



USAID
FROM THE AMERICAN PEOPLE

FAMINE EARLY WARNING SYSTEMS NETWORK TECHNOLOGY SUPPORT CONTRACT (FEWS NET TSC)

Fiscal Year 2013 Annual Report

October 2013

This publication was produced for review by the U.S. Agency for International Development. It was prepared by Kimetrica LLC under contract number AID-OAA-C-11-00171

FAMINE EARLY WARNING SYSTEMS NETWORK TECHNOLOGY SUPPORT CONTRACT (FEWS NET TSC)

Fiscal Year 2013 Annual Report

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

CONTENTS

- OVERVIEW..... 2
- INNOVATIVE ANALYTICAL TOOLS..... 3
 - A. SERVIR FARM RADIO 3
 - B. REMITTANCES 4
- IMPROVED TECHNOLOGY 4
 - A. FEWS NET DATA WAREHOUSE..... 4
 - B. FEWS NET DATA LIBRARY 5
 - C. POPULATION EXPLORER 5
- REMOTE MONITORING 6
 - A. REMOTE MONITORING (A) 6
 - B. REMOTE MONITORING (B)..... 7
- OTHER INITIATIVES..... 8
- STAFFING UPDATE 8

OVERVIEW

According to its original project document, the objective of the FEWS NET Technology Support Contract (TSC) is “to identify and implement new technologies to enhance intra-team early warning collaboration, analysis, and dissemination capabilities, and to expand a FEWS NET activity-wide ability to gather new and greater quantities of food security information and data, through the application and use of new information technologies for early warning.”

Given the flexibility of this contract, the deliverable list will expand and contract based upon initial findings and decisions regarding FEWS NET time priorities. Thus, to manage this contract, the FEWS NET team decided on and implemented the following process during Fiscal Year 13:

- Develop a living TSC task list to which FEWS NET team members can add ideas or projects of potential interest.
- Have the TSC staff conduct preliminary research into each idea, reporting back to the FEWS NET management team in the form a report or short white paper.
- Have the FEWS NET team decide which ideas should move forward and which ideas should be shelved.
- Develop a full deliverable schedule, etc. for the projects that receive a green light to move forward.

During FY13, the TSC began a period of expansion of its overall activities. By mid-year, new remote monitoring activities started up. In Q3, the TSC also presented a tool development implementation deliverable for a renewed effort at building an online data warehouse and management system for the FEWS NET project. Finally, with the completion in Q3 of a major review of Population Explorer and a comparison to alternative tools, the TSC identified new set of priorities to further enhance the application.

Additionally, FY2013 has been a time of transition in staffing. After successfully leading the project for 18 months, the FEWS NET TSC Technical Coordinator left Kimetrica to pursue other professional opportunities. Kimetrica has identified and hired a longtime food security expert and economist as the replacement Technical Coordinator. To help manage the expansion of activities and ensure the continued development of new initiatives, Kimetrica also hired a senior Tool Development Manager in Q3, with employment beginning in July 2013. This new hire brings to the TSC 15 years of experience in food security and early warning analysis, project management, and IT development. In addition, the TSC also increased its technical support staff in Q3 to ensure effective implementation of each of the initiatives currently in its portfolio.

INNOVATIVE ANALYTICAL TOOLS

A. SERVIR FARM RADIO

Farm Radio International was awarded a grant from SERVIR to conduct a pilot project in Uganda that integrates Farm Radio information into Early Warning Systems. The objectives of the pilot are to monitor food security parameters via radio outreach to farmers in the study area, locate these farmers geographically and build a geo-referenced database of food security-related information. Food security-related information will be obtained from farmers via call in and call out methods facilitated by a Farm Radio Station by incorporation into existing Farm Radio programming.

Of interest will be weather conditions, food prices, coping strategies, crop varieties, yields and market access among others. A geodatabase of this information will be built and made accessible to other organizations. At the conclusion of the pilot, it is expected that the integration of Early Warning Systems with Farm Radio information will provide a platform for interactive exchange of localized food security-related information. This will in turn produce much more rigorous predictions regarding food security, and this model can eventually be adopted in other regions. An operational and accessible geodatabase will be the product of the study as well as a detailed report including maps.

The role that FEWS NET TSC will play in the unfolding of this project is still being detailed. In Quarter 2, TSC had several meetings related to this activity:

- Meeting with Vodafone and Farm Radio to discuss how Farm Radio might use USSD technology to allow radio stations to better engage their customers and allow for the collection of relevant food security data. Vodafone technicians discussed how a cell network can identify a 'dumb' cell phone through the tower that it pings. One idea is to use GPS coordinates of the cell towers to create a map of food security-related phone calls. However, there are larger issues related to privacy that must be overcome before such an idea can be realized. The call ended with an action for Farm Radio to propose a pilot. The TSC would review any tool development implementation deliverable developed and see how FEWS NET might get involved.
- Meeting with a member of the World Bank's ICT Group. This meeting was a general discussion about what the direction of World Bank funding in the ICT space. Of interest to FEWS NET is that the biggest future focus World Bank ICT funding is for disaster relief management (DRM) in the context of climate change. While there were no direct action steps as a result of this meeting, the contact may prove useful in the future given FEWS NET's forward thinking in this same area.

In Q3, conversations with Farm Radio International continued at a level of mutual interest, but no clear sense of priority was established. Kimetrica developed a revised concept of its role in the use of radio broadcasts to encourage farmer-based, crowdsourcing of early warning information via SMS messaging.

B. REMITTANCES

After a long silence, Western Union (WU) re-established contact in Q3 and TSC began to investigate possible modes of collaboration on remittance data; however, communications once again stalled. In the meantime, Kimetrica began to explore alternative sources of information on remittances in Q3, including financial institutions based in Africa, as well as NGO-based finance organizations. Kimetrica also began to revise its conceptual framework regarding remittance data to include different forms of reporting (not just the analysis of proprietary data from financial institutions) and its use, not only for broad early warning purposes, but also to support remote monitoring activities as well.

IMPROVED TECHNOLOGY

A. FEWS NET DATA WAREHOUSE

The FEWS NET Price Data Management project is the first stream in what is planned to be a multi-year project to consolidate, centralize, and rationalize FEWS NET data into a relational data base. The project emerged to address a lack of access to historical FEWS NET data. The Data Warehouse will ultimately result in a structure that will clearly organize FEWS NET datasets so that they can be easily queried, analyzed, and shared with others.

After consulting with FEWS NET partners, the TSC developed the user requirements for the project, including the ability to upload existing price data, enter new data, query the data for reporting, and design the visibility rules. So as to minimize the potential for the lengthy development of an entirely new web-based system, Kimetrica sought to determine whether the FEWS NET data warehouse could use existing Kimetrica online tools, with only minor adjustments. An initial review determined that existing Kimetrica tools would not satisfy the requirements of the proposed FEWS NET data warehouse.

In Q2, the FEWS NET program manager flagged this project as high priority. As such, Kimetrica refocused its attention on this task. Two STTAs were hired and dedicated to designing a comprehensive solution. The consultants researched existing price database systems, interviewed staff on system requirements, and evaluated possible third party solutions.

In June of 2013, Kimetrica submitted a revised tool development implementation deliverable for the development of an online data warehouse and management system for the FEWS NET Project. The outcome of this activity was a technical specification document and proposed solution, agreed upon with FEWS NET partners, that builds the component pieces in a stepwise manner. Kimetrica also developed a functional online mock-up of the envisioned system to demonstrate the capability of the system to FEWS NET partners and encourage a more detailed discussion of desired features for the system.

The initiative is envisioned as a two-phase activity that will extend through most of FY2014. The proposed system will provide a secure environment to preserve and manage critical data sets. It will

allow FEWS NET's field, regional and headquarter staff to upload and analyze price, production, population, needs estimates and other key data sets, and produce basic analytical outputs for reporting.

The TSC Project began implementation of a new phase of development of the FEWS NET Data Warehouse in Q4. In consultation with USAID and partners at Chemonics, the TSC began development of the basic system infrastructure. Agreement was reached to develop a system initially for internal, expert users--with the capability to allow for external users in the future--with an emphasis on offline data access in addition to the online system. It was also agreed to focus on functionality and limit the design and graphic elements of the system to ensure optimal performance and speed the system development process.

B. FEWS NET DATA LIBRARY

In early FY2013, the TSC proposed the FEWS NET Data Library activity as an interim step in the process of organizing historical FEWS NET data into the data warehouse. The FEWS NET Data Library would be a web-based repository for historical information (both FEWS NET and other sources) on food security in FEWS NET countries with an ultimate goal of converting these data to a relational database form so that different datasets can be analyzed in a quantitative way. In light of the redefined role envisioned for the online data warehouse and management system in Quarter 3, the FEWS NET Data Library initiative was cancelled. A digital archive has been developed as part of the data warehouse initiative that effectively addresses the original data library concept.

C. POPULATION EXPLORER

Population Explorer is an online software tool that can estimate human population down to 1km². The TSC has made great progress on this application during FY2013. Kimetrica completed all the COTR - approved functionality updates and have put the system through a rigorous testing protocol. This process includes testing and fixing identified application bugs, performance and load testing, browser compatibility testing, and then a final end-to-end usability test. The first round of testing was done in early February 2013 and the second round of testing in late February- early March. There are several additional Population Explorer feature updates that have been proposed. These will be presented to the COTR and other users to determine whether the Project should add additional Population Explorer development to the future project list.

In Q3, Kimetrica undertook a major review of the application to ascertain whether the dataset and functionality in Population Explorer fully meets FEWS NET's analytical needs. The study was directed by a senior geographer with a special focus on the spatial analysis of demographic information and climate change. As such, she was able to provide a unique insight into the analytical problems faced by FEWS NET.

The study compared Population Explorer and its Landscan data set to a series of similar tools and gridded population data sets. Recommendations given by the senior geographer, which include revising Population Explorer to enable the use of other data sets and to expand its analytical capabilities, are

currently under review by Kimetrica and other FEWS NET staff. It is envisioned that these discussions will lead to a further phase of Population Explorer development in FY2014.

Also in Q3, Kimetrica completed a revision of the first release of Population Explorer, including the testing and correcting identified application bugs, performance and load testing, browser compatibility testing, a final end-to-end usability test, and the completion of software help files, among other documentation. In Q4, the TSC Project commissioned a review of FEWS NET user requirements for Population Explorer, an analysis of alternative population data sets (AfriPop and Africopolis) and their applicability to FEWS NET's analytical needs, a review of auxiliary data sets that could enhance demographic analysis in Population Explorer, and a review of the functionality of alternative applications (Demobase and SEDAC-PES) that allow for the processing of gridded population data sets.

REMOTE MONITORING

A. REMOTE MONITORING (A)

To help supplement existing food security data, Kimetrica has hired an NGO to collect market data and other relevant food security information in areas that are difficult to access. To date, Kimetrica has worked closely with partners on the design of the data capture tools and processes, and Kimetrica's data capture system will be leveraged to collect data online. However, Kimetrica will not be involved in the operational side of this data collection effort.

Kimetrica has identified areas where there remain gaps in the information flow. Monitors will cover these gaps to provide a fuller picture of the food security landscape. This activity will provide two primary outputs. First, monitors will send weekly market price and rain gauge data to FEWS NET to incorporate into their analysis. Second, Kimetrica will publish a monthly food security report that provides an independent assessment of the situation on the ground in these areas. After a full vetting, this report will be submitted to USAID to supplement the existing data. This type of arrangement is yet another iteration of the remote monitoring tools and methods that Kimetrica is developing.

Since the activity's start date in April 2013, Kimetrica has undertaken a number of steps to establish the monitoring activity, including:

- The identification of areas to be monitored;
- Procurement and distribution of equipment for team members;
- Development of the monitoring methodology;
- Training of the team; and
- Support for data processing and analysis.

In May 2013, Kimetrica produced the activity's first report, a baseline assessment of the monitored area, as well as a preliminary update of current conditions observed through the May monitoring. In addition, in Q3 Kimetrica initiated the recruitment of additional support staff to address bottlenecks in the workflow that were identified in the early stages of implementation.

Remote monitoring continued through Q4, with reports produced as scheduled for June, July and August 2013. The project underwent a major revision in data collection and reporting instruments for use by field monitors in Q4 as well, to ensure more timely, detailed and accurate reporting from qualitative key informant interviews. The new reporting structure also allowed greater oversight and quality control from the activity's Senior Technical Manager. In order to improve the quality of price data analysis in the activity, the TSC initiated a detailed field survey to confirm the unit conversion from locally-defined weight and volume measures to international standards.

B. REMOTE MONITORING (B)

The TSC conducts remote monitoring in a second area for food security, and this permits humanitarian assistance needs to be more effectively assessed. Examples of the techniques to improve this monitoring methodology include sentinel household interviews, market surveys, administrative-unit level monitoring tools, and other approaches that can better measure the levels and components of food insecurity.

These tools are used to triangulate data over time to help build a better understanding of the evolving food security situation in the region. Methods include local data collection using hard copy surveys, movement of the paper surveys to a central point where they are entered into laptops (offline data capture), and finally, transport of laptops or files to an area with an internet connection for a web sync with a cloud-based data system. Kimetrica has been successfully collecting food security data since August 2012, providing one of the few sources of regular and consistent information for this region.

After the successful implementation of its prior food security monitoring activity, which began in August 2012, Kimetrica responded to a request to extend the activity through December 2013 and expand it into new areas. The expanded activity will result in a series of three cycles of data collection, processing, analysis and reporting each month, compared to a single cycle under the previous activity. As part of this expanded effort, in Q3 Kimetrica undertook the following activities:

- Revised its agreement with its local partner;
- Undertook a review and revision of its assessment methodology;
- Completed two separate trainings of new field assessment staff; and
- Began to process monitoring data and report on developments in each of the newly-defined monitored areas.

An important element of the expanded activity is a new mandate to incorporate a broader range of information from secondary sources. In response, Kimetrica has begun to develop information from reports produced by other agencies working in the area to include a greater sense of the livelihood structure in monitored areas. Kimetrica has also identified the need to include data from other market information systems operating nearby, as well as remote sensing information on rainfall levels and vegetation quality. Kimetrica has also defined a new structure for its reports to emphasize even further the operational implications of its analysis.

Finally, at the request of USAID, Kimetrica has responded to an interest from DFID to provide additional support to the remote monitoring activity. Kimetrica has developed a concept note on the nature of DFID involvement and is working closely with its partners toward the development of a coordinated deliverable to enhance the quality of this information product.

OTHER INITIATIVES

Additionally, the TSC initiated activities at the end of FY 2013 for locust-tracking in Madagascar using Mobile Technology, a review of GeoPoll for the viability of collecting information through cellphones/mobile technology, and Esoko price data collection and information, to complement similar efforts by the FEWS NET Project. These may continue in FY 2014.

STAFFING UPDATE

After a successful 18 months leading this initiative, Kimetrica's current FEWS NET TSC Technical Coordinator will be leaving to pursue other interests. Kimetrica has identified and hired a longtime food security expert and economist as the replacement Technical Coordinator. As an economist, his experience ranges from coordinating Feed the Future baseline surveys to advising WFP on methods for vulnerability assessments, livelihood zone mapping, and emergency needs assessments. He has worked as a senior advisor on food security and development policy for USAID, the UN, the World Bank, IFPRI, and several international NGOs. During FEWS NET II, he was the project's research economist and helped to establish many of the same tools and analytical methods the project still uses today.

With the addition of a new Technical Coordinator, TSC also identified and hired a senior Tool Development Coordinator, who began her new position in July 2013. She has 15 years of experience in food security and early warning analysis, project management and IT development. She has worked in several African countries and in DPR Korea and has led multi-agency assessment missions, coordinated emergency preparedness and response initiatives, and managed food security early warning and monitoring systems. Her experience spans the UN (WFP and OCHA), the World Bank, the US private sector, and NGOs. Most recently, she worked at the WFP Headquarters, as Project Manager for an IT project for performance and risk management. She holds a Bachelor of Science in Computer Science from the University of Maryland, College Park and a Master of Arts in International Relations and International Economics from the Johns Hopkins School of Advanced International Studies (SAIS).

In Q3, Kimetrica also enlisted the assistance of highly experienced experts to analyze the status of FEWS NET analytical needs and to help define new tool development implementation deliverables. A senior geographer, who specializes in demographics and climate change, was employed to assess FEWS NET's needs for the spatial analysis of demographic data and to evaluate the ability of Population Explorer to meet those needs. Additionally, a food security and price data specialist, as well as a database/software consultant, assisted Kimetrica in defining the parameters of the tool development implementation deliverable for the construction of a data warehouse and data management system.