect to time saved and associated cost savings for the women informants, DEWS coordinators and DCs/HEWs. Quality of communication, information sharing and decision-making should also be closely measured to ensure that the estimated time saved is appropriately transformed to cost savings or losses.

   b. **Unintended costs at the community level**: Due to the challenges with power in Taltalle, there are ongoing costs incurred by HEWS personally to charge the Tablets in an electricity poor environment. This ranges from 20 – 30 birr/month, with one HEW reporting a one-time cost of 300 birr/month. **While it may not be cost effective to purchase the more appropriate technology for the context (i.e. phones) a plan is necessary to support the cost of charging that community level staff are personally incurring to keep the data collection and DEWS system functional.**
The following are a set of introductory indicators for cost effective metrics to consider if the ICT project is integrated formally into the DEWS program:

**Overall Project Needs** - Is the proportion of the budget allotted to ICT appropriate for the overarching goals of DEWS?

The overall project needs and funding requirement should be considered when planning the ICT budget. ICT cost effectiveness devoid from the overall program cost effectiveness is not recommended.

**Hardware** - If investments in hardware are expected to pay off in the long-term, what are the appropriate metrics to evaluate this investment over time? What are the preventative measures needed to realize this investment?

Monitor the cost of replacing phones, tablets, determine costs of maintaining tablets/phones to maximize the lifetime and cost saving for the investment.

**External Consultants** - If experts are necessary to “get the project off the ground” how might this investment “pay off” in the long-term?

Set expectations for capacity transfer and organizational learning to keep the ICT project sustainable and in pace with changes. Consider seeking out regional and local ICT consultants. This may be more cost effective and may have higher yields.

**Review of DC Salaries versus HEW incentives** - What are the pre-existing roles, cost benefits that justify a notable salary differential between DC and HEWS. How might DEWS leverage existing DC roles and transfer them in a cost effective/high quality manner to HEWs.

Further evaluate the roles, activities and impact of DC/HEW in Moyale/Taltalle on DEWS activities and report impact and readdress the compensation and outcomes model to fit the future DEWS strategic plan.

**Example: “Overall Project Needs”**

While the bottom line ICT budget may not be large, if its proportion is imbalanced compared to the proportion required to accomplish the general project needs (general staffing, participatory projects, contingency funds, quarterly meetings), there will be a high likelihood that the specific goals of ICT cost effectiveness will be compromised if the general goals DEWS are not met, regardless of the degree of ICT investment. This consideration is key in strategically planning for the future of DEWS and any ICT components communicating this to donors.
GENERAL PROGRAM OUTCOMES AND PERCEIVED BROAD IMPACTS

Below are informal observations from key informant interview and focus group of past achievements.

GENDER AND EMPOWERMENT

Women informants from villages play a central and recognized role in the DEWS system, as both information providers and community mobilizers, particularly with credit savings groups in Moyale. Many women feel the impact of DEWS programming has personally changed them and their communities recognize their role. The ICT pilot also increased many data collectors and women informant’s confidence in using technology tools. The audio component of the smartphones and ability to collect audio data using KoBoForm and KoBoCollect strengthened women’s perceptions of being reliable and valuable information providers for their communities.

“We feel personally changed since DEWS… we know how to manage resources such as homes saving and food, even money.”

“We have a credit savings group now… 85 women and two men, now we are not dependent on men… we are a new model.”

“We are now seen as information sharers, and (the) center of information. People report to us and we are a trusted source of information.”

RESILIENCE AND CREDIT SAVINGS GROUPS

The DEWS program has facilitated situational awareness through information exchange that some community members link to improving their livelihoods, improving health practices, and building resilience in the communities.

“DEWS has helped us create awareness and (helped us) change our practices to help us be more resilient.”

---

15 Credit savings groups were a part of the DEWS system. (participatory projects and many DEWS women informant were central to the CSG and their growth in Moyale)
16 “Such as decreasing the number of livestock and saving pasture for livestock and other promotion and prevention activities”
“We don’t want to rely on external sources but we seem to be doing things different every time and are trying our best, but we want to increase our capital to be resilient.” (context - request for more credit savings group training)

DEWS OUTCOMES AND PERCEIVED EARLY WARNING AND ACTION

Most communities associated the DEWS program with early interventions (i.e., participatory projects) and early response in the form of pond rehabilitation, cash for work, and asset building projects, for example. While the projects are linked to perceptions around resilience they are also linked to the notions of 1) information leading to action 2) belief that their voice is being recognized and heard and 3) the direct link between problem identification at quarterly meetings and active solutions.

“For example, during a quarterly meeting there was a broken motor that needed to be fixed it requires 50 birr to fix. Quarterly meetings will help this problem.”

“For example if there is no area with a health extension worker, then this (information) reaches the health office and they respond.”

“DEWS information has influenced action and provides a response to the problem.”

“DEWS has recognized our community.”
PROCESS EVALUATION AND RECOMMENDATIONS

This section of the evaluation report focuses upon a process evaluation for learning with recommendations and actionable next steps. The following framework helps organize the findings & key recommendations. Detailed comments and recommendations are found in Annexes.
HIGH PRIORITY BRIEF FINDINGS & RECOMMENDATIONS

The following section is an abbreviated table of HIGH PRIORITY findings and recommendations. Detailed explanations and recommendations are found below and in the Annexes at the end of this report.

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency: Time was saved each month by the GPDI coordinators who collect surveys from 10 DC/HEW using KoboSync. High data quality is likely due to the strong GPDI DEWS</td>
<td><strong>HIGH PRIORITY</strong> Facilitate travel to collect data until SMS data transfer is feasible and can be integrated. (non-tech)</td>
</tr>
<tr>
<td>Coordinator who currently travels to meet HEW in Taltalle and DC in Moyale.</td>
<td>HIGH PRIORITY Institute a more efficient SMS system such as FLSMS where multiple SMS messages can be sent at once, this will decrease the existing time demands of the GPDI DEWS coordinator and capacity build GPDI and DC/HEWs.</td>
</tr>
<tr>
<td>SMS of monthly report recommendations saves time required to physically meet with DC/HEWs to provide feedback. Smartphone text messaging is a very valuable feedback loop and capacity builds text messaging skill sets.</td>
<td></td>
</tr>
<tr>
<td>HIGH PRIORITY Establish a more efficient SMS system such as FLSMS where multiple SMS messages can be sent at once, this will decrease the existing time demands of the GPDI DEWS coordinator and capacity build GPDI and DC/HEWs.</td>
<td></td>
</tr>
<tr>
<td>Hours → days were often lost to recharging tablets. Due to the lack of reliable and affordable access to electricity, 3 of 4 HEWs are required to use their own income to pay for recharging and/or travel hours to recharge tablets.</td>
<td>HIGH PRIORITY Establish a charging and cost plan for recharging tablets for DEWS Taltalle. Place contingency plans and funds for failure of recharging including funds as well as paper backup. It is not recommended to purchase phones to replace tablets unless primary general funding issues for DEWS are first addressed.</td>
</tr>
<tr>
<td>The pilot did not change the feedback of monthly reports with district/zonal offices. This is likely due to non-technical demands on the GPDI DEWS Coordinator for multiple tasks and travel times.</td>
<td>HIGH PRIORITY Strongly consider sharing reports to zonal offices via soft-copy (i.e. email) and monitor and employ a soft/hard copy process for report sharing in Moyale. Maintaining hard copy reports to Taltalle government stakeholders as they do not have reliable email access.</td>
</tr>
<tr>
<td>Audio recordings improve quality of monthly data collection. Challenge—this has created over 640 audio files and data explosion making it currently unfeasible to interpret, analyze and feedback all of this high quality information.</td>
<td>HIGH PRIORITY Finalize the plan for how to integrate audio comments into the overall DEWS system. Use only 2 comments per monthly survey. 1) General comment 2) traditional early warning comments. Institute a focused 6 month monitoring plan to track the quality and quantity of data collected as well as track the feasibility of integrating this information all the way through to the feedback loops (including quarterly meetings)</td>
</tr>
<tr>
<td>Kobo digital data formats are not fully synchronous with pre-existing DEWS</td>
<td>HIGH PRIORITY Plan for the re-integration of missing indicators including</td>
</tr>
<tr>
<td>Relevance and Appropriateness</td>
<td>new audio files. Monitor for the effects of the last retraining session in January 2014.</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The ICT Pilot project was imbalanced in addressing the needs of the beneficiaries/end user.</td>
<td><strong>HIGH PRIORITY</strong> A coordinated set of discussions are needed among stakeholders at the managerial/leadership level to outline the overall program goals/objectives, followed by the future role of ICT recognizing its successes and potentials for future benefits. It must also be recognized that imbalanced funding will not compensate for core programmatic needs.</td>
</tr>
<tr>
<td>Overall KoBoCollect is a user-friendly application for DEWS stakeholders, but recent deletions of KoBoCollect on 2 tablets have occurred and the cause is unclear.</td>
<td><strong>HIGH PRIORITY</strong> Further investigation is needed as soon as possible with an ICT specialist to determining why KoBoCollect appears to be auto-deleting.</td>
</tr>
<tr>
<td>Electricity, specifically the solar charger Readyset has been successful for 1-2 months since its first use in Sarite, Taltalle.</td>
<td><strong>HIGH PRIORITY</strong> next steps are to create a monitoring, contingency and maintenance plan for this new technology. Assess the feasibility of purchasing and integrating additional ReadySets to Taltalle Pas.</td>
</tr>
<tr>
<td>There appears to be no established formal plan or protocol for information security and privacy</td>
<td><strong>HIGH PRIORITY</strong> An information security and privacy plan, and protocol is a high priority for the ICT Project moving forward to 1) recognize the strengths/weaknesses of the DEWS system and the Pilot as it relates to information sharing, privacy and risks to stakeholders, 2) map the technical and non-technical security breaches that can occur and contingency plans for action to mitigate harm. 3) determine program thresholds for action when information security and privacy breeches occur.</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td>Additional hours were spent to seek out charging stations and personal money was spent by HEW staff to keep the project going in Taltalle.</td>
</tr>
<tr>
<td><strong>Integration</strong></td>
<td>Limited availability of phones/tablets during the training period of DC/informants. They likely cross trained one another to successfully use the new tools during the pilot period.</td>
</tr>
<tr>
<td><strong>Digital data collection</strong></td>
<td>Digital data collection has created a large volume of files (over 2300 files to date) which is managed to date in an ad hoc manner</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td>The time widget was incorrectly being used in the initial Kobo Forms creating erroneous times for indicator 5.</td>
</tr>
<tr>
<td><strong>People</strong></td>
<td>Capacity building is a strength of the pilot and the overall DEWS system, and needs ongoing investment and future planning.</td>
</tr>
<tr>
<td></td>
<td>HRD decision-makers may have high requirements and expectations for DEWS data and there is a suspicion that decision-making challenges are not technical in nature but related to trust in data and information and</td>
</tr>
<tr>
<td>human-centered.</td>
<td>HRD level.</td>
</tr>
<tr>
<td>----------------</td>
<td>------------</td>
</tr>
<tr>
<td>There appears to be a lack of adequate staffing at the DEWS GPDI level, challenges with monthly activities, sharing information due to long distances and transport times.</td>
<td><strong>HIGH PRIORITY</strong>- Explore options for a staff member to be positioned in Taltalle, if possible.</td>
</tr>
</tbody>
</table>
REFERENCES
ANNEX 1 – WATER MAPPING PROJECT

The Water Mapping project was another part of the ICT Pilot that was tightly related to the DEWS program.

Overall the Water Mapping project collected monthly structured information over the pilot period. Efforts to visualize and share monthly finding with HRD/HARO stakeholders was accomplished by the end of the Pilot period. Champions of this collaborative project were the ICT specialist, HRD/HARO public health specialists, and DEWS Partner coordinator.

SUCCESSES

As a result of the intention to rapidly prototype the KoBoForm for data collection by the end of the pilot period the indicators and the data entry process itself appeared to be working well. The KoBo Form was detailed but not too burdensome for data collectors to use when observed during the evaluation period. From the review of the 1-2 reports shared at the end of the pilot period, information and data was being processed, analyzed and visualized in a format that appeared feasible for a broad group of stakeholders.

An informal review of stakeholder access to water mapping reports, and their use by various stakeholders was achieved during the evaluation but determining the influence on decision-making was not part of this evaluation.

The purpose of geographic visualizations appears to focus upon stakeholders and decision-makers at the agency and government office level. During the evaluation
trip, **Yabello Zonal officers** found the ArcGIS map (item B to the right) of water point most helpful when compared to the Googlefusion and GoogleEarth visualizations. The point data allowed them to see which water points were functioning and which were non-functional that month.

Embedding the graph into the monthly format seemed more feasible rather than producing a different document. Two recommendations came from the focus group discussion. Eight staff from GPDI and HARO recognized the online ArcGIS water mapping project map. It was unclear from the survey if they were using the online platform or in the PDF monthly reports. While the intent of these maps from key informant interviews were not intended to reach all stakeholders, it is **recommended to consider integrating more feedback on fast cycle prototyping of visualization products for future iterations.** Especially if these products are meant for government stakeholders and communities, the one respondent with the strongest connection saw the least number of maps.

Comments below show that stakeholders feel that maps help information sharing and improve understanding. Others envisioned the utility of triangulating this information with DEWS data. Field staff comments were pointed toward issue identification and follow up. HRD comments tended to describe more technical aspects such as pop-ups, online access, alert functions.

> “the pictorial representations enables to share many information at one glance and also will be remembered easily.”

> “you can find (it) easily like functioning/non-functioning and some high priority indicators can be used like water shortage and food security”

> “The information from the water mapper would help triangulate the data gathered through other sources.”

> “It would be nice to see how the HH data related to the water mapping so perhaps seeing layers would be nice.”

> “It is helpful to indicate the location of the water points and the status of the water capacity.”

---

17 Only half of the respondents had seen the GoogleFusion map. Approximately one-third of respondents saw the GoogleEarth map.
The iterative and flexible team was able to quickly navigate through technical challenges with KoBoMap and maintain efforts to reach the project goals by flexibly using other mapping and visualization platforms; both high and low tech. The ArcGIS platform allowed for geographic visualization with point data (see above), and Microsoft Excel was also used to diversify data visualization (charts, text, graphs, and pie charts).

The below sections on effectiveness and efficiency are more formal metrics applied to a pilot project at a very early stage of development. It is recommended that these findings should be interpreted as a way to improve or continue the project rather than to infer the project with respect to accountability.

Effectiveness- From document review and discussions, the evaluation goals were to establish a data collection system, using KoBoToolbox and the pre-existing DEWS system to help with water scheme monitoring. Geographically visualizing the data was also a goal. It was somewhat unclear from project documentation and some interviews the specifics of how this information was going to be used for decision-making, or if that was a goal for this part of the ICT pilot project. The aims to collect and visualize information appear to be achieved by the end of the pilot project cycle. From interviews there appeared to be expectations that the water mapping project would lead to knowledge to decision-making for OA and Partner programming. In order to extrapolate effectiveness to decision making and any impact on OA/Partner programming it is recommended to further develop goals and objectives along these lines and further evaluate this in existing or future pilot programming.

Efficiency- By the end of the project period, water mapping data was being collected although there were some gaps in data collection over the pilot period. The visualization of the data went through various iterations and a product in the form of a report was shared in January 2014 from data from November 2013.

OBSERVATIONS

Stakeholder Expectations- From a few interviews and observations with field staff, there appeared to be growing expectations from community members. It was felt by one member of the project that the ongoing data collection from the Water Mapping project was building a set of expectations among community members for addressing water scheme problems. With a perceived lack of feedback and response there were concerns for a growing level of negative community members sentiments toward the Partner and OA because they believed that they were not responding to their reported water scheme challenges. This preliminary finding should be further investigated and it is recommended to begin discussions regarding a communication or expectation plan among the key stakeholders (e.g., ICT specialist, HRD/HARO public health specialists, and DEWS Partner coordinator) and communities providing monthly water scheme information.

Collecting GPS Coordinates - GPS coordinate collection each month appears to be required for the Water Mapping project despite the likely static location of water scheme in Moyale/Taltalle and the current depiction of kebele level geographic data on shared
reports rather than the micro-ola or village level data that the GPS technology collects. Field observations and testing confirmed that acquiring GPS coordinates with the current Android phones and KoboCollect often require a significant amount of time to wait for the technology to acquire the coordinates. If the purpose is to ensure accountability of the data collector to collect information on-site, the following recommendations could be considered.

- Convene with data collectors and communities about the challenges and use a user-centered design approach for a potentially more efficient solution to address accountability for data collection.
- Consider using photos (which was a recommended by communities, water committee staff and DEWS staff) and potentially audio as an indicator to address data quality and accountability.

Pilot Staffing Capacity - Based upon key informant interviews, informal discussions and observations from the field trip, the capacity to sustain digital data collection was limited at the Partner level. At the time of the field evaluation, the DEWS coordinator appeared to be the sole staff member travelling distances in Moyale to collect information placing additional demand on this staff member. The underlying factor for this challenge should be further investigated. One temporary solution to maintain the pilot moving forward is to limit in the short term the number of water mapping data collection sites to fit the current staffing limitations and then to expand and scale when this challenge is resolved.

Next steps

The current status of the DEWS program and overall ICT pilot project will set the stage for feasible and sustainable next steps for the Water Mapping project. The funding and operational presence of the DEWS program (including program staff), ongoing use of ICT hardware (phones/tablets) and technical support will determine whether or not the Water Mapping project should be continued.

If the above requirements are met, the following improvements can be considered.

- Further develop a set of goals, objectives, outputs and outcomes plan for the future pilot period including feedback loops and anticipated outcomes on knowledge and decision-making.
- Readdress the short and long-term aims for collecting water scheme GPS coordinates. If accountability for data collection is the driver consider alternative indicators (photos/audio) than can achieve these goals.
- Consider adding a photo indicator at the request of data collectors to show and further describe water scheme issues. This will also require a post data collection plan to feasibility integrate these media findings into the reports.

---

18 The current geographic point data maps do not currently require a high level of accuracy as it highlights general kebele locations of water schemes rather than meter/km changes at the village level.

19 This was briefly tested during the evaluation period had less technical limitations.
• Address some current challenges with indicators in water mapping tool V2. Revise the reservoir question to allow for hours and minutes, and reassess the "water scheme type" indicator which the DEWS Partner coordinator has reported that the responses are frequently not saved despite data entry.

• Continue to invest in building a visualization platform for the water mapping data, in an iterative fashion similar to the work to date and consider revisiting KoBoMap or other ODK mapping options.
ANNEX 2 – NEW GRAPHS, MAPS AND INFORMATION PRODUCTS

FEBRUARY MOYALE SPECIAL REPORT and GRAPHS

Messages from the Mudhi Ambo community - January 2013

- “The pond we have is Dambi Korba, which is far from us and took us six hours in round trip. School is to be closed due to water. We need intervention, trucking, we always report that and there is nothing we speak more.”
- “About water, it is a big problem unless intervention being made.”
- “My name is XXXX … Comment on water is, there is nothing to give comment as there is no water in sources, travel to Dambi Korba pond. If there will be no water in next month, all people and livestock will be migrating.”

Messages from the Mudhi Ambo community - January 2014

- “The respondent women from Mado kebele reported that food security has decreased considerable, there is no food and grain prices on market are unaffordable. We had no harvest and planted crop on hagaya season failed. Meal frequency has considerable decreased. Meal for adult and children used to be 2 and 3 by order but decreased now less 2 for children and 1 for adults. Malnutrition is appearing on children. Food security was supported by aid through government, there is no aid now.”
The ABOVE graph is the existing monthly DEWS report for Taltalle which shows the AVERAGE time to collect water for ALL Taltalle PAs. Time to collect has been increasing for the past 3 months (Nov-Jan) with a slight decrease in the past month.

The ABOVE graph shows the time to collect water by EACH PA. This highlights how severe the situation is specifically in Sarite, which is masked in the aggregate graph to the left.

The graph to the LEFT, shows the 12 month cumulative trends (summation graph) for SPECIFIC PAs in Taltalle. This again highlights the severity of the perception of water quality in Sarite

“Now we are in critical condition- we drinking pond water that is not clean/good, no water treatment, drought here affecting us, food hunger, so we need food aids, traditional forecasters also fear “Ganna’ rain will come late and few”
ADDITIONAL INFORMATION ABOUT THE ABOVE 6 MAPS ARE FOUND IN ANNEX 12
## ANNEX 3 – EFFICIENCY

<table>
<thead>
<tr>
<th>Timeliness</th>
<th>Findings</th>
<th>Comments</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improvements/maintenance</strong></td>
<td>Using KoboForms and KoBoCollect with smartphones saved 30-90 minutes for women informants and DC/HEW</td>
<td>Timeliness may decline due to future battery failures and/or Kobosoftware glitches. For example, there were unexpected deletions of KoBoCollect observed in Taltalle.</td>
<td>Monitor the time to collect monthly information to identify any technical or non-technical changes that may prolong the time to collect. <strong>Caution</strong>: only evaluating digital data time stamps do not reflect overall timeliness</td>
</tr>
<tr>
<td><strong>Improvements/maintenance</strong></td>
<td>Time was saved each month by the GPDI coordinators who collect surveys from 10 DC/HEW using KoboSync</td>
<td>High data quality is likely due to the strong GPDI DEWS coordinator who currently travels to meet HEWs in Taltalle and DC in Moyale.</td>
<td><strong>HIGH PRIORITY</strong> Facilitate travel to collect data until SMS data transfer is feasible and can be integrated.</td>
</tr>
<tr>
<td><strong>Improvements/planning</strong></td>
<td>KoBoVAS Scale automatically enumerates hash marks previously measured with rulers and recorded using pen/paper.</td>
<td>KoBoVAS data appears to be relatively accurate for existing DEWS PA despite technical errors.</td>
<td>For any expansion to new villages, there may be significant issues with data quality. New users may make errors because the digital scale is depicted incorrectly on devices.</td>
</tr>
<tr>
<td><strong>Improvements/maintenance</strong></td>
<td>Excel training enabled the GPDI DEWS coordinator to average select indicators at the village, district and woreda level saving analysis time.</td>
<td>Digital data collection has advanced the use of average functions using Excel.</td>
<td>Continue to capacity build average functions on excel with existing DEWS GPDI coordinator and additional GPDI staff to sustain gains in efficiency. Consider integrating in Excel mode functions for some livelihood indicators.</td>
</tr>
<tr>
<td><strong>Improvements/growth</strong></td>
<td>SMS of monthly report recommendations saves time required to physically meet with DC/HEWs to provide feedback.</td>
<td>Smartphone text messaging is a very valuable feedback loop and capacity builds text messaging skill sets.</td>
<td><strong>HIGH PRIORITY</strong> Institute a more efficient SMS system such as FLSMS where multiple SMS message can be sent at once, this will decrease the existing time demands of the GPDI DEWS coordinator</td>
</tr>
</tbody>
</table>


| Weakness/recommendations | Hours→days were often lost to recharging tablets. Surveys were sometimes lost/deleted because tablets would run-out during actual data collection. | Due to the lack of reliable and affordable access to electricity, 3 of 4 HEWs are required to use their own income to pay for recharging and/or travel hours to recharge tablets. Tablets will shut down sometimes during actual data collection requiring days to recharge and walk back olas for women informants to repeat surveys. | **HIGH PRIORITY** Establish a charging and cost plan for recharging tablets for DEWS Taltalle. Place contingency plans and funds for failure of recharging including funds as well as paper backup. It is not recommended to purchase phones to replace tablets unless primary general funding issues for DEWS are first addressed. |
| Weakness/recommendations | More time was spent producing monthly reports during the pilot period20- causes are likely ICT and non-ICT related. | Analysis indicates that the data transformation from KoBo data to pre-existing Excel formats are contributing to delays. In addition non-technical issues of staffing and role expectations may be contributing to delays. | Recommend establishing or re-establishing expectations for time to reporting for the HARO DEWS Coordinator and an accountability monitoring plan. Also review the data transformation processes to determine areas of efficiency improvement that can be achieved with training and with long term options for automated analysis. Automation should be a lower priority at this time. |
| No Change/opportunities | The pilot did not change the efficiency of monthly reports feedback with district/zonal offices | This is likely due to non-technical demands on the GPDI DEWS Coordinator who is managing multiple tasks and long travel times. | **HIGH PRIORITY** Begin to share reports to zonal offices via soft-copy (i.e. email) and monitor and employ a soft/hard copy process for report sharing in Moyale. Maintain hard copy reports in Taltalle until email access is reliable. |
| No Change/Challenges | The pilot did not directly change the feedback | See general comments |

20 Compared to the prior 6 months, the evaluation revealed that there was no recognized set of expectations for report writing.
<table>
<thead>
<tr>
<th>Strength and Challenge</th>
<th>Findings</th>
<th>Comments</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio recordings improve quality of monthly data collection</td>
<td>Audio is a potential high quality mechanism for collecting monthly comments from women informants. Qualitative validation occurs between DC/HEWs and women informants using the audio reply functions on KoBoCollect/Android phones. <strong>Challenge</strong> this has created over 640 audio files and data explosion. <strong>It is currently unfeasible to interpret, analyze and feedback all of this high quality information each month.</strong></td>
<td><strong>HIGH PRIORITY</strong> &lt;br&gt;Finalize the plan for how to integrate audio comments into the overall DEWS system. &lt;br&gt;Use only 2 comments per monthly survey. 1) General comment 2) traditional early warning comments. This idea has been shared with women in Mudhi-Ambo with positive feedback once they were informed of the processing challenges. Other PAs should be involved in the final decision.</td>
<td>Institute a focused 6 month monitoring plan to track the quality and quantity of data collected as well as track the feasibility of integrating this information all the way through to the feedback loops (including quarterly meetings).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk/Strength/Challenge</th>
<th>Findings</th>
<th>Comments</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current automatic filename assignments for survey instances are not ideally fit for village level quality control checks.</td>
<td>Quality is currently maintained non-technically with the face-to-face confirmation of the number of monthly surveys and date stamps by the GPDI DEWS coordinator with DC/HEW at the point of data transfer likely for all 10 villages.</td>
<td>First, support the existing face to face quality checks and transform this into a sustainable model through training material.</td>
<td>When appropriate, explore technical development options for more DEWS appropriate file name assignments (see file/data management section for more</td>
</tr>
<tr>
<td><strong>Challenge</strong></td>
<td>KoBo digital data formats are not fully synchronous with pre-existing DEWS data formats.</td>
<td>Although the core data is the same between KoBo data and pre-existing DEWS excel sheets they have to be transformed to the pre-existing format so the DEWS HARO staff can proceed with analysis. This is due to both technical and capacity issues. The automate graphs from the pre-existing DEWS system are not available in the KoBo software tools. <strong>Although most of the indicators have a process established from Kobo to pre-existing DEWS format, 6.1, 21.1, 21.2, 22.1, 22.2, and all 9 audio recording indicators are currently no longer integrated</strong></td>
<td><strong>HIGH PRIORITY</strong> Plan for the re-integration of missing indicators including new audio files. This requires not only technical, but data management, analytic skills sets, and process design experience. Reported recent training in January 2014 has addressed this issue. 6.1, 21.1, 21.2, 22.1, and 22.2 can be analyzed using modes. Audio files should have a qualitative text analysis processing plan</td>
</tr>
<tr>
<td><strong>Worsening/Challenges</strong></td>
<td>KoBoVAS Slider is visually incorrect at this stage of development both with the visual scale, qualifiers on the phone and tablet and rotation function. (See figure 1)</td>
<td>This did not appear to impact the overall data quality and is likely due to pre-existing knowledge and familiarity with VAS from paper forms.</td>
<td>Provide feedback to the KoBo team about the technical limitations. Do not invest in additional VAS revisions until general funding issues are resolved. Due to the open source software, options may exist for ODK VAS revision with organizations like GWOB/RHOK or with regional experts in Nairobi/Kampala</td>
</tr>
<tr>
<td></td>
<td>Lack of quality control with KoBoVAS Slider questions</td>
<td>Non-response of digital VAS and &quot;no change&quot; both result in the value &quot;0&quot; This makes it impossible to determine if it was a missed/passed question or if they answer was truly &quot;no change&quot;</td>
<td>Focus on refresher training to ensure best quality data to maintain already high response rates seen prior to ICT integration. Feedback to KoBo about the technical limitations <strong>It is not recommend to invest in additional VAS revisions until general funding issues</strong></td>
</tr>
</tbody>
</table>
are resolved.

Free options exist for ODK VAS revision with organizations like [GWOB/RHOK](#).

**Caution:** For any new expansion, this should be resolved or recommend initial paper data collection during pilot expansion.
## ANNEX 4 – RELEVANCE AND APPROPRIATENESS

### Relevance and Appropriateness

<table>
<thead>
<tr>
<th>Findings</th>
<th>Comments</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Observations</strong></td>
<td>Some stakeholders believe that KoBoToolbox was not the most appropriate digital data collection option for the DEWS ICT pilot.</td>
<td>While digital data collection was highly regarded, there are some technical issues and concerns from stakeholders with the most familiarity and experience in digital data collection platform selection.</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>The ICT Pilot project was imbalanced in addressing the needs of the beneficiaries/end user.</td>
<td>Almost all stakeholders expressed a concern that the overall program needed improvement in feedback loops, mostly described as quarterly meetings and participatory projects. This was also recognized by HARO and HRD managers during the pilot period who advocated for these components of the program to be supported adequately during the Pilot, with some success. The outcomes of these efforts were felt by many, unfortunately, to be inadequate and</td>
</tr>
<tr>
<td>this is reflected in observations, key informant interviews, focus group and survey responses.</td>
<td>(ICT and non-ICT) to donor and funders and request either funding for both the 90 and 10%, or a portion of the 90% with a clear strategy and position on why. Or consider directed requests for partnership funding models where tech focused only donors must come to the table with non-tech funders. This can be facilitated by OA/GPDI leadership.</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 5 – TECHNOLOGY

From the ICT Consultant’s Lessons Learned Document

Appendix A: Known issues

Currently, there are a number of functions in KoBoToolbox that do not function as they should.

1) Users have reported issues with the Java Plugin. Because the form designer runs inside Mozilla and uses Java, after update to Java 7 and recent security updates, KoBoForm has some impaired functionality. Mainly, it is sometimes not possible to use Open From File and Save to File. The work around for the time being is to use Load Form Text and View Form Text to copy and paste the xml code to and from an xml file.

2) At the time of the writing of this document, KoBoForm would omit labels (question text) for multiselect questions and for group questions. To make the form functional, the labels would have to be manually added in Notepad++.

3) KoBoForm acts up if you try to “click and drag” in the ‘Your Active Survey’ window to change the order of questions. This means that if you are editing your form and you would like to insert a question between two existing questions, you have to add it out of order and then Cut/Paste the question in Notepad++ into the correct order.
## ANNEX 6 – ASSESSMENT AND PREPARATION

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td><strong>Recommendations</strong></td>
</tr>
<tr>
<td>ICT consultant played a valuable role in pilot assessment and planning</td>
<td>During future pilots and new integration a staff/consultant with appropriate skills is important to plan the project prior to implementation. <em>(see also value for money section)</em></td>
</tr>
<tr>
<td>The DEWS feasibility assessment played a notable role in the success in pilot planning</td>
<td>Future integrations for DEWS should include an informant or formal assessment based upon the degree of new integration. For other OA programs a feasibility assessment and ICT project specific assessment should be strongly considered.</td>
</tr>
<tr>
<td>The HRD level T4D, FotWog groups provided an in depth review of digital data collection tool which informed the tool selection</td>
<td>Continue to support the broader OA ICT activities both at the HRD/HARO level and keep an eye out for activities to involve the local partner whenever possible.</td>
</tr>
<tr>
<td><strong>Limitations</strong></td>
<td><strong>Recommendations</strong></td>
</tr>
<tr>
<td>Although the feasibility assessment recommended a formal digital data collection focused assessment, the pilot project appears to not have completed a formal in field- community-level assessment likely contributing to some pilot limitations. Especially as it relates to Taltalle which was not fully included in the feasibility study. <em>(see examples below)</em></td>
<td>Future new ICT integrations should include a pilot-focused assessment. Depending upon the complexity of the project it should occur at a minimum as a desk assessment but ideally should include an in-field assessment.</td>
</tr>
<tr>
<td>A more in depth identification of electricity limitations in Taltalle which may have changed the decision to use tablets in the project or use them in Moyale</td>
<td></td>
</tr>
<tr>
<td>Further considering user-centered approaches to help design feedback loops, identify appropriate hardware, security issues, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potentially increased the level of engagement among select HARO staff on the prioritization and role of ICT in overall DEWS programming.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Opportunities to assess the analysis skills and pathways to identify the data transformation limitation between KoBo and pre-existing DEWS excel formats</td>
</tr>
<tr>
<td></td>
<td>Further investigate the analytical skills sets of the HARO/GPDI DEWS coordinators for which there are gaps and strengths (i.e SPSS skills sets) for future planning and training.</td>
</tr>
<tr>
<td>Findings</td>
<td>Recommendations</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Limitations</strong></td>
<td><strong>HIGH PRIORITY</strong> An information security and privacy plan, and protocol is a high priority for the ICT Project moving forward. Existing activities can be integrated into a formal policy and plan which will 1) recognize the strengths/weaknesses of the DEWS system and the Pilot as it relates to information sharing, privacy and risks to stakeholders 2) Map the technical and non-technical security breaches that can occur and contingency plans for action to mitigate harm. 3) Determine program thresholds for action if there are information security and privacy breeches.</td>
</tr>
<tr>
<td>There appears to be no established formal plan or protocol for information security and privacy</td>
<td></td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td></td>
</tr>
<tr>
<td>Community discussions, although brief have not identified major issues in sharing information</td>
<td>Continue to have discussions with community members and further engage with them on security and privacy protocols as they are likely to have very insightful ideas on how to secure their own information and technology tools</td>
</tr>
<tr>
<td><strong>Plans for repayment plans for hardware security (lost phones/tablets) created fear among community stakeholders</strong></td>
<td></td>
</tr>
<tr>
<td>OA ICT HRD appear somewhat unclear on what KoBoToolbox provides with respect to information security and Privacy</td>
<td>It has been reported that encryption is possible, and discussion with the KoBo Team and community should occur soon, especially with the new software release.</td>
</tr>
<tr>
<td>The general knowledge of info security and privacy appears lower at the HARO, Partner, and government stakeholder level.</td>
<td>Feasible options for learning more and integration knowledge into planning are possible. See resources below (insert)</td>
</tr>
<tr>
<td></td>
<td>Consider a general assessment exercise using pre-existing guides to best identify hardware, software, and non-technical information security and privacy issues. This should also include data security issues at the level of collection, transfer and storage. This can inform large information security and privacy needs as OA further develops their ICT activities throughout the organization.</td>
</tr>
</tbody>
</table>
Resources:

- “Level Up: Understanding How Digital Security Trainings Can be Improved” [https://www.theengineroom.org/projects/levelup/]
- Mobile Security Links
  o Tactical Tech- [http://www.tacticaltech.org/mobilesinabox]
## Findings

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Successes of the implementation were tightly linked to funding and the hard work of the DEWS team, including the ICT consultant, HRD PH specialist, DEWS/GPDI coordinators, DC/HEW and women informants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitations</td>
<td>Additional hours were spent to seek out charging stations and personal money was spent by HEW staff to keep the project going in Taltalle.</td>
</tr>
<tr>
<td>Visualization efforts faced challenges, including obstacles that the HRD/Consultancy level in using KoBoMap. Visualization goals during the pilot period moved away from DEWS and toward the Water Mapping project. Alternative platforms were explored, (Googlefusion, online ArcGIS, ArcGIS). The team appeared to face challenges with moving forward due to the perception that incomplete comprehensive datasets were</td>
<td>Even though some village level mapping data is missing (i.e. Bokola), continue to leverage this incomplete dataset and revise the map/information product as necessary with non-technical measures. There may be a risk of loss to learning, communication and potential decision making with this dataset if the DEWS team waits for the “complete” dataset which may take months to years.</td>
</tr>
</tbody>
</table>

## Recommendations

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Continue to work and support with the DEWS members with any new integration and also further engage the managerial HARO/GPDI staff (i.e. Naz/Girma/Jatani) in any next steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>The “building upon existing strengths” approach contributed to the success of the DEWS Pilot Project</td>
<td>For future projects, expansion, monitoring of “existing strengths” will be important in future ICT pilot project designs and changes.</td>
</tr>
<tr>
<td>High quality training documents and revisions</td>
<td>Continue to maintain the priority of training materials and effort, as well as build the next steps of skills transfer along these lines from external consultants to project staff for sustainability, including government stakeholders.</td>
</tr>
<tr>
<td>Recognition of the need for refresher training at the GPDI/HARO level to further strengthen and rectify challenges identified in integration/analysis</td>
<td>Continue to plan for necessary refresher training and skills transfer at all levels of the system including women information/DC. This can be coupled with necessary strategic planning sessions.</td>
</tr>
</tbody>
</table>

### HIGH PRIORITY

Establish a more feasible charging and payment plan for HEW in PAs where there is no ReadySet. If additional ReadySet are plan, still implement and interim plan. Establish a contingency fund for supplementing HEW when the charging costs unexpectedly rise. The current system of personal payment for charging fees and transport is not sustainable and will likely further de-incentive the HEWs. This should be address in a timely manner especially if a long-term government transition is planned.
<table>
<thead>
<tr>
<th>mandatory for exploring mapping options.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage staff and consultants to explore working with imperfect data to determine the most feasible way to move forward. Seek out staff and external consultants to explore non traditional approaches to data fusion (tech and non tech)</td>
</tr>
</tbody>
</table>
## ANNEX 9 – INTEGRATION

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Successes</strong> KoBo integration was smooth during the pilot period, especially at the community level. This is partly due to the technology but also due to the 90% (people, pre-existing system, planning, training, and recognition of the project previous impact, etc).</td>
<td><strong>HIGH PRIORITY</strong> Continue to support training activities with new refresher trainings, and also leverage the pre-existing cross training skills that women/DC already have. Consider this cross training between Taltalle and Moyale.</td>
</tr>
<tr>
<td>Only a few phones/tablets during the training at the village level with information women and DC/HEWs. They likely cross trained one another when they received their devices to successfully use the new tools during the pilot period.</td>
<td></td>
</tr>
<tr>
<td>Data transfer from DC/HEWs to the GPDI coordinator and to HARO coordinator is going well with good non-technical quality checks.</td>
<td>Consider having the GPDI coordinator create a brief protocol outlining how he double checks surveys prior to collecting data from the phones/tablets. Create a protocol for quality assurance at the HARO level as well on how to review the KoBo Data/DEWS data prior to analysis as well.</td>
</tr>
<tr>
<td>The SMS feedback system by GPDI coordination was an unplanned integration of monthly reports back to communities. A great success and an example of a user-centered design approach</td>
<td><strong>HIGH PRIORITY</strong> Support the further development of this SMS feedback system. Consider FrontlineSMS to group send messages to increase efficiency and decrease workload. Enumerate the cost of SMS sending per month for budgetary purposes. Draft a checklist for any future GPDI coordinators or future government coordinators so that this effort is made sustainable going forward.</td>
</tr>
<tr>
<td>Women are using the VAS scale questions in both the vertical and horizontal format – HEWs are using the appropriate horizontal presentation more regularly which will theoretically improve the accuracy of the VAS scale.</td>
<td>Refresher training should include the horizontal use of answering VAS questions. Explore why Moyale women prefer the vertical axis. Training on how to turn on the “rotation” function on the smartphone/tablet is necessary to successfully use the horizontal axis on the phone.</td>
</tr>
<tr>
<td>Challenges</td>
<td>In Taltalle, HEWs appear to point and touch the SMART phones/tablet rather than the informant women who use the swipe technique.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Digital data collection has created a large volume of files (over 2300 files to date) which is managed to date in an ad hoc manner</td>
<td>HIGH PRIORITY Recommend a file management and data storage plan for DEWS moving forward. Recognize the bandwidth cloud limitation of multiple stakeholders in the DEWS system during the design. Many files which are overwritten have the same file name creating a significant challenge for MEL practices and should be considered but not over prioritize over basic project operational needs.</td>
</tr>
<tr>
<td>Challenges with transforming KoBo data formats to pre-existing DEWS formats- resulting in likely additional time demands on HARO coordinator, loss of information for indicators and slight decrease in quality of monthly reports</td>
<td>Continue to invest in capacity building and training by updating a revised training/procedural plan for this portion of the integrations which is essential for feedback mechanisms.</td>
</tr>
<tr>
<td>- create a plan for re-integrating categorical data, seek expertise for integration along these lines if not already available</td>
<td></td>
</tr>
<tr>
<td>- while other tech platforms (ODK or other) may have better analytical platforms, an in depth data analysis assessment and integration plan will help any future data integration efforts</td>
<td></td>
</tr>
<tr>
<td>Monthly data variables with categorical data and audio qualitative data did not appear to have a comprehensive plan for integration. This is problematic as the genesis of the VAS scalar system stemmed from the value of qualitative perception based data. Data from indicators (6.1, 6.2, 21.1, 21.2, 22.1, 22.2 are mostly missing from the final DEWS dataset)</td>
<td>While these limitation are not “technical” in nature they have significant relevant to the quality of the data and the outcomes of the project. Training sessions in January 2014 have aimed to address this gap.</td>
</tr>
<tr>
<td><strong>HIGH PRIORITY</strong> - Create an analysis plan for audio files. The ad hoc process created during the evaluation period should be considered and revised into a formal plan for audio files. Engage the women informants in this revision or design.</td>
<td></td>
</tr>
<tr>
<td>Challenges</td>
<td>A review of 6-9 month of available monthly reports show an expansion of the size and number of reports (new water mapping reports, partners report, new maps in existing report) This will likely cause information overload and fragmentation for decision-makers at the HRD/HARO level</td>
</tr>
</tbody>
</table>
# ANNEX 10 – OUTPUTS

## Outputs

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Successes</strong></td>
<td>KoBo datasets in their crude format have very little missing data, and likely reflect the strengths in technical “non response” functions</td>
</tr>
<tr>
<td></td>
<td>The strong connection between the ICT consultant and staff members with DEWS experience provided the necessary environment for relatively fast cycle identification of errors and revisions that have greatly improved the quality of KoBo datasets</td>
</tr>
<tr>
<td></td>
<td>Communication between stakeholders was a valuable part of the ICT Pilot project with frequent Skype email and phone communications. This played a large role in the success of integrating the ICT process components of the program</td>
</tr>
<tr>
<td></td>
<td>SMS communications play a large role in the feedback loops to communities</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>The VAS slider is actually being used as a touch option. This may affect the accuracy of the tool.</td>
</tr>
<tr>
<td></td>
<td>While visualization has great potential added value at the HRD/HARO level, it appears that DC/HEW were less involved in sharing their perspectives and priorities in data</td>
</tr>
</tbody>
</table>
Government offices did not appear to be involved as well. Discussions with govt' stakeholders at the zonal level do indicate the interested in water mapping data. This effort to disaggregate district level data and Kobo’s digital data collection will likely open up doors for a more detailed situational awareness. The audio data exercise from Jan-Feb 2014 and sample maps generated for Feb 2014 show the potential of building a more robust reporting system. It requires a more in depth assessment on capacity, feasibility before moving forward.

<table>
<thead>
<tr>
<th>Limitations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The VAS Slider results in a “0” for “no change” and for non-response. This can potentially affect the quality of the data. (see page 14 for details)</td>
<td>This element should be resolved in a timely manner. Consider a volunteer tech group to help fix this bug (i.e., error) at a lower cost.</td>
</tr>
<tr>
<td>Answering VAS on the vertical axis view is common in Moyale when it is intended to be answered on the horizontal axis of the device.</td>
<td>Consider cross training from HEW to DC on encouraging the horizontal view for VAS question as this will theoretically improve the accuracy of VAS data.</td>
</tr>
<tr>
<td>The time widget was incorrectly being used in the initial KoBoForms creating erroneous times for indicator 5.</td>
<td>Despite corrections to the forms and training manual some devices still have old versions of the form and data continue to be collected incorrectly HIGH PRIORITY-update the all device forms and monitor data until the issue is resolved.</td>
</tr>
<tr>
<td>The new KoBo variable names are more amenable for advanced data managers and required revisions during the Pilot phase</td>
<td>Current errors have been fixed, but continue monitoring is necessary for any future changes.</td>
</tr>
<tr>
<td><strong>File and data management, and feedback loops are not fully embedded into the current training materials. With the increase in data generation this can limit the capacity building and training.</strong> The former manual stops at the monthly report and leaves the system hanging with a roadmap for feedback.</td>
<td>Consider staff or an external consultant with the appropriate expertise in data, monitoring and file management to take the next steps with manual revisions that can be used for training, to improve the process and maintain quality.</td>
</tr>
<tr>
<td>Limited use of incomplete shapefile datasets during the pilot period which may help stakeholders explore of visualized data and design visualization processes for the future.</td>
<td>Recent exercises (Annex Mapping Analysis, Pg2) show the possibility of mapping DEWS data. Although one village is not visualized fully on the map this limitation is surmountable with non technical revisions. It is recommend to proceed with these somewhat dated administrative datasets to explore their utility and work with non technical methods to update the map with Bokola data. (Annex Mapping Analysis, Pg2)</td>
</tr>
<tr>
<td>Cautions</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>The DEWS HARO members who have been involved in the project since its inception were less involved in the pilot period.</td>
<td></td>
</tr>
<tr>
<td>New ICT integration may be taxing for senior manager or staff to keep informed. At the same time, a working understanding of these process issues and challenges are necessary so that the overall project goals are not overlooked by the needs of the specific ICT tool. Pre-existing trusted relationships between key stakeholders at the managerial level are necessary to close this gap. This should be review and readdressed at Oxfam America before any future steps are taken.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio information is believed to be of high quality but there is no established and integrated plan on how to use it in the DEWS feedback system. During the pilot periods it was infrequently used in monthly reports and just recently used in ad hoc communications.</td>
</tr>
<tr>
<td>HIGH PRIORITY - a system is needed as soon as possible to use the data for its intended purposes. Revising to 2 questions from 7 will likely make this possible, and this approach should include the feedback from women informants/DC/HEW.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>While some data formats are more amenable to traditional mapping efforts, the DEWS data may be more complex due to the perception-based quasi quantitative methods potentially resulting in limited the progress to date.</td>
</tr>
<tr>
<td>If efforts are made to advance geographic visualization for DEWS specific data, an exercise on “what do we want to map” is necessary. This will create a roadmap for how to use the date, which variables to select and when, and help prioritize the building stages of visualization.</td>
</tr>
</tbody>
</table>
ANNEX 11 – AUDIO FILES AND DATA ANALYSIS

KoBoForms provided an opportunity for women to provide audio information but the manual, reports, KI/observation do not show a process with which to analyze this data. This was also confirmed during the evaluation trip. From the KoBo datasets, there were a total of 658 audio files (not including February 2014). The three top frequency files by sector were signs of drought, livelihoods and food security during the entire pilot period.

When further analyzing the file trends over time to elucidate monthly trends by sector, there appears to be no definitive trend when analyzing the livelihoods and migration audio file frequencies.

The greatest current challenge is the information overload created by the transformation of written comments to audio files and lack of a formal analysis plan. See Outputs- audio file for findings and recommendations.
ANNEX 12 – MAPPING AND ANALYSIS

During the evaluation period, additional maps were created with the following objectives:

1) Explore maps of DEWS data using existing geographic village level data sets and recent DEWS data indicating alerts in the system.
2) Engage HARO technical capacity for map visualization and test the mapping process.
3) Explore the process of a) identifying pressing issues from the reports/field b) co-learn as a team how to determine “what is useful to map”, and identify the process steps for execution (e.g. choosing which indicators to select) c) receive feedback from HARO/HRD individuals during an operational alert and early warning period.

The team consisted of the DEWS HARO coordinator who has worked with the data and project continuously for the past 3-4 years, and a HARO GIS specialist with professional ArcGIS skills who travelled to DEWS programming sites, and an evaluator with 7 years of experience with the system and data. Test maps were met with positive responses from the PH HRD specialist and HARO staff. **More feedback and review is necessary as this is a work in progress and will need to be closely assessed for relevance, efficiency and sustainability.** While the below maps have 1 missing village, the information can be overwritten as seen below.

There appears to be strong mapping technical capacity in HARO. With additional investment in the process of determining what to map with stakeholders, there are opportunities to further explore map process creation with the technical support of HRD.
## Findings and Recommendations

<table>
<thead>
<tr>
<th><strong>Successes</strong></th>
<th><strong>Findings</strong></th>
<th><strong>Recommendations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacity building is a strength of the pilot and the overall DEWS system, and needs ongoing investment and future planning.</td>
<td><strong>HIGH PRIORITY</strong> Continue to maintain the goals/objectives and activities that focus upon capacity building for DEWS in general and for ICT focused activities.</td>
</tr>
<tr>
<td></td>
<td>While most DEWS members felt engaged in the project, there were a few members who were less involved.</td>
<td>An ongoing trusted relationship and communication between key stakeholders at the managerial level are necessary to close this gap. This should be review and readdressed at Oxfam America before any future steps are taken.</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>The pilot has been successful with user-minded approaches, but can continue to develop user-centered design approaches by engaging more stakeholders in the process of design and feedback.</td>
<td>Review the overall program goals and priorities and discuss ways in which user-centered design can enhance the next steps. Discuss the feasibility of pursuing UX approaches as they can be time intensive but can potentially result in great benefits.</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>HRD decision-makers may have high requirements and expectations for DEWS data and there is a suspicion that decision-making challenges are not technical in nature but related to trust in data and information and human-centered.</td>
<td><strong>HIGH PRIORITY</strong> A more in depth assessment or evaluation is necessary to understand why community level decision making is facing less intrinsic obstacles than decision making at the HRD level.</td>
</tr>
<tr>
<td></td>
<td>Lack of adequate staffing at the DEWS GPDI level, challenges with monthly activities, sharing information due to long distances and transport times.</td>
<td><strong>HIGH PRIORITY</strong> Explore options for a staff member positioned in Taltalle if possible. If this can be a shared position between government/OA/Partner if possible, This will also enhance capacity building in this district site which is much needed.</td>
</tr>
</tbody>
</table>
ANNEX 14 - METHODOLOGY

Mixed methods will be used to accomplish the above goals and objectives. The following are approaches that may be adjusted based upon the context, field environment and ability to collect information and engage with stakeholders.

- Document review
- Data review
- Semi-structured interview
- Information interviews
- Focus Group
- Surveys
- Observation
- Information and data tracing and mapping

The following interview templates were used as a guide during the field trip. Over 88 questions were in the survey question database organized by evaluation framework and type. The Excel file is available upon request.

<table>
<thead>
<tr>
<th>UO</th>
<th>Objective</th>
<th>Type (Interview /FG/ Survey)</th>
<th>Question</th>
<th>Answer Types (if needed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>People</td>
<td>Interview</td>
<td>What role do you currently have with the Drought Early Warning System (DEWS) Program?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>People</td>
<td>Survey</td>
<td>What role do you currently have with the Drought Early Warning System (DEWS) Program?</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>People</td>
<td>Focus Group</td>
<td>Do you feel that your role has changed since the Pilot?</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>People</td>
<td>Interview</td>
<td>How is your role similar (or different) with the DEWS ICT Pilot compared to before the Pilot?</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>People</td>
<td>Survey</td>
<td>How is your role similar (or different) with the DEWS ICT Pilot compared to before the Pilot?</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Assessment</td>
<td>Focus Group</td>
<td>What were your expectations of the DEWS ICT Pilot?</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Assessment</td>
<td>Interview</td>
<td>G/GO What were your expectations of the DEWS ICT Pilot?</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Outcomes</td>
<td>Interview</td>
<td>G/GO How do you feel the Pilot ICT project has affected the following DEWS goals?</td>
<td>1) Enhance capacity building 2) Bring stakeholders together through bi-direction information exchange and feedback surveys quarterly meetings. Inform disaster risk reduction (DRR) activities 3) Improve community-based information sharing and warning systems</td>
</tr>
<tr>
<td>9</td>
<td>Outcomes</td>
<td>Survey</td>
<td>G/DC How do you feel the Pilot ICT project has affected the following DEWS goals?</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Outcomes</td>
<td>Interview</td>
<td>G Do you feel that the ICT pilot has influenced your decision making for DEWS, in what way?</td>
<td>no influence at all times affects decisionmaking, frequently affects decisionmaking, always affects decision making, I don't know how to make DEWS decisions</td>
</tr>
<tr>
<td>11</td>
<td>Outcomes</td>
<td>Survey</td>
<td>G/DC (Likert) Do you feel that the ICT pilot has influenced your decision making for DEWS, in what way?</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Assessment</td>
<td>Focus Group</td>
<td>W/DC/GO Did you have a role in choosing the technology for the ICT project?</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Assessment</td>
<td>Interview</td>
<td>G Please provide feedback choosing the digital data collection tool/specifically kobo</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Assessment</td>
<td>Interview</td>
<td>G If you could choose technology again for DEWS, would it be a digital data collection tool?</td>
<td>Yes, No, I'm not sure I don't know</td>
</tr>
<tr>
<td>15</td>
<td>Assessment</td>
<td>Interview</td>
<td>G Robo toolbox was chosen as the DEWS digital data collection tool would you choose it again?</td>
<td>Yes, No, I'm not sure</td>
</tr>
<tr>
<td>16</td>
<td>Outputs</td>
<td>Interview</td>
<td>G Please take a look at these maps, have you seen them before? What do you think?</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Outputs</td>
<td>Interview</td>
<td>G One of the pilot goals is to find new ways to show (visualize) the DEWS data? How do you think this is going?</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Outputs</td>
<td>Survey</td>
<td>G Please check the three images (A, B, C) of the images you have seen during the ICT Pilot phase</td>
<td>Images of Maps</td>
</tr>
<tr>
<td>19</td>
<td>Implement</td>
<td>Interview</td>
<td>G Please provide feedback on the training efforts</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Implement</td>
<td>Focus Group</td>
<td>W/DC Please provide feedback on the training efforts</td>
<td></td>
</tr>
</tbody>
</table>

The following were completed during the evaluation period

1. **KI** Myra Foster
2. **KI** Jitka Hiscox (2)
3. **KI** Lynnae Ruberg
4. **KI** Bule Korma
5. **KI** Sarite (HEW)
6. **FG** Sarite (general)
7. **FG** Saba
8. **FG** Taltalle District Line Officers
9. **KI** Moyale Health Officer
10. **KI** DPPO officer
11. **FG** Taltalle District Line Officers
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>FG</td>
<td>Mudhi Ambo (general)</td>
<td>17</td>
<td>FG</td>
</tr>
<tr>
<td>6.</td>
<td>FG</td>
<td>Mudhi Ambo (DC/women informants)</td>
<td>18</td>
<td>ID</td>
</tr>
<tr>
<td>7</td>
<td>FG</td>
<td></td>
<td>19</td>
<td>ID</td>
</tr>
<tr>
<td>8</td>
<td>FG</td>
<td>Bokola (general)</td>
<td>20</td>
<td>ID</td>
</tr>
<tr>
<td>9</td>
<td>FG</td>
<td>Bokola (HEW/women)</td>
<td>21</td>
<td>ID</td>
</tr>
<tr>
<td>10</td>
<td>FG</td>
<td>Moyale DCs</td>
<td>22</td>
<td>ID</td>
</tr>
<tr>
<td>11</td>
<td>FG</td>
<td>Arganne (general)</td>
<td>23</td>
<td>KI</td>
</tr>
<tr>
<td>12</td>
<td>FG</td>
<td>Arganne (DC/women)</td>
<td>24</td>
<td>FG</td>
</tr>
</tbody>
</table>

Online surveys were administered to the following individuals and email addresses and those that responded were incorporated into the evaluation.

1. Myra Foster
2. Jitka Hiscox (2)
3. Lynnae Ruberg
4. Nazareth Fikru
5. Girma Legesse
6. Kebede Iticha
7. Alemu Seifu
8. Guyo Bukura
9. Jatani Sora
10. dteter@oxfamamerica.org
11. efarr@oxfamamerica.org
12. espring@oxfamamerica.org
13. estevens@oxfamamerica.org
14. jdaniell@oxfamamerica.org
15. krae@oxfamamerica.org
16. mdelaney@oxfamamerica.org
17. mnigussie@oxfamamerica.org
The following data review, organization, and analysis were completed during the evaluation period:

1. Project reports from OA and GPDI
2. DEWS monthly reports from Moyale and Taltalle
3. Proposals, Concept Notes
4. Terms of References
5. Project budgets
6. Data files from KoBoCollect
   a. .xls files from various users
   b. .csv files from KoBoSync
   c. .amr audio files
   d. .xml files
   e. .kml files
7. Web links provided for online mapping deliverables
8. Email correspondences
9. Training documents

---

21 Available files were reviewed after a series of request during the evaluation period, but may not reflect all available project documents.
ANNEX 15: TERMS OF REFERENCE

Terms of Reference for Evaluation Consultancy

DEWS ICT pilot Evaluation (Technology Incubator Fund)

1. Background

Background:
In response to the recurring drought disaster in Ethiopia, Oxfam America (OA) in partnership with Gayo Pastoral Development Initiative (GPDI) and Harvard Humanitarian Initiative (HHI) have developed a Drought Early Warning Surveillance system (DEWS) which has been piloted and became operational in 2007 in southern Ethiopia; Borena zone of Oromia regional state. The need for the system arose following the 2006 severe drought in Borena, Southern Ethiopia during which there was massive impact of the emergency in terms of a late response related in part due to a to lack of timely early warning and communication mechanism being in place.

Establishing grass roots level DEWS was meant to enable OA and partner organizations to identify potential drought situations more quickly than traditional methods, by tracking health and livelihoods indicators with the goal of enabling early intervention in drought-related disasters and support resilience building mitigation projects along the way. The system aimed to generate community based early warning information, promote community and stakeholder’s preparedness and trigger timely emergency response to potential drought.

In June of 2012 OA commissioned a feasibility assessment looking at the potential information, communication and technology ICT to be more fully integrated into the DEWS system. The finding of this assessment identified an improving digital literacy and ICT environment in Ethiopia. Moyale district, one of the two DEWS project locations, is a unique test case having a more advanced environment for ICT and use of mobile communication due in part to the connectivity access from Kenya. Taltele district has less connectivity and coverage of electricity relative to Moyale and the data collection is done through government Health Extension Workers whereas in the Moyale district the data is collected by GPDI data collectors. The assessment indicated that there were four potential areas for integrating ICT options to DEWS, two of which included digital data generation and interactive web data visualization.

Based on this background and preliminary assessment guide, OA began to pilot ICT/DEWS integration project with a grant made in spring of 2013 to GPDI who have been implementing DEWS during the last five years.

---

22 Pilot grant made from February 2013 to January 2014 $ 61,477.00
The overall goal of the pilot project is to explore/learn how to leverage ICT for timely and quality early warning information generation, communication, visualization and mapping contributing to effective local preparedness, capacity building and response to potential disasters.

The objective of the pilot ICT project is to increase timeliness of data collection, reporting and visualization using Kobo toolbox (an open data kit application for Android) for DEWS, government water and health data and community managed water source mapping indicators. The water mapping is a new piece of programing as part of this pilot: key water points will be identified, monitored and mapped to check for water quality, availability and functionality of the water points. The project aims to enhance quality and fast data generation, data aggregation and analysis, feedback and data visualization.

The expected results of the project were:

- Establish digital data generation using Kobo toolbox for selected indicators
- Establish digital data analysis, web based result visualization and mobile feedback
- Capacity building of Oxfam, its partner and local stakeholders on ICT/DEWS
- Pilot digital data generation in selected DEWS kebeles of Moyale and Teltele
- Integrate the digital information system with the DEWS system
- Support the DEWS respondent women, data collectors, health extension workers and water schemes or sources monitors to generate the data
- Collect secondary data from health facilities and market

2. **Purpose, Use, Scope and Audience**

**Primary Purpose:**
This evaluative project which is conducted in partnership with OA- Horn of Africa Regional Office (HARO) and Gayo Pastoral Development Initiative (GPDI) in Moyale and Teltelle PA’s in southern Ethiopia has its primary focus to further understand the functioning of both pilot ICT DEWS and water mapping projects by measuring efficiency and effectiveness of integrating digital data collection technology into the pre-existing Drought Early Warning Surveillance system (DEWS).

The approach then will focus upon a process evaluation, to extract lessons learned as well as measurement related to efficiency and effectiveness.

**Secondary Purposes:**
Explore the opportunities for scaling up DEWS ICT and or water mapping project using ICT in other districts.

Assess to what extent the DEWS/water mapping pilot project may already be influencing pre-existing DEWS programming effectiveness and when possible how this may begin to help communities better cope and be prepared to emergencies.

**Use of the evaluation:**
The evaluation findings and its recommendations will be used to make decisions around future programing and inform potential adjustments as appropriate to improve community based data collection and analysis using mobile technology and to assist community members and local authorities to understand how best they can sustain the project by themselves.
Also, the findings of the evaluation will be used at OA sponsored panel at ALNAP Annual Conference in 2014.

**Scope of the evaluation:** the evaluation will cover primary data collection in the two districts of Borena: Moyale and Teletelle and includes secondary review of water data from Dilo, Miyo and Dire.

**Audience:**
The primary audience of this evaluation is Oxfam America and partner staff, the community members and local government officials, including but not limited to Ministry of Health at Zone and district, Rural Water Bureau (RWB) DRFSM and Disaster Prevention and Preparedness Office (DPPO).

3. **Evaluation Approach**

The evaluation approach will be guided by a primary formative approach to evaluation, but will also include qualitative summative approaches to fit the aims of the secondary purpose of the evaluation. Specifically, the evaluation approach will use the following activities and guiding questions to understand the effectiveness of integrating digital data collection in:

- a) Enhancing the collection of monthly information;
- b) Using the data to generate the pre-established monthly reports;
- c) Sharing them in a timely manner with known stakeholders.

The evaluation approach will be based on:

a. Desk review of existing documentation: Pilot grant, TOR for the deployment of ICT tool (Kobo Toolbox), partner reports and learning from refresher training findings, data collected to date, DEWS monthly reports, data analysis and visualization templates, Arcgis maps, Google earth maps, training materials and any other documents as appropriate.

b. One month process monitoring of data collection cycle (est. end of January)

c. Consultation with key stakeholders (interviews and Focus Group Discussions as appropriate and being flexible of time not all parties may be interviewed):

- Oxfam America staff: HARO staff- Country director, Humanitarian coordinator, HARO PHP/PHE specialist, HARO humanitarian program officer, Ag program coordinator, HRD EFSVL specialist, MEL advisors & WASH specialists. LEAD data specialist, external Oxfam consultant to the pilot project GIS and technology specialist.

- Local partners: GPDI (DEWS coordinator, water point mappers, and executive director), Ministry of Health at zone and district, DRFSM, and Rural Water Bureau (RWB) stakeholders (sample from targeted five districts), and existing DEWS cohorts (both Taltele and Moyale)

- Community members using the tool to collect data

- OGB digital EWS project lead and OI Ethiopia Country Director

- Possible national DMFSRR, EW unit and UN agencies like UNOCHA

**Suggested evaluation questions:**

**Effectiveness:**

- How well has the project logic been achieved? Are the objectives and indicators met?
- How has the integration of digital data collection influenced the information collection & sharing processes in DEWS monthly collection?

---

23 Access to Esri Arcgis online and or desktop version will be may available to consultant for analysis purposes
o To what degree is the pilot project potentially influencing DEWS stakeholders current decision-making practices compared to prior to the pilot project?

o What are the successes and failures of the application of Kobo tool considering the Moyale/Teltelle context.

**Integration and adoption:**

o How was the process of transition from paper to digital?

o How has the ICT pilot project been integrated into the existing DEWS system, and to what degree has it been adopted by all stakeholders?

o What have been the contributing factors or obstacles to system integration and adoption to date?

o What role has training and capacity building played in integration/adoptions?

**Sustainability**

o What are the perceived opportunities and challenges to pursing ICT digital data collection collaborations between DEWS and government early warning system going forward? Does the use of technology help/enable that? What are the challenges to overcome?

o To what extent communities, local partner and government, feel that DEWS and the use of technology will in the future help them be better prepared for emergencies? Are there any current effects?

**Value for Money:**

o What has been the overall cost of integrating the ICT tools compared to the overall cost of the project?

o How best could the DEWS ICT scale up be cost effective over time?

**Gender:**

Have there been any implications or changes if any in the role women and men play in the project since integrating Kobo tool box, tablets, solar power chargers, and or smart phones?

**Limitations:**

Due to the fact the DEWS ICT project is still a pilot project to date, the suggested questions on sustainability that relate to the secondary purpose of this evaluation will be based on limited qualitative analysis.

The evaluator will propose a final evaluation design/framework following a familiarization period in the inception report.

4. **Time Frame and Deliverables:**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Date</th>
<th>Number of days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk review/ Familiarization</td>
<td>February 7</td>
<td>5</td>
</tr>
<tr>
<td>Inception report produced and detailed planning schedule for assessment phase</td>
<td>February 17</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total prep days</strong></td>
<td></td>
<td><strong>5.5</strong></td>
</tr>
<tr>
<td>Arrive Addis</td>
<td>Sunday February 23</td>
<td>1</td>
</tr>
<tr>
<td>Brief with HARO staff and do interviews</td>
<td>Monday February 24</td>
<td>1</td>
</tr>
<tr>
<td>Event</td>
<td>Date</td>
<td>Duration</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------</td>
<td>----------</td>
</tr>
<tr>
<td>Travel to Yabello</td>
<td>Tuesday February 25</td>
<td>1</td>
</tr>
<tr>
<td>Yabello- meeting with zone and GPDI staff (water mapping staff and coordinators)</td>
<td>Wednesday Feb 26</td>
<td>1</td>
</tr>
<tr>
<td>Travel to Moyale and conduct kebele visit</td>
<td>Thursday Feb 27</td>
<td>1</td>
</tr>
<tr>
<td>Community visit Moyale</td>
<td>Friday Feb 28</td>
<td>1</td>
</tr>
<tr>
<td>Day off</td>
<td>Saturday March 1st</td>
<td>0</td>
</tr>
<tr>
<td>Yabello to (Sarite) Teltele</td>
<td>Sunday March 2^nd</td>
<td>1</td>
</tr>
<tr>
<td>Meet authorities and visit kebele Teltele</td>
<td>Monday March 3</td>
<td>1</td>
</tr>
<tr>
<td>Yabelo debrief w GPDI and do any remaining interview at zone</td>
<td>Tuesday March 4</td>
<td>1</td>
</tr>
<tr>
<td>Return to Addis</td>
<td>Wednesday March 5</td>
<td>1</td>
</tr>
<tr>
<td>Meet HARO team</td>
<td>Thursday March 6</td>
<td>1</td>
</tr>
<tr>
<td>Work in Addis on report and ALNAP panel</td>
<td>Friday March 7 to Sunday 9th</td>
<td>3 (including Sunday)</td>
</tr>
</tbody>
</table>

**Total number of days Field + travel + work in Addis + desk review**: 19.5

**Delivery of first draft and ALNAP presentation and agenda + methods for lesson learning feedback workshop**: Saturday March 8

**Learning and feedback workshop with Oxfamily and stakeholders in Ethiopia (R4, Ag program, Humanitarian, MEL, Oxfam affiliates in Ethiopia, GPDI stakeholders, DRFSM)**: Monday March 10

**Presentation for ALNAP- Addis**: Tuesday March 11

**Departure from Addis**: Wednesday March 12

**Draft report and finalizing the report**: By March 31

**Final report accepted**: March 31, 2014

**Total Chargeable Days**: 26

**Deliverables:**

1- **Inception Report**: At the end of the initial phase of familiarization, the consultant submits a synopsis of understanding (5-10 pages), and refines the research design for the remainder of the research, turning into Oxfam updated design, preliminary research instruments (survey etc) for comment by evaluation steering committee.

   The inception report is due no later than February 22, 2014

2- **Draft report**: A draft report is submitted to Oxfam America no later than March 20, 2014 for review and comments.

3- **Final Report**
The final report is submitted to Oxfam America after the review of the draft report ensuring quality and agreed requirements set in the TOR and the contract no later than March 31, 2014.

4. Presentation at ALNAP

The consultant will present the findings and relevant materials on DEWS and the ICT integration at ALNAP annual meeting. Presentation materials will be submitted to Oxfam.

5. Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Fees</td>
<td>26 days</td>
<td>400.00</td>
<td>10,400</td>
</tr>
<tr>
<td>Travel airfare</td>
<td>1 return flights</td>
<td>1,200</td>
<td>1200</td>
</tr>
<tr>
<td>Hotel Addis</td>
<td>8 nights</td>
<td>80</td>
<td>640</td>
</tr>
<tr>
<td>Hotel field</td>
<td>8 nights</td>
<td>33</td>
<td>264</td>
</tr>
<tr>
<td>Food</td>
<td>20 USD per day</td>
<td>24</td>
<td>480</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td></td>
<td></td>
<td><strong>12,984</strong></td>
</tr>
<tr>
<td>Total budget available TIF</td>
<td></td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>Funding requested HRD</td>
<td></td>
<td>$4984</td>
<td></td>
</tr>
<tr>
<td>In country logistics in kind HARO team</td>
<td>Car, driver, fuel for the entire field piece</td>
<td>500.00 lumpsum estimate</td>
<td>500.00</td>
</tr>
</tbody>
</table>

6. Terms of Payment.

The first installment of (25%) of the total sum will be payable on submission of the program overview and approved refined research design and inception report.

The second installment of (50%) of the total sum follows submission of the first draft report.

The third installment of (25%) of the total sum will be payable on the final report:

a) approved that the report has been satisfactorily completed
b) confirmed that full research documentation (as described below) has also been provided.
c) Upon completion of the presentation at ALNAP

Minimum is three payments: Approved elaborated research design; first draft, final draft.

7. Report Expectations

All evaluations should meet certain standards for completeness and quality. Oxfam will provide an evaluation template. These standards ensure the final product is readable (accessible), complete, relevant and credible.

- All evaluations must include an **executive summary**. An executive summary provides an overview, synthesis and prioritization of the findings and recommendations made throughout the report. It should not exceed 3 pages.
- The length of any evaluation should not exceed **20 pages** single-spaced. This does not include annexes.
- The report will include specific recommendations on:
  - Next steps for defining one country approach to ICT in early warning in Ethiopia
  - Next steps looking at the Ethiopia ICT policy environment.
  - Ways to hand over DEWS ICT project to local authorities
  - Suggestions on any improvements to the current information, communication and new technology influenced DEWS system management
  - Specific capacity building and skills transfer needs going forward
  - Most effective ways for communities to adopt ICT in managing DEWS

All evaluations should meet minimum standards of **credibility**

- All findings must be substantiated by evidence that Oxfam can verify. All data sets and raw notes are shared with Oxfam by end of contract.
- The final draft of the evaluation must take into consideration **feedback and clarification from stakeholders** after a validation event or email circulation (minimum).
- Proper citation of all facts, analysis and ideas that were drawn from other’s work is fully expected, of course, of all professional researchers.
- The report(s) must also include a bibliography of all references mentioned.
- If Oxfam discovers any discrepancies with the figures or facts, the consultant will work with Oxfam to resolve the discrepancies.
- Oxfam will facilitate the research, such as helping to contact informants and gain access to sources of information, where possible and reasonable.

8. Roles/Contacts
The evaluation sponsor is Mandefro Mandefro Nigussie and the evaluation manager is Nazereth Fikru.

The evaluation steering committee is made up of the Ethiopia Country Director, HARO Humanitarian coordinator, HRD Deputy Director, Sr. HRD PH specialist, Sr. HRD PHE specialist, LEAD data specialist, and HARO PH specialist, HARO humanitarian officer, HRD MEL Advisor.

Primary contact for Oxfam America sponsored ALNAP panel is Silva Sedrakian.
Primary contact for the evaluation is Nazereth Fikru at Ethiopia level and Myra Foster at HRD level
**FIGURE 1 – VAS SCALE ERRORS**

10) **Amount of visible human waste this month compared to last season:**

   Much less human waste | Less waste | No Change | More waste | Much more human waste

   - 76
FIGURE 2 - INSTANCE FILENAMES

Instance filenames for Moyale Feb 2014. It is difficult to determine from which villages (kebeles) the filenames (left) originate. Upon downloading from the devices, this occurred as well, where villages had more than the expected instances. (7 instances for a village with only 5 respondents)

If filename assignments can include the village name (or code), and respondent name (or code) this will ease 1) quality control 2) file management & storage and 3) MEL activities

Which village did this come from?
FIGURE 3A- VARIABLE FORMATS

Former DEWS excel variable names

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Number of cases of diarrhea</td>
</tr>
<tr>
<td>2.</td>
<td>Number of cases of malaria</td>
</tr>
<tr>
<td>3.</td>
<td>Number of cases of ARI</td>
</tr>
</tbody>
</table>

The pre-pilot excel cells for the first 3 VAS questions are formatted in excel as seen on the left. The Kobo aggregated .csv/.xls file is formatted below.

The variable names are markedly different, especially for data managers without advance data skills. The format below is a standard format for the SPSS statistical software system.

New KoBo Data format

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A0_start</td>
<td>A2_deviceid</td>
<td>A4_end</td>
<td>A5_date</td>
<td>A6_GPS</td>
<td>A7_woreda</td>
<td></td>
</tr>
<tr>
<td>A8_PA</td>
<td>A9 Enumerator</td>
<td>A9_respondent</td>
<td>indicator01</td>
<td>indicator02</td>
<td>indicator03</td>
<td></td>
</tr>
</tbody>
</table>
While Kobo Sync has the ability to export to excel/csv files they may not be in the format that is best fit for the project. With DEWS the pre-existing excel database (right) had been used for over 4 years. The new format best fit for SPSS formats and imports does not look the same in column/row structure as the previous excel format. Variable headers are different, and the previously embedded formulas are not embedded in the Kobo export.

This is one of the challenges that comes with integrating pre-existing data system. **The data fusion requirements during integration cannot be underestimated.**

While automatic coding is a possibility for any ICT project, it must be matched with the overarching project goals. DEWS has a mission toward capacity building and the partnership and regional office model requires a discussion what transformation options (SQL, visio, manual transformation) is the best fit for the program.
Forty percent of the people on our planet—more than 2.5 billion—now live in poverty, struggling to survive on less than $2 a day. Oxfam America is an international relief and development organization working to change that. Together with individuals and local groups in more than 90 countries, Oxfam saves lives, helps people overcome poverty, and fights for social justice. To join our efforts or learn more, go to www.oxfamamerica.org.