FAMINE EARLY WARNING SYSTEMS NETWORK (FEWS NET TSC)

SECOND REVISED ANNUAL WORK PLAN FOR FY 2016
OCTOBER 2015 – SEPTEMBER 2016

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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.

ACRONYMNS

DTC	Deputy Technical Coordinator
FEWS NET	Famine Early Warning Systems
FEWS NET TSC	Famine Early Warning System Technical Support Contract
FIT	FEWS NET Implementation Team
HEA	Household Economy Approach
LIAS	Livelihoods Impact Analysis Spreadsheet
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
REM	Remote Monitoring
STTA	Short Term Technical Assistance
TC	Technical Coordinator
USAID	US Agency for International Development
USDA	US Department of Agriculture
USGS	US Geological Survey
WFP	World Food Programme

CONTENTS

SECTION I 2
INTRODUCTION to fews net tsc 2
A. Background 2
B. Program Description and Approach 2
SECTION 2 4
Key Activities for FY16 4
A. Overview 4
B. Key Activities for FY16 4
SECTION 3 7
Activity Timelines 7

SECTION I

INTRODUCTION TO FEWS NET TSC

A. Background

The USAID-funded FEWS NET (Famine Early Warning Systems Network) activity has traditionally relied upon its own personnel based in food insecure countries, and their official partners in-country, to collect and assess the information and data needed to identify and monitor levels of food security in vulnerable populations, reporting on conditions in 36 countries from 22 field offices around the world. This data collection method depends on a proximity to, or direct contact with, the hungry populations from which the information and data will be collected. The scope and the amount of the data FEWS NET can theoretically collect is therefore constrained by the resources available from its FEWS Net Implementation Team (FIT) members (USAID, NASA, NOAA, USDA, USGS, and a private-sector contractor) and other official and unofficial partners.

Given the nature of changing global food security issues and stresses (e.g., global food price crisis, global financial crisis), for which the incidence, geographic spread, and severity is expanding, food insecurity needs to be monitored and assessed in many more potential locations, and even within areas that have traditionally been considered as food secure. As the ever changing and expanding food security threats emerge, FEWS NET's ability to efficiently and effectively collect the amount and type of data and information needed to locate and identify emerging cases of severe food insecurity, and to monitor existing cases.

The FEWS NET Technology Support Contract (FEWS NET TSC) was designed to address the changing needs of food security monitoring. The project, working closely with FIT members, has expanded the government's ability to understand and respond to food security crisis.

B. Program Description and Approach

The aim of FEWS NET TSC is to assist USAID's FEWS NET activity to identify and implement new technologies to enhance team collaboration, and broaden data collection, analysis and dissemination methods. Further the project supports the FEWS NET implementation team in enhancing intra-team early warning collaboration, analysis, and dissemination capabilities, and in expanding 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.

The FEWS NET TSC has three main deliverables: (1) Technology consultation; (2) Tool development; and (3) Piloting, evaluation and rollout of technology and tools for improved data collection, analysis and early warning.

Technology consultation. The TSC project's team stays current on new information technologies and their potential use in humanitarian applications. The activity researches and answers technology questions related to FIT's requirements. The project team identifies and new technologies that present opportunities to provide USAID and FIT members with new information use capabilities.

Tool development: Generally, the identification of the initiatives undertaken by the project are based upon: a) The TSC Contractor's understanding of the work processes and products of individual FIT members, and of the team as a whole; and b) USAID's and the FIT's understanding of the opportunities that new technologies may offer to increase the effectiveness of their work, and/or the relevance and amount of data they may help to collect. TSC Contractor efforts are expected to be pivotal inputs in both cases.

The TSC activity remains informed about a wide-range of new technologies and derived tools and methods that represent technological opportunities to enhance the FIT's abilities. Technologies researched by the project include the use of mobile phones for rapid surveys and monitoring, the use of web-based tools for population estimation (www.populationexplorer.com) and the development of a data warehouse, allowing FEWS NET country and home office staff to upload, maintain and analyze data on a close to real time basis.

The project has recently expanded tool development activities to include the development of analytical methodologies, including methods for resilience measurement, price data analysis for early warning, and new approaches to livelihoods analysis and mapping using household surveys and geo-spatial data sets, including remote sensing data. These initiatives may allow the FEWS NET activity to more quickly and more cost effectively answer critical questions regarding vulnerability and food insecurity.

Tool piloting, evaluation and rollout. Among the tools already piloted, evaluated and rolled out for use by TSC include a population estimation tool, Population Explorer, which uses the US Government's Landscan dataset to estimate the demographic characteristics of populations anywhere on earth down to a $1km^2$ resolution. Population Explorer (www.populationexplorer.com) was rolled out the first year of the TSC project, with periodic upgrades on an on-going basis, and has helped both FIT and non-FIT actors better understand population demographics in vulnerable locations across the world. For example, the tool was used extensively to help plan the humanitarian response to Haiti's earthquake in 2010. The TSC also developed FEWS NET's data warehouse, which is currently being rolled-out to FEWS NET country offices, with the intent to upload, manage and disseminate all of FEWS NET's historic data by the end of this phase of the project.

SECTION 2

KEY ACTIVITIES FOR FY16

A. Overview

To ensure the flexibility of the TSC to respond to FEWS NET needs, annual work plans include scope for new concept notes to explore innovative topics of immediate interest to the project. Where warranted, pilot activities may be identified for the development of new technologies or analytical methods, which are then subject to evaluation before being rolled out into the FEWS NET toolkit. As a result, annual work plans may include a variety of concept notes, pilot activities and implementations across a range of issues. For Fiscal Year (FY) 2016, the TSC work activities include a set of on-going and new activities identified as being priorities to enhance FEWS NET's analytical and decision-support capabilities.

B. Key Activities for FY16

The key activities for TSC in FY16 will include:

Key Activity for FY16	Summary
FEWS NET Data Warehouse Development	System maintenance, on-going software and data set development, updated user interface, documentation, integration of Population Explorer data into FDW and PopEx maintenance.
Remote Monitoring	Continued remote monitoring
Use of Mobile Technology for Early Warning	Concept note
Livelihood Mapping and Modeling	Concept note
Spatial Analysis of Market Prices	Pilot test of empirical methodology using FEWS NET price data

A brief description of these activities is as follows:

1. **FEWS NET Data Warehouse Development**, including participation in the data management process to insure all key data sets are integrated into the data warehouse before September 2016. The TSC Project will work to meet the objectives of the FEWS NET FY16 Data Plan to ensure inclusion of the agricultural production, cross-border trade, population, historical food security classification ESRI shapefiles, needs estimates, humanitarian response and FEWS NET-preferred boundary files into the data warehouse. Additional priorities include the creation of basic data storage and sharing functions, creation of a more accessible user interface, finalizing online, context-specific help and the development of complete technical documentation to ensure USAID's full

ownership of the system. This phase will also include integration of Population Explorer data sets into the data warehouse and on-going maintenance of the Population Explorer online tool.

Deliverables: Deliverables are defined in the FEWS NET FY16 Data Plan and will include: (a) creation of new modules in the data warehouse to accommodate new data sets; (b) review and uploading of new data sets into the data warehouse; (c) simple user interface to facilitate access to the price data, with enhancements to provide access to new data sets as needed; (d) user and technical documentation of new elements in the data warehouse; (e) integration of Landscan population data to most recent 2014 data set and routine monitoring and troubleshooting of Population Explorer system performance.

2. **Remote Monitoring.** The TSC will continue its remote monitoring activities, including exploration of nutritional assessment to its methodology.

   Deliverables: Quarterly and monthly reports, as well as field activity reports.

3. **Use of Mobile Technology for Early Warning.** Following-up from the remote emergency monitoring strategy paper provided in FY15, the TSC will develop a brief concept note as a deliverable that identifies opportunities for the application of mobile technology to enhance data collection and early warning analysis, especially in remote monitoring circumstances. The concept note will also prioritize those opportunities for further exploration.

   Deliverable: Concept note.

4. **Livelihood Mapping and Modeling.** There is a sufficient amount of primary and secondary data available to allow for the development of more empirical and quantitative—and ultimately lower-cost—approaches to mapping livelihood zones and to developing livelihood simulation models to support food aid needs estimation efforts. As a first step in exploring these opportunities, the TSC will produce a concept paper that outlines the specific objectives of livelihood mapping and modeling, as well as methodological approaches that allow for the use of existing data sets in those efforts, including LSMS surveys of income and expenditures, as well as geo-physical and remote sensing data.

   Deliverable: Concept note.

5. **Spatial Analysis of Market Prices.** Following up on its previous concept paper on the spatial analysis of markets by Andrew Farrow in 2014, the TSC Project proposes an activity to use GIS and spatial analytical methods described in the Farrow paper to map market prices in a selected study country. Applications of this effort should eventually

allow FEWS NET to: (a) Define market basins at the regional, national and sub-national levels to allow for a more specific geographic context to the combined analysis of prices and agricultural production; (b) Create continuous price surfaces to describe the geographic extent of price anomalies and to estimate the population affected by price changes in crisis periods; and (c) Estimate the degree of market integration of non-market rural communities to inform decisions on appropriate food assistance modalities (cash versus in-kind distributions).

The spatial analytical work on this activity will be directed by Frank Davenport from the University of California-Santa Barbara, Department of Geography, under funding from USGS. The TSC Project will provide data and analytical support and convene a panel of experts in agricultural marketing and spatial market analysis that will support the design of the methodology at the onset of the activity and continue to oversee the work on a periodic basis over the course of the activity.

Deliverables: (a) a preliminary methodology paper for review prior to the market mapping activity that describes the approach, data requirements, and the use of the tool for early warning purposes; and (b) a final report that describes the results of the analysis, including price surface maps.

SECTION 3

ACTIVITY TIMELINES

The following tables provide activity timelines for project management and proposed activities for FY 2016.

FEWS NET Data Warehouse	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Monthly development sprints	x	x		x	x	x	x	x	x	x	x	x
Monthly sprint demos	x	x		x	x	x	x	x	x	x	x	x
Software documentation										x	x	x
User and help manuals	x	x		x	x	x	x	x	x	x	x	x
Help desk management	x	x		x	x	x	x	x	x	x	x	x
Data management support (as requested)	TBD											
Remote Monitoring	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
On-going monitoring and reporting	x	x	x	x	x	x	x	x	x	x	x	x
Mobile Technology Concept Paper	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Review of mobile technology applications as potential data sources for FEWS NET								x	x			
Survey of mobile technology providers and users to understand possible applications to FEWS NET										x		
Synthesis report											x	
Livelihood Concept Paper	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Zoning Literature Review							x					
Zoning Methodology Document								x	x			
Modeling Literature Review										x		
Modeling Methodology Document											x	x
Spatial Price Analysis	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Completion of Methodology Report						x	x					
Design of Price Measures						x	x	x				
Preparation of Digital Data Sets						x	x	x	x	x		

Spatial Modeling							x	x	x	x	x	
Final Report												x