



FEWS III

Famine Early Warning System

Summary of Project Activities

December 1994 to July 2000

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1. Introduction

This document has been produced at the close of the Famine Early Warning System Phase III Project (FEWS III) for the purpose of recording the principal activities carried out since its inception in December 1994. This is not an attempt to assess the value of these activities. That is for others, not the responsible technical team, to judge. Rather this document is meant to provide a coherent picture of FEWS III endeavors for USAID staff, the technical team responsible for the next chapter of USAID-sponsored FEWS activity and the interested public. Without this document, the main record of FEWS III work would be the individual and summary quarterly progress reports our technical staff of some 40 professional have produced over the last five and one half years. That record is valuable but hardly conducive to the formation of an overall picture of FEWS III.

The goal of the Famine Early Warning Systems (FEWS) Project Phase III is to reduce the incidence of famine throughout Sub-Saharan Africa, especially within countries subject to severe food availability and access problems. The project purpose is to provide host country and United States decision makers with timely and accurate information on food insecurity so they can make appropriate decisions about famine prevention initiatives.

FEWS/Washington and FEWS Field Representatives (FFRs) perform a number of activities:

- Timely and Reliable Early Warning
- Assessments of chronic and current food insecurity and vulnerability
- Response Planning
- Capacity Building
- Research and Special Studies
- Collaboration on food security issues with national and international organizations
- Information Dissemination
- Computing and Information Systems Management

This report is organized into sections that deal with each of the above categories of FEWS III work.

2. Timely and Reliable Early Warning

2.1. Agroclimatological Monitoring

FEWS analysts in Washington and throughout Africa monitored various agroclimatological data. These included satellite products such as Normalized Difference Vegetative Index (NDVI) imagery, Meteosat-derived Rainfall Estimation (RFE) imagery, Soil Moisture Index (MI) imagery, as well as ground station rainfall and national meteorological service reports. Output from a model tracking the West African Intertropical Convergence Zone (ITCZ), the northern edge of the rains, was provided by NOAA, and FEWS/Washington incorporated this information into a model tracking the location of the heaviest rains (rain line) in the region. NOAA's African Desk also provided a weather summary document.

FEWS agrometeorological data were usually collected on a dekadal (10-day) basis. Dekadal data were compared to those from the previous dekad and the historical average. FEWS used this information to gain a birds-eye view of vast expanses of territory, and monitor for anomalies. Where other timely information is unavailable, FEWS conducted field visits to gather more information about potential problem areas. There are other uses as well. For example, FEWS/Chad used NDVI imagery to monitor the water level of Lake Chad as well as vegetative conditions in the surrounding pasturelands.

To help track the rainfall situation during critical periods, FEWS/Washington devised a system to monitor daily rainfall. Satellite imagery of cloud temperatures, which are related to rainfall, were downloaded daily from the NOAA World Wide Web page and automatically sent to FEWS field offices. These daily images allowed FEWS/Kenya to track rainfall during a drought period in early 1997, and FEWS/Somalia to monitor rapidly changing conditions during the catastrophic floods of late 1997. FEWS also shared these images on a daily basis with WFP/Kenya and WFP/Somalia.

Dekadal monitoring products, including NOAA's dekadal summary, NDVI analysis, RFE analysis, the West African ITCZ and rain line locations, and El Niño/La Niña rainfall indicators were available on the FEWS web site for each African region covered by FEWS.

Special studies were done to facilitate monitoring of weather across the Sahel. FEWS/Washington developed updated climate zones for this area based on current and historic station rainfall data and vegetation patterns. This was converted into a map boundary format that was used to better monitor Sahelian conditions during the season and for a more informative end of season summarization. A second study by FEWS/Washington identified a cyclical rainfall pattern of approximately 80 years, which allowed the determination of the most appropriate normal rainfall values for the region.

In southern Africa, FEWS helped to establish a regional Season Monitoring Group at SADC's (Southern African Development Community) Food, Agriculture and Natural Resources office in Harare. Although this group was activated at the request of the SADC Food Security Sector Coordinator during the El Niño season of 1997/98, FEWS lobbied to have this group meet in subsequent years. The group currently consists of SADC's Regional Early Warning Unit (REWU), SADC's Regional Remote Sensing Project (RRSP), FEWS, and Drought Monitoring Centre (DMC)/Harare. During the season others such as FAO and WFP, donors and some

NGOs were also included as the potential agricultural outcomes and food security impacts were forecasted.

Regional seasonal outlook forums that set the initial expectation, at least over 3 month blocks of time, for large areas of the different subregions (West, East and Southern Africa) were initiated with active participation of FEWS/Washington and FFRs.

2.2. Crop, Pastures, and Livestock Assessment

FFRs regularly conducted assessment missions during the growing seasons to stay informed of crop conditions and to verify anomalies identified through remote sensing. Some of these missions were carried out in conjunction with host government agencies and early warning partners. Crop assessments were aimed at

- estimating changes from previous years in the area planted to key crops, especially cereal crops
- assessing crop growing conditions;
- determining if crop yields were likely to be below normal or above normal; and
- identifying areas where there was a likelihood of production shortfalls

FEWS Washington, on occasion, accompanied FFRs on crop assessment trips to gain a first hand look at crop conditions and to train FFRs in rapid rural appraisal techniques.

FEWS also participated in pre- and post-harvest assessment missions. A host government agency or FAO/WFP usually headed these missions. The main objectives of these missions were to assess harvest outcomes, especially in areas where problems had been identified.

Examples of crop assessment activities include,

In the Sahel:

- The FAO/CILSS (Interstate Commission for Prevention of Drought in the Sahel) crop assessment missions in the Sahel relied heavily on FEWS pre-harvest assessment reports and included FEWS participation in field assessment components of the missions.
- FEWS/Chad developed a remote sensing product, referred to as the “Triple A” (Alkhalil Adoum Analysis) that has proven very effective in some countries in the Sahel (Mauritania, Niger, and Chad) at providing a good qualitative assessment of the quality of the rainfed crop growing season. A write-up of the method is available in the FEWS III remote sensing archives.

In East Africa and the Horn:

- FEWS/Tanzania was instrumental in organizing a joint Government/FEWS/FAO/WFP/NGO crop assessment mission in 1999 that went beyond normal crop production estimates to include the food security status of populations.
- In 1999 and early 2000, FEWS/Ethiopia played a leading role within the Government/multi-donor crop assessment process. Reflecting a close professional relationship and high regard, DPPC (Disaster Prevention and Preparedness Commission) asked FEWS to lead teams of Government and donor/NGO personnel into some of the most vulnerable areas for the 1999 main season and 2000 *belg* season harvest and food needs exercises. The broader participation and more transparent assessment exercise built credibility for the final numbers and a consensual basis upon which action was taken. FEWS also helped develop a viable methodology, which takes into account the level of vulnerability to chronic and current food insecurity, to estimate the number of needy people in a given *wereda*.
- In 1999 FEWS Somalia provided market information, prices and trade data to the FAO/WFP Food Supply and Crop Assessment Mission and participated in an aerial main-season crop harvest assessment survey for southern and central Somalia.
- FEWS/southern Sudan in, 1999, joined two WFP/FEAU (Food Economy Analysis Unit) teams for the Annual Needs Assessment. Information collected from 4 sites were jointly analyzed and discussed.

In southern Africa:

- FEWS/Zimbabwe jointly carried out the Crop Assessment in Zimbabwe with NEWU (National Early Warning Unit), Farmers Organizations, and AGRITEX (Agricultural Technical Extension Service, Ministry of Agriculture) and spearheaded production of the report.
- In 1999, FEWS Malawi undertook a joint field trip with WFP and RESAL (Réseau Européen de Sécurité Alimentaire—European Food Security Network) to assess the post harvest food security status across the country.

At the May 2000 Sahel workshop, FFRs devised a season monitoring framework that can be used to record the most important factors that influence crop production. The only feasible way this framework could be completed was for the FFRs to work closely with the Ministry of Agriculture and other early warning partners to institutionalize the framework. The framework could serve as a model for other FEWS countries.

Many of the most food insecure populations are pastoralists or agropastoralists. Therefore, FEWS also undertook livestock production assessments. Techniques included assessments of pasture and water conditions, impacts of insecurity, patterns of seasonal migration, animal health, herd dynamics and productivity.

- FEWS/Kenya, in conjunction with the Government, WFP and the ALRMP (Arid Lands Resource Management Project) undertook a drought assessment mission to Mandera

District in January 1999 following an exceptionally poor October 1998-February 1999 short-rains season.

- The RFFR/Eastern Sahel documented ideas on improving the *Quantification of the contribution to food security from livestock production in Niger*. The paper considers the measurement of available fodder for Niger's animal species and the resulting animal production. The document was sent to all field offices and included as part of the FEWS III Guidance archive.

2.3. Rapid Field Assessment

In addition to crop assessment missions, FEWS conducted rapid field assessments to verify food security conditions, monitor food relief operations, or assess food aid needs.

In the Sahel:

- FEWS/Mauritania conducted frequent field trips to areas hit hardest by the 1996 drought, both during and after the main crop season, and provided some of the earliest warnings available on the poor harvests and the resulting plight of vulnerable groups. FEWS informed the U.S. Embassy, USAID/Washington, and readers of the *FEWS Bulletin* of food insecurity as soon as it developed. FEWS/Mauritania persisted in declaring that the crop season had been very bad, in spite of official assessments by the Government, FAO, and CILSS indicating above-average production. FEWS/Mauritania also participated in a second round of WFP/FAO-sponsored field trips that corrected the inaccurate first assessment. The eventual results were very close to FEWS estimates.
- FEWS/Niger briefed USAID/Niger and the Deputy Chief of Mission on the growing food crises in 1997, emphasizing the importance of resuming the mitigation activities interrupted after the coup d'etat in order to avoid the need for emergency food assistance. WFP expanded school lunch programs and interventions in health centers as a result of assessment missions with FEWS/Niger in Zinder Department.
- FEWS/Chad organized field trips for food security assessment for both the 1998/99 and 1999/2000 hungry seasons to verify food insecurity in southwestern Chad and Sahelian areas.
- FEWS/Mali conducted a mission to areas of crop failures in Tombouctou and Mopti Regions in 1996 to assess socioeconomic conditions and coping strategies.

In East Africa and the Horn:

- FEWS/Tanzania used a series of field trips in late 1997 and early 1998 and again in early 2000 to correct the imprecise harvest assessments produced through the Government of Tanzania's Food Security Department. The harvest estimates were complimented by an analysis of local coping ability and vulnerability, all of which were combined to guide relief targeting.

- In 1997, FEWS/Uganda took the lead in highlighting areas of Uganda that were food insecure due to lack of rainfall, poorly distributed rains, low food stocks, and depleted assets. After successive field trips to eastern and northeastern districts reporting on low food stocks, WFP/Uganda requested a joint FAO/WFP assessment to determine the country's food needs. It was the first ever FAO/WFP crop assessment mission for Uganda, ultimately leading to a food aid intervention in the affected districts.
- FEWS/Ethiopia visited eastern Amhara and Oromiya Regions to verify reports of increased vulnerability because of the combined effects of crop failure during the 1997 *belg* (short) season and late onset and mid-season cessation of the *meher* (main) season rains.
- In 1999 FEWS Ethiopia took joint August field trips with donors, NGOs and DPPC to Liben Zone and W. Oromiya, and went again in September to E. Amhara and E. Tigray.
- In Sudan in 1999, an Annual Needs Assessment trip with FEWS/WFP/FEAU was undertaken in Ganyiel, Upper Nile Region and Akobo, Jonglei Region.
- FEWS Somalia in 1999 undertook a mission to Juba Valley (Berbera, Burao, Gebiley and Hargeisa) to assess food security conditions towards the end of the *gu* season. They also undertook a mission to Bay region following the *gu* harvest to assess food availability, food aid requirements and overall food security conditions, due to the change in controlling factions.
- FEWS/Eastern Africa visited various locations in Kenya and Tanzania and confirmed the poor 1999-2000 short-rains season. FEWS alerted decision-makers about its impact on food insecure groups.

In southern Africa:

- FEWS/Zambia visited drought-affected areas of the country in 1996 to monitor food availability and accessibility, rainfall and seasonal performance trends, agricultural production activities, health and nutrition status, relief food deliveries, water availability and sanitation, and private-sector cereal trade.
- In 1998/99, the USAID Zambia Mission funded a FEWS buy-in to provide additional support to the FEWS/Zambia office to do rapid assessments of the food aid distribution program following a below average 1997/98 agricultural harvest.
- In 2000, FEWS/Mozambique was involved in flood damage assessments of areas near the mouths of the Limpopo and Zambezi rivers.

2.4. Market Monitoring

FEWS regularly monitored market price data and performed market analyses. Market prices were usually collected by national market information systems. FFRs input or imported that data into a FEWS software application (Priceman) and performed price analyses to identify unusual trends. Price movements provided information on market supply and access; and price analyses contributed to FEWS reports.

- FEWS/GHA (Greater Horn of Africa) integrated all of the databases for GHA countries and created a database of historical exchange rates for the region, making it possible to conduct a comparative analysis of regional price trends using a common currency.
- FEWS/Washington developed a semi-automated routine for graphing and mapping prices. These maps and charts were produced and sent out on a regular basis to Mali, Burkina, Niger, Chad, and Tanzania. The products helped analysts visualize and note key temporal and spatial relationships in the prices of key commodities. Sahel regional price map products (harvest period prices of key cereals) were posted on the FEWS web page for the final quarter of 1999.
- FEWS/Washington developed a price analysis case study demonstrating how prices and agricultural production data can be analyzed and mapped to show the spatial relationships between deviations from average in price and production.
- The RFFR for the Eastern Sahel drafted basic guidance on analyzing real prices. This guidance was sent to all field staff.
- The FFRs in Kenya and Tanzania drafted guidance on cross-border rapid assessments of cereal and livestock market conditions.
- The RFFR for Southern Africa produced a Price Analysis Guidance Manual for SADC that has been included as part of FEWS III price analysis guidance material.
- In Somalia, the FFR developed some training materials for price and market monitoring.
- In Zambia and Mozambique, FEWS used, and provided feedback on, the information products that were produced by the national Market Information System in each country.
- In Zimbabwe, FEWS provided assistance to the Ministry of Agriculture to strengthen its collection of market price data, through a series of informal meetings and training sessions.

2.5. Monthly Reports and Analyses

FEWS compiled monthly reporting on the food security situation in each FEWS-monitored country, addressing both early warning and food security issues. In Washington, monthly reports were circulated to the COTR (USAID/ Contracting Officer Technical Representative), to FFP (USAID/Food for Peace), and to country desk officers at USAID and the State Department. In Africa, these reports were circulated to local USAID missions and U.S. Embassies. In some countries, FEWS published a local version of the monthly report for wider distribution to FEWS partners including other donor representatives, UN offices, host governments, and NGOs. For example,

- In all Sahelian countries the French translation of the FEWS Bulletin was in great demand by decision-makers and the general Early Warning/Food Security community. Monthly reports were also circulated to key decision-makers and technical services.

- In Ethiopia, FEWS published a monthly report jointly with the European Union (EU).
- In Rwanda, FEWS published a monthly report that is used by the government and donors (USAID, EU, and WFP) in the development of food security policy and intervention programs in food relief and agriculture rehabilitation.
- In Somalia, FEWS, in collaboration with the Food Security Assessment Unit (FSAU) prepared monthly FSAU Food Security Reports, FSAU Flashes/Focuses on special topics of relevancy and dekadal Rain Watch reports during the rainy season. FEWS/Somalia also disseminated monthly reports to USAID/REDSO, the US Embassies in Kenya and Djibouti and other partners in Nairobi.
- In Sudan, FEWS produced monthly Vulnerability Updates in conjunction with WFP/FEAU and the newly established Food Security Analysis Group (FSAG).
- In Kenya, FEWS published, locally, the Kenya Vulnerability Update. The publication was widely seen as an unbiased presentation of facts and was instrumental in alerting the Government of Kenya, donors, and NGOs to the impending droughts in 1996/97 and 1999/2000. The publication led the Government of Kenya to acknowledge a substantial maize deficit in the 1998 calendar year.
- FEWS Malawi distributed to in-country early warning partners, the local monthly reports and the FEWS Bulletin.
- In Zambia, FEWS monthly reports were circulated to over 50 institutions, primarily in Lusaka. The list was developed in association with USAID/Zambia.
- In Mozambique the FEWS monthly report had limited distribution, going only to USAID and a selected number of other early warning and response partners (most notably WFP).
- In Zimbabwe, the FEWS monthly report was converted into a USAID/Zimbabwe Mission food security cable. Also, the monthly report was sent to a selected number of donors, UN agencies, and NGOs.

2.6. FEWS Watch

To address emerging situations where the timing and distribution of the *FEWS Bulletin* was not the best vehicle, FEWS Washington established another information delivery product called the FEWS Watch. These were preliminary notices on situations that could evolve into food crises. FEWS Watches were circulated to USAID and State Department offices only. The FEWS Watch provided a forum where FEWS Washington could be candid about the various factors affecting food security and give a *heads-up* to USAID on possible developing crises without waiting for all the confirming indicators. Through June 2000, FEWS III issued 44 FEWS Watches. A list of all FEWS Watches is included in Appendix A. The list includes:

For the Sahel:

- Poor Rainfall in Mauritania Jeopardizes Harvest Prospects (August 6, 1997)

- Chad: Sudanian Zone – Looming Catastrophe (February 24, 1999)

For East Africa and the Horn:

- Somalia: Armed Clashes Disrupt Key Grain Markets (September 25, 1997)
- Ethiopia: Freak Rains Threaten Main Harvest (October 30, 1997)
- Kenya: Exceptionally Heavy Rains Damage Maize Crops and Hamper Relief Efforts (November 6, 1997)
- Somalia: Record Floods Affecting Food Security (November 18, 1997)
- Rwanda: Delayed Food Aid Deliveries Exacerbate Food Insecurity (April 14, 1998)
- Southern Sudan Requires Increasing Relief as Conditions Continue to Deteriorate April (April 28, 1998)
- Ethiopia: Government Appeals For Food Aid for 8 Million People (January 28, 2000)
- Somalia: Famine Alert in Bakool Region (January 21, 2000)
- Kenya: Poor long-rains season leads to Government appeal for aid (June 9, 2000)

2.7. Briefings to USAID Missions and Embassies by FFRs

FEWS regularly briefed USAID Missions and U.S. Embassies on the food security situation in-country, or in the region, particularly during periods of acute food insecurity. FEWS also maintained contact with USAID through regular meetings, telephone contacts, exchange of notes and data sets, joint attendance at donor-government meetings, and provision of written reports, such as monthly reports, trip reports, ad hoc food security updates, FEWS bulletins, relief food needs assessments, food aid pledges and delivery programs.

In many countries, FEWS contributed to mission reports and cables.

- In Zimbabwe, FEWS composed the USAID/Zimbabwe Mission's Disaster Cables.
- FEWS/Somalia contributed to the series of Flood Emergency Situation Reports in 1997/98.
- The U.S. Ambassador in Kenya has used FEWS reports and graphics in her meetings with high-level government officials, including the Head of State. The Ambassador also invited FEWS to address two community *town meetings* in Kenya-first on the drought situation and later on El Niño.
- In Ethiopia, FEWS drafted all mission cables on the food security situation and crop assessments; and contributed to many others with a food security component, such as Mission requests for food aid allocations.

- In Rwanda, FEWS collaborated with the FFP officer on all food security-related cables.

2.8. Briefings by FEWS Washington

FEWS/Washington was periodically requested to provide briefings to various offices of USAID/Washington (Africa Bureau, Office of Foreign Disaster Assistance—OFDA, FFP) and other US-based agencies and organizations (e.g. National Security Council, Congress, State Department). The request for FEWS participation was either routed through the FEWS Project COTR or came as a direct invitation by another office with the knowledge of the COTR.

Generally, briefings that FEWS participated in were related to a particular issue (drought in Southern Africa, El Niño, drought in the Horn) and continued for as brief or long a period as the issue was of interest to the organizations being briefed. The content of the FEWS briefing was often specified in the invitation, but frequently included a range of Early Warning topics. These included an assessment of rains and crop conditions, current season forecasts, and a variety of primary and secondary source information on food security (numbers and locations of people at-risk, planting and harvest estimates, market prices, etc.). FEWS presentations were generally appreciated for their use of maps, graphics, and current country-specific information.

During FEWS III, notable FEWS briefing activities included:

- 1997 El Niño briefings
- 1997 Sahel food security issues
- 1997/98 Southern Africa briefings in which all FEWS/Southern Africa staff were brought to Washington
- Many Horn of Africa briefings throughout the entire FEWS III phase, including NSC briefings in 2000, and FEWS participation in an FFP-led delegation to the European Commission in Brussels in 2000

3. Vulnerability Assessments

As part of its scope of work for USAID, the FEWS project conducted assessments of vulnerability to food insecurity for nearly a decade. The analysis sought to determine what segments of the population were at greatest famine risk, the degree of their risk, their location and any other important considerations influencing their level of vulnerability. The literature generally identifies two types of food insecurity: current (transitory or episodic) and chronic (structural or long-term). In the past, FEWS VAs usually included a current and a chronic portion, often analyzed using differing methods and reported in differing formats.

3.1. *The Vulnerability Assessment (VA) Committee*

In 1995, FEWS Washington established a VA committee to review past approaches, to propose methodological improvements and to coordinate VA activities. The group helped refine the FEWS VA methodology and produced guidance that summarized key concepts and relations underpinning food security. It also defined a CVA report format that included boilerplate language and provided guidance on an operational analytical framework for organizing information used in the analysis.

3.2. *Redefining the VA Products*

Recognizing that there were different audiences for the different components of most Vulnerability Assessments, the VA Committee redefined the product into two separate analyses: The Current Vulnerability Assessment (CVA) and the Food Security and Vulnerability Profile (FSVP).

The CVA was designed to present an analysis of the impact of recent events on the ability of populations to meet food requirements during the current consumption period. The Food Security and Vulnerability Profile presents an analysis of country-specific long-term food security issues. The FSVP (still in development) will provide the big picture of food security for the country as a whole and for major areas and populations within the country. In addition to historic trends in food access and availability, the FSVP will include the macro-economic and regional context, food economy zones and historically derived assessment of risks and chronic vulnerability.

3.3. *Development of FEWS VA Methodology*

At the 1996 all-FEWS workshop, a collection of VA articles and a VA Guide were presented. Several methods were reviewed, but no clear consensus emerged among workshop participants. The VA committee subsequently incorporated the concerns raised by workshop participants, as well as the experience from 1997 and 1998 VA exercises in the Sahel and Southern Africa, into guidance for the redefined FEWS Current Vulnerability Assessment. The purpose of the guidelines was to ensure that CVAs were regular, timely, rigorous, relevant, and consistent between FEWS countries. By following a set outline and conceptual framework, the reports will have a FEWS look and feel, while respecting country-specific circumstances (such

as data availability, and collaborative relations). The draft guidelines were circulated before the all-FEWS Workshop of May 1998 and received global support during the workshop. The final version was completed in August 1998. FEWS held VA workshops in the Sahel in February 1999 and May 2000, where VA methodology development was discussed and refined.

After the CVA Guidelines were approved in 1998, little progress was made in re-defining the FSVP Guidelines until 2000. Because this was just months before the end of the phase, rather than Guidelines, a “State of the FEWS Experience in FSVP” paper was completed in June. It described the FEWS setting of the FSVP, features of recent CVAs that closely approach the objectives and structure of a FSVP and some of the issues that surround FEWS’ FSVP experience.

In early 2000 a consultant was asked to take a look at urban VA: to review the current literature and thinking on urban vulnerability, food security risk factors, and assessment methods and tools. The review paper covered the differences in rural and urban food security and vulnerability issues. It provided some guidelines for the selection of useful indicators and tools for measuring indicators. The review was structured to build FEWS field staff capacity to guide, design, and implement urban food security monitoring and vulnerability assessments. The material is also relevant to people outside the FEWS Project.

3.4 VA Implementation

FEWS III produced VA reports and guidance in several countries:

- Over the 5 years of phase III, FEWS Sahel countries have conducted VAs every year. The 1995 and 1996 VAs were pre-season VAs that looked at vulnerability going into the growing season. Starting in 1998 (1997/98) the Sahel produced post-harvest VAs that looked at the impact of the most recent rainfed harvest on populations’ ability to meet their food needs before the next main rainfed harvest. All Sahel VAs have been widely circulated locally and summarized as inserts in the FEWS bulletin. Full country reports for all the FEWS Sahel countries were published on the web for 1997/98 and 1999/2000. For 1998/99, the full country reports for Chad, Mali, and Niger were posted on the Web.
- In Mauritania, FEWS, as part of the Vulnerability Monitoring Subcommittee and in collaboration with the Food Security Commission and the Nutrition Service of the Ministry of Health and Social Affairs, initiated a study of a target group on the outskirts of Nouakchott and reported preliminary results in 1996.
- In 1997, FEWS/Eastern Africa reviewed available vulnerability literature, with special reference to assessing vulnerability in pastoral areas, and prepared a concept paper on approaches to vulnerability assessment in pastoral areas.
- FEWS/Uganda completed the draft of the first Uganda VA in 1997, and circulated it broadly for comment.
- FEWS/Kenya produced a draft CVA in 1997 and circulated it broadly for comment.
- FEWS/Southern Africa conducted a joint vulnerability assessment with NEWU/Lesotho, the SADC Regional Early Warning Unit and the Disaster Management Authority in

Lesotho, entitled: *Lesotho Vulnerability Assessment 1997/98*. In its structure and content it was more in the vein of a FEWS FSVP rather than a CVA, looking at historic patterns of vulnerability and attempting to identify patterns and causes. The findings of that report were widely circulated in Lesotho.

- FEWS/Zimbabwe conducted vulnerability assessments based on the income accounting approach in 1996, 1997, 1998, and 1999. The findings of the CVAs were summarized in Southern Africa Regional inserts in the FEWS bulletin. The full CVA reports for 1998 and 1999 were posted on the FEWS Web site.
- In addition, FEWS/Zimbabwe prepared the Food Security Reference Manual for Early Warning in 1997, which will serve as the basis for that country's Food Security and Vulnerability Profile. In preparation for a vulnerability assessment, food security summary documents (called "Minimum Food Security Profiles") were completed for Namibia and Botswana. These documents contained summaries of all available food security data and information. In both cases these documents were developed in conjunction with the National Early Warning Unit (located in the Ministry of Agriculture) in each country.
- The RFFR for Southern Africa collaborated with SADC's Food, Agriculture and Natural Resources unit in Harare in setting up a formal Vulnerability Assessment Committee to examine cross-cutting issues related to food security assessments by various institutions working in the region. The group included FEWS, SADC's REWU, Save the Children/UK Risk Map, Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS), and WFP/ Vulnerability Analysis and Mapping (VAM).
- In conjunction with the Government of Ethiopia, the European Union, WFP, the UN Development Program, CARE, Catholic Relief Services, and Save the Children Fund (SCF)/UK, FEWS/Ethiopia developed and refined a framework, methodology, and databases for production of a vulnerability assessment for Ethiopia.
- Zambia produced joint-Government/WFP/NGO/donor CVAs in 1998 and 1999 using an income accounting approach. The draft reports were circulated widely in-country and the findings were summarized in the Southern Africa Regional insert in the FEWS bulletin. The full CVA report for 1999 was posted on the FEWS Web site.
- Mozambique produced a joint -Government/WFP/NGO/donor CVA in 1999. The draft was widely circulated in-country and the preliminary findings were summarized in the Southern Africa Regional insert in the FEWS bulletin.
- In collaboration with SADC, FEWS drafted a manual for conducting vulnerability assessments in Southern Africa (1997). Much of this material was later incorporated into the official guidelines for FEWS Current Vulnerability Assessments.
- In Malawi, FEWS took advantage of the relatively rich data set to explore more statistical approaches to analyzing vulnerability in 1996.
- In 1998 and 1999, FEWS Malawi used an income accounting approach to assessing current food security status. Results of both analyses were used by WFP and others to target emergency and program relief. Summaries of the finding were included as part of

Southern Africa Regional inserts in the FEWS bulletin. The full CVA report for 1998 was posted on the FEWS Web site.

- The RFFR for the Eastern Sahel produced detailed descriptions of methodologies for incorporating livestock variables in VA (*Improving the quantification of the contribution of animal production to food security in Niger*, Andy Cook, June 2000).
- A short-term consultant produced a literature review and think piece on urban vulnerability: *Assessing Urban Food Security: Adjusting The Fews Rural Vulnerability Assessment Framework To Urban Environments* (Patricia Bonnard, 2000).
- The RFFR for the Eastern Sahel produced a detailed report on refinements to the CVA methodology in Niger (*Methodological Development for Current Vulnerability Analysis – A Nigerian Case Study*, Andy Cook, June 2000).

3.5. FEWS Participation in International Conferences related to Vulnerability Assessments

3.5.1. Informal Meetings on Vulnerability Assessment

Parallel to FEWS' internal efforts to refine its methods for conducting vulnerability assessments, international efforts were underway to bring together the varying approaches used worldwide. As demand for information generated by VAs increased within the donor community, VA methodology developed quickly and become more formalized. Also, VAs were conducted in a number of countries, creating a fairly large body of experience and results. Against that background, FAO, in collaboration with WFP and SCF/UK, held two informal meetings on Methodology for Vulnerability Assessment, the first in 1993 and the second in 1996.

For the second meeting, FEWS Washington prepared a paper outlining a conceptual framework for vulnerability assessments based on a household model of risk and resilience. FEWS/Malawi completed a baseline and current vulnerability assessment for Malawi and presented the methodology and results at the workshop. The second meeting represented a true coming together of those groups who perform VAs. As a result, FEWS has actively incorporated some of the methods and information generated by other VA methods into our own VA guidelines. Furthermore, as an extension of this meeting, FEWS has gained an international profile for our work on VA as is evidenced by invitations to participate in subsequent efforts to set up global food security monitoring systems.

3.5.2. Second Meeting of the Inter-Agency Working Group on Food Insecurity and Vulnerability Information and Mapping Systems (IAWG-FIVIMS)

FIVIMS is a framework within which a wide range of activities may be carried out at both national and international levels in support of improved information to achieve World Food Summit goals. At the national level, it is implemented through the enhancement of information systems that gather and analyze data relevant for measuring and monitoring food insecurity and vulnerability, collectively referred to as national FIVIMS. At the international level, it is implemented through a program of activities, generally referred to as global FIVIMS. The idea

behind FIVIMS is that improved information can be actively used to produce better results in efforts to reduce the number of undernourished and achieve food security for all.

The second meeting of IAWG-FIVIMS was hosted by IFAD in Rome in April 1998. FEWS was one of many participants, which included major UN organizations (FAO, WFP, IFAD, WHO, UNDP, and UNEP), other international organizations and agencies (World Bank, IFPRI, Helen Keller International, Institute of Development Studies, Save the Children, SADC, GTZ and USAID) and individual nations. The major purpose of the meeting was to bring together national experts to comment on the draft guidelines for establishing national FIVIMS. Additional items included reports from both national governments and international agencies on the gamut of related activities and projects, an inventory of existing food-security related databases and discussions of the issues involved in developing a FIVIMS International Common Database. FEWS was invited to serve as a member of the committee, tasked with drafting the FIVIMS Technical Compendium.

3.5.3. Third Meeting of the Inter-Agency Working Group on Food Security and Vulnerability Information and Mapping Systems

The meeting was held at the World Bank in Washington DC in 1999 to discuss data/information exchange and indicator development. FEWS participated along with the EU-RESAL, WFP, USDA, USGS, FAO and others. There was an elaboration of the monitoring indicator database for FIVIMS that is being maintained by FAO.

3.6. *Harmonization of VA Methods*

Sahel – WFP/CILSS Initiative with Funding from the Sahel Regional Program (SRP)

The RFFR for the Western Sahel worked closely with the regional FFP officer, SRP and OFDA staff on inputs to the regional project to harmonize vulnerability assessment approaches in the Sahel. The project, which was launched in late 1999, brings together technicians from CILSS, FEWS, WFP, EU and certain NGOs working in the domain of food security, in an effort to come to an agreement on a common Sahelian food security and vulnerability assessment methodology, led by Sahelians (the CILSS PREGEC Project). This is a potentially revolutionary step forward towards bringing some harmony and coherence to the vulnerability assessment process in the Sahel—with the Sahelians at the helm and with FEWS playing a pivotal role. The RFFR plays a leading role on the technical committee.

Southern Africa

The RFFR for Southern Africa initiated at SADC's Food, Agriculture and Natural Resources office in Harare a formal Vulnerability Assessment Committee to explore crossing cutting issues related to food security assessments by various institutions working in the region. The group included FEWS, SADC's REWU, SCF/UK Risk Map, FIVIMS, and WFP/VAM.

4. Contingency Planning and Response Planning

Food crisis contingency planning and response planning correspond most closely to the third objective of FEWS III: *propose pre-emptive actions for preventing immediate and future famine*.

4.1. Expanded Emphasis on Contingency Planning and Response Planning

FEWS' emphasis on contingency planning and crisis response has expanded considerably in the past two years.

- A session during the May 1998 FEWS Workshop in Addis Ababa was devoted to the discussion of response planning and appropriate levels of participation by FEWS field representatives.
- In 1998, the former Food Aid Specialist position in the FEWS/Washington office was renamed as the Crisis Response Planning Specialist position for which new terms of reference were drawn up jointly with AID/Washington.
- FEWS/Washington began to develop a set of contingency planning and crisis response guidelines, primarily for field staff, starting in 1999. Draft contingency planning guidelines were completed in February 2000 and draft crisis response guidelines were completed in April. This draft *Guidelines* also contained a number of technical annexes.

4.2. Development of FEWS Guidelines

It was decided that these *Guidelines* (extending from prevention and preparedness to relief and post-crisis development) required a critical review within FEWS before being going into the *FEWS Guidance Manual*. The Greater Horn of Africa was selected for this review because of the growing accumulation of experience and insights of FFRs in planning and responding to recent and current food crises, including complex emergencies. A regional workshop was held in Nairobi in April 2000 to discuss the draft contingency planning and crisis response (CPCR) *Guidelines*.

Among the key points of agreement of this Workshop were that:

- FFR and RFFR participation should mainly concern the information and analytical aspects of contingency planning and crisis response.
 - This participation should center on the core responsibilities of FFRs and RFFRs, defined as “early warning monitoring and analysis and identification of vulnerable or food insecure groups as a means to inform the contingency planning and crisis response process”— responsibilities that essentially embody the three objectives of FEWS III.
 - The participation of FFRs and RFFRs in non-core activities was left optional, depending on available time and resources, personal experience and disciplinary

background, the extent of activities underway by others, expectations from headquarters and country circumstances.

- Each FFR and RFFR faces a different institutional setting for contingency planning and crisis response. Institutions in some countries are more open to analysis and advice from partner groups and agencies, while institutions in other countries are relatively closed to outsiders (sometimes prompting the creation of parallel donor-NGO consultative and planning structures). These country settings also determine the effectiveness of FFRs and RFFRs.
- Within the parameters of these first two points, FFRs already participate actively in a number of contingency planning and crisis response activities, often behind the scenes but usually in a proactive manner, bringing their information and analysis to the direct attention of decision makers, as well USAID and the Embassy.
- As part of contingency planning and response planning, FFRs and RFFRs should offer their insights and analysis in the relevant setting, recommend courses of action, and build support for the preferred options. However, it is acknowledged that FFRs and RFFRs have no direct control over the selection and implementation of responses.

On the recommendation of the workshop participants, a summary of the *Guidelines* was drafted and made part of the *FEWS Guidance Manual* as the *FEWS III Guidelines on Food Crisis Contingency Planning and Response Planning*.

4.3. Examples of FEWS Participation in Contingency Planning and Crisis Response

Some examples of FEWS' participation in contingency planning and response planning follow:

- In Somalia, field visits to the Juba Valley in 1996 to investigate reports of crop failure and food insecurity provided important input for the final phase of development of the Multi-donor Action Plan for the area. The plan endorsed by the Somalia Aid Coordinating Body in May, was fully implemented and successfully stemmed the flow of people from Juba Valley. FEWS/Somalia produced a concept paper urging the use of market sales of food aid as a self-targeting device and continued to explore other marketing opportunities, including appropriate delivery dates.
- Upon the recommendations of FEWS/Ethiopia, USAID brought in 20,000 MT of food aid for distributions to over 1.2 million highly vulnerable people to buffer the poor short season harvest of 1997. Later that year, when it became evident that there was going to be increased food aid needs in the country following a less than favorable main harvest, FEWS/Ethiopia recommended additional food aid imports. The U.S. responded by allocating 75,000 MT of food aid for Ethiopia.
- In November 1997, FEWS/Ethiopia advised USAID/Ethiopia of high food insecurity in the Dollo area (southwestern Somali Region) caused by severe flooding. This resulted in a disaster declaration by the U.S. Ambassador. As a result of this disaster determination, OFDA provided funds for flood relief and rehabilitation efforts.

- On the basis of the 1998/99 Current Vulnerability Assessment in Zambia that identified 44 districts as food insecure, the Government carried out a Food Needs Assessment through the National Disaster Management and Mitigation Unit (NDMMU) in the Office of the Vice President. This Assessment, in which FEWS/Zambia actively participated, estimated that Zambia would need about 55,000 tons of emergency food aid cereals for direct, free distribution (mostly through food for work) to 1.2 million food-insecure persons in two categories for up to five months:
 - The *severely affected* groups were to receive food aid for five months, from September 1998 through January 1999.
 - The *moderately affected* groups would be able to obtain food on their own, with difficulty, during September and October. Thereafter, they would need to receive food aid for three months starting in November 1998.

WFP/Zambia identified implementing non-governmental organizations (NGOs) for each district and set guidelines for food distribution, monitoring and reporting procedures. Relevant government ministries, implementing NGOs and donors fully participated in the preparation process through a series of consultative meetings organized by WFP. The Office of the Vice President was in charge of coordination of the implementation and monitoring of the food aid operations. FEWS/Zambia also actively monitored needs and deliveries throughout the operation.

- FEWS/southern Sudan collaborates with in Operation Lifeline Sudan (OLS), a broad-based umbrella group comprised of NGOs, donors and UN agencies with support from the UNICEF Emergency Services and WFP Emergency Operations. OLS developed a contingency plan for December 1999 - June 2000 with the aim of ensuring that humanitarian needs would be effectively met through collaborative and coordinated action. The planning horizon was limited to six months due to the high degree of insecurity. The Contingency Plan outlines core planning assumptions and increasingly urgent levels of action. The Plan sketches out responses in key sectors (health, food and nutrition, water and sanitation, household food security, livestock, non-food relief and for children in need of special protection) for which implementing partners are expected to have their own, more detailed plans. The Plan sets out an emergency management system, based on management and coordination, preparedness, early warning and monitoring, assessments and response (in addition to logistics, transport, communications and security systems). FEWS/Southern Sudan is one of the designated partners for early warning and monitoring. FEWS also participates in rapid appraisals.
- Great strides have been made in recent years in Kenya to link government and NGO-donor agency emergency assessments and responses. Whereas two parallel structures existed several years ago in a somewhat adversarial relationship, resulting in duplication of effort and occasionally working at cross-purposes, there is now unified structure for joint consultations, needs assessments and coordinated responses. A general Food Security Meeting embraces key government and donor groups. A smaller executive committee decides major programming issues. An interministerial food security committee makes corresponding recommendations to the Office of the President. This new system of regular consultations establishes clear lines of authority and channels of communication, essential for dealing with emerging food security crises. FEWS/Kenya and FEWS/Greater Horn

have played constructive and respected roles, with support from USAID/Kenya and REDSO/ESA, in helping to create this new atmosphere of trust and mutual benefit.

- The World Food Program (WFP) provides food aid to Somalia through a Protracted Relief and Recovery Operation covering the period July 1999 – June 2002. WFP issues appeals for food and funds based on the most recent assessments of needs. The Somalia Food Security Assessment Unit (FSAU), in which FEWS/Somalia is a critical partner, has assessed food aid needs through the remainder of 2000 based on best-case, mid-case and worst-case scenarios. These scenarios spell out key assumptions — seasonal rainfall, river levels, livestock conditions, trade opportunities and internal migrations, among others — for which FEWS/Somalia actively monitors key indicators. These food need scenarios are revised from time to time, thereby enabling WFP to update its appeals based on the latest assessments.

5. Capacity Development

5.1. Workshops

FEWS conducted all-FEWS Workshops in Dakar, Senegal in April 1996 and in Addis Ababa, Ethiopia in May 1998. The focus of the first workshop was vulnerability assessment methodology. The highlights of this workshop included:

- A VA methodology review and refinement for the project as a whole, based on key country experiences.
- A test of a VA Practical Guide during hands-on sessions.
- Presentation of additional tools for vulnerability analysis, including in-depth crop monitoring and expanded use of qualitative and quantitative methods.
- Presentation by the FEWS Agronomist of guidance for FFRs on *Monitoring Crop Production from the Ground*.
- Review of the role of VA in related areas, such as development planning, disaster response and targeting.
- Demonstration of a new version of Priceman, a FEWS data management software tool. Training in this application, as well as Atlas GIS and the Microsoft Office Suite, were provided during evening sessions.

The second all-FEWS workshop saw the launching of a concerted drive to standardize and document FEWS methodologies and practices. The main subjects to receive attention during the workshop were rapid rural appraisal techniques, vulnerability assessment guidelines, and response planning. Follow-up actions resulted in the distribution in September 1999 of the FEWS Technical Guidance Manual containing new guidance on Current Vulnerability Assessment, Rapid Rural Appraisal, Imagery Analysis, Price Analysis and Thematic Mapping. It also contained reissued guidance on Early Warning/Food Security Monitoring and Reporting and on "Monitoring Crop Production from the Ground".

The final workshop involving all FFRs and the FEWS/Washington managers was the FEWSIII/FEWSNET transition workshop held in Nairobi in June 2000. The workshop was supported, but not organized, by FEWS/ARD.

An additional, unique, workshop was held in Kenya in early 2000 to vet FEWS/Washington methodology development with FFRs and partners. The subject of the workshop was the Contingency Planning and Crisis Response Guidelines developed by FEWS/Washington.

5.2. Training of FFRs

As FEWS methodology, analytic techniques, and software tools were constantly evolving, FEWS Washington conducted periodic training in methods for data networking and analysis, data interpretation, vulnerability analysis, technical writing and database design and management. FEWS Washington organized regional training workshops to conduct these training sessions. FEWS Washington staff also visited specific field offices to conduct in-service training. It is worth noting that there was continual informal training of FFRs during visits by RFFRs to their countries. Some examples of FFR training include:

- A regional workshop in Bamako, August 1995
- A regional workshop in Nairobi, November 1995
- The FEWS data management and GIS specialist conducted training in Atlas GIS, remote sensing, and price analysis for the FFRs of Mozambique, Zambia, Zimbabwe, Uganda, Rwanda, Kenya, Sudan, and Somalia in 1996.
- A regional workshop in Nairobi, June 1997 on development of an analytical agenda for FEWS regional analysis in the Greater Horn of Africa
- The socioeconomist conducted data analysis and vulnerability assessment training in Uganda and Rwanda in 1997.
- A team building and FEWS methods workshop was held in Nairobi in 1998 for new Ethiopia, Eritrea, Somalia, and Rwanda FFRs.
- A workshop was held in Nairobi in late 1998 for the purpose of training new FFRs for Ethiopia, Somalia, Rwanda and Eritrea in FEWS early warning techniques and practices. The training was organized by the RFFRs for GHAI and for Kenya, Tanzania and Southern Sudan.
- The Agricultural Economist and VA specialist conducted training visits to Kenya and Tanzania in 1997, and the Sahel in 1998, 1999, and 2000.
- The computer and information systems specialist assisted the FEWS/GHA FFR in regional price database management and analysis in December 1997.
- FEWS/Washington conducted two regional Sahel workshops, in 1999 and 2000, which focused on VA methodology implementation and development.
- A regional workshop was held in southern Africa for FFRs for Mozambique, Zambia, Zimbabwe, Malawi and Tanzania, in October 1998. The principal objective was to discuss regional issues and analyses. During the meeting there was training on remote sensing, the use of the Global Positioning System and other types of analyses. SADC REWU and RRSP staff also attended the meeting.

- In 2000, a FEWS/Washington consultant provided technical assistance to the Zimbabwe field staff and USAID on assessing and monitoring urban food security.

5.3. Training of Host Country Technicians

FEWS worked closely with local institutions to build an understanding of food security monitoring and the capacity to monitor food security in the absence of FEWS.

In the Sahel:

- FEWS/Niger, in 1999, was invited to attend (for the first time in FEWS/Niger's history) the Multidisciplinary Working Group (GTP) meetings.
- FEWS/Chad facilitated creation of a more comprehensive early warning capacity working group. The group consisted of the Early Warning System (SAP), the Water Resources and Meteorology Directorate (DREM), FEWS/Chad, the Aerial Navigation Security Agency for Africa and Madagascar (ASECNA), the Natural Pasture Observation Network (ROPANAT), the Agricultural Statistics Department (DSA), the National Development Office (ONDR), and the Lake Chad Development Society (SODELAC).
- FEWS/Burkina Faso developed a local network of information sharing and increased diffusion of the FEWS Bulletin and FEWS reports to provincial agricultural offices. These offices in turn improved their responsiveness to FEWS/Burkina's requests for information and data.

In East Africa and the Horn:

- FEWS/Somalia worked with the Food Security Assessment Unit (FSAU) to train enumerators in the harvest assessment mission that occurs after each planting season. Some enumerators eventually became FSAU field agents.
- FEWS/Rwanda relocated its offices to the Ministry of Agriculture and participated in many Government food-security-related activities. In 1997, FEWS/Rwanda provided advice for the establishment of a Food Security Technical Unit in the Ministry of Agriculture and served on the Seeds and Tools Committee. They also took part in emergency food needs assessments in the most vulnerable Prefectures at the invitation of the National Food Committee of the President's Office and drafted the terms of reference for the FAO/WFP crop and food needs assessment.
- FEWS/Uganda's ongoing efforts to build links with the National Early Warning and Food Information Unit in the Ministry of Agriculture, Animal Industry and Fisheries bore fruit as the two offices started coordinating joint field trips. FEWS continued work with Volunteers in Overseas Cooperative Assistance/Uganda to facilitate training of staff in the National Early Warning and Food Information Unit.
- FEWS-sponsored a study on *Food Aid Targeting in East Africa* and a follow-up regional workshop in 1999 that served as a catalyst for significant improvements in the process of

food aid targeting in Kenya. Subsequently, the Kenyan Government nominated four key Departmental heads drawn from Office of the President, while donors nominated the EU, USAID, WFP and Department for International Development, UK (DFID) to comprise, collectively, the key decision making body in all response and targeting issues. More recently, a FEWS-sponsored and -supported Tanzanian delegation representing government and non-governmental bodies involved in crisis response planning and decision-making visited Kenya to study the systems now being used there.

- FEWS/Ethiopia visited Eritrea in August 1999 to discuss collaboration with, and provide training to, Eritrea's early warning personnel. Better coordination with Eritrea helped improve coverage of northern Ethiopia and facilitated regional coverage by the FEWS Greater Horn of Africa adviser.
- FEWS/Ethiopia has provided training to DPPC, CARE, SCF/US, CRS, National Meteorological Services Agency (NMSA) and Eritrea National Food Information System (NFIS) staff. These institutions are now using FEWS data managers and display software for early warning and food security monitoring.
- FEWS/Nairobi provided training to newly appointed ALRMP officers in NDVI and RFE imagery analysis.
- FEWS Sudan, in 1999, built capacity of the Sudan Relief and Rehabilitation Association (SRRA) Database and Monitoring Officers by having 2 of them on attachment with FEWS to learn software packages and creation of databases.
- FEWS Somalia, in 1999, participated in FSAU training in Somaliland on satellite imagery and on market price collection, participated in training of FSAU field monitoring in Marka and conducted training for FSAU field monitors for the 1999 *gu* harvest assessment survey and at the subsequent workshop at Jowhar.

In southern Africa:

- FEWS/Southern Africa led an 11/2-day training session on vulnerability analysis for 14 persons from national early warning units of the SADC region in 1997.
- FEWS/Southern Africa worked with Zimbabwe's National Early Warning Unit on improved methods for price and market monitoring and developed a strategy to improve the quality and reliability of Zimbabwe's price data collection system.
- The RFFR developed three technical manuals and associated training materials for SADC REWS and NEWUs. They were on price analysis (*Price analysis for early warning monitoring and reporting*), on thematic mapping (*Thematic mapping: A practical guide for early warning monitoring and reporting*) and an overview of early warning (*Early warning primer: An introduction to monitoring and reporting*).
- Training sessions on thematic mapping using MapViewer were conducted for NEWU and other in Government staff in Namibia, Zambia, Mozambique, and Botswana during the 1997 to 1999 period.

- FEWS/Southern Africa used the FEWS Fellows program, in 1997, to bring one staff member from the Botswana Ministry of Agriculture to work with FEWS on vulnerability assessment and developing a Minimum Food Security Profile for Botswana.
- FEWS/Southern Africa used the FEWS Fellows program, in 1999, to bring a newly hired NEWU staff member from Namibia to receive training from SADC/REWU, SADC/RRSP and FEWS in all aspects of early warning monitoring and reporting.
- FEWS/Zambia devoted substantial time to developing the capabilities of the NGO PAM. This included management, publishing, food security assessment, staff computer training, price and market analysis, data base management, information system development, target analysis, reporting, budget development and program planning, product development and evaluation, completion of regular/ad hoc products, preparation of food needs assessment updates, relief food targeting (geographical and agroecological) and dissemination of PAM products/outputs.

6. Research and Special Studies

As early warning and monitoring techniques evolved, FEWS periodically identified and reviewed issues that were relevant to the project goals and purposes and undertook selective analyses on important famine early warning-related topics.

6.1. Crop Use Intensity Verification

Crop Use intensity (CUI) is a technology developed to better locate areas of agricultural production. It is based on the interpretation of high-resolution LANDSAT satellite imagery.

FEWS/Mali took the lead in cropland use intensity map field verification by taking a 4-Region, 10-day tour of Mali with a FEWS-USGS specialist. After looking at fields and studying maps with local technicians, USGS produced an update of the map. Maps were also distributed to local Government agricultural agents for their use and further verification.

With the results of this fieldwork, FEWS Washington investigated the use of CUI as a monitoring aid in comparison with other methods for improving NDVI analysis. The final conclusion, released in 1997, was that CUI does not substantially add to NDVI monitoring and analyses at the FEWS level.

6.2. Soil Moisture Index

The FEWS agroclimatologist developed a new Meteosat analysis, incorporating dekadal rainfall normal images and a preliminary estimate of soil moisture availability. This was an initial step in a collaborative effort between the U.S. Geological Survey (USGS), the National Oceanic and Atmospheric Administration (NOAA), and FEWS to develop a soil moisture monitoring system. The result was a remote sensing product that provided an indication of Crop Water Satisfaction (CWS).

6.3. Seasonal Metrics Imagery Development

Developed in collaboration with the USGS, Seasonal Metrics images were the first of several new tools to be phased in for use by FEWS analysts. They were needed as a first step in getting the most out of the Moisture Index (MI) and Crop Water Satisfaction Index (CWSI) that were also being phased in by USGS. One of the images, length of the growing period (LGP), is useful itself as an early indicator of cereal production.

The images include start of the growing season (SOS), end of the growing season (EOS) and LGP: the number of days between the SOS and the EOS.

At the end of FEWS III the images were operational in the Sahel, where photoperiod sensitive sorghums and millets are grown. A project to ground-truth the images was taking place during the Sahel growing season at the end of FEWS III.

6.4. Food Aid Targeting

A former FFR for FEWS/Ethiopia was hired as a consultant to review the effectiveness of food aid targeting in Kenya, Tanzania and Uganda during 1997/98. The overall objective of this study was “to produce a set of concrete recommendations on improving the targeting of emergency food aid in Kenya, Tanzania and Uganda in order to improve its impact on vulnerable populations, to increase its cost-effectiveness and to reduce its negative effects on development.”

Her major report (Kay Sharp, *Food Aid Targeting in East Africa*, March 1999) reviewed and summarized:

- the current practices of food aid targeting in Kenya, Tanzania and Uganda – the institutional arrangements, their operational weaknesses and analytical gaps;
- FEWS’ role as a key player; and
- the divergence between food aid targeting in theory and in practice.

The study sums up food aid targeting issues common to all three countries and offers about 30 practical recommendations.

To add further value to this well-received study, FEWS and REDSO sponsored a three-day workshop in Mombasa, Kenya, in September 1999 to debate its conclusions and make further recommendations. About 60 food aid practitioners, including local government officials and others from each of the three countries participated in this workshop. The workshop covered six functional themes:

- Linking information to targeting decisions,
- Disaster preparedness and targeting,
- Choosing targeting methods and distribution mechanisms,
- Supporting and improving local-government targeting,
- Improving needs assessment and
- Setting the context for use of food aid.

Regional targeting issues and complex emergencies were also debated.

One of the lasting benefits of the Targeting Workshop is the continuation of the country planning teams back home to follow up on workshop recommendations. The Kenya team, for example, has been instrumental in facilitating and brokering the new food aid consultative arrangements between the government and its principal food aid partners (Section 4.3.).

Lessons from this targeting workshop that are applicable to all FEWS countries are included in a technical annex to the original draft CPCR guidelines (section 4.2.).

6.5. *El Niño Tracking*

- The FEWS Agroclimatologist developed a map showing historical impacts on rainfall in eastern and southern Africa from different types of El Niño/La Niña events. The analysis made use of global atmospheric and oceanographic data provided by NOAA and station rainfall data provided by FEWS, supplemented by data from EarthInfo, Inc. An analysis showing a strong link between southern Atlantic Ocean warming and drier than normal West Africa seasonal rainfall was also performed, as well as a study verifying the linkage between long-lasting torrential rains in East Africa and the Horn and a strong temperature gradient across the Indian Ocean basin.
- The FEWS Agroclimatologist tracked the evolution of the 1997-98 El Niño event using sea surface temperature (SST) imagery provided by NOAA and USGS, images on the location of clouds across the Pacific basin provided by NOAA, and tabular monthly data on global ocean temperatures, tropical winds, Pacific basin air pressure, and outgoing longwave radiation.
- The FEWS Agroclimatologist tracked the impacts of the 1997-98 El Niño event in Africa using NDVI, Meteosat RFE, and the new CWS moisture index images. The severe harmattan in West Africa was tracked using new relative humidity imagery supplied by NOAA and USGS. Updates were provided to USAID at biweekly/monthly meetings on the development and impact of the weather events.
- The FEWS Agroclimatologist attended the initial Climate Forecasting Forum for Southern Africa. Other FEWS technical specialists and country representatives have attended succeeding Climate Forecasting forums. The Agroclimatologist prepared a written evaluation of the southern Africa early- and main-season forecasts, which was published in the April 1998 FEWS Bulletin. Other forecasts have also been included in the Bulletin and are on the FEWS web page.
- To better determine El Niño's impact on rainfall in Ethiopia, FEWS/Ethiopia performed an analysis of historical rainfall data and held extensive discussions with NMSA on methodologies, analyses and conclusions regarding El Niño's impacts on rainfall in Ethiopia.
- The FEWS Agroclimatologist was able to develop rainfall indicators for regions in Africa based on historical patterns. These indicators show the likelihood of drier or wetter than normal conditions based on current atmospheric and oceanographic data. These indicators are also included on the FEWS web page.
- In Southern Africa, FEWS participated in a Season Monitoring Group that initially met to discuss the technical indicators of the 1997/98 El Niño event with SADC/RRSP, SADC/REWU, and DMC/Harare. As the impact of the event became clearer others—such as donors, UN agencies, and regional NGOs—were included in the meeting to discuss the potential food security impacts.
- In Southern Africa, the RFFR worked closely with the Drought Monitoring Centre (Harare) to link this type of monitoring with food security issues. For example, attempts were made at establishing the linkage between these phenomena and crop outcomes. RFFRs attended all South Africa Region COF meetings after the initial one attended by

the FEWS Agroclimatologist. The RFFR for the Greater Horn assisted in the organization of the first Climate Outlook Forum (COF) meeting in East Africa.

6.6. FEWS In-Depth and Special Reports

The first FEWS In-Depth study appeared as a supplement to the June 1996 Bulletin. It analyzed long-term food security issues in Kenya and was the first in a series of In-Depth and Special Reports on longer-term trends and developments relevant to food security. A complete list of these reports is included in Appendix B.

6.7. Regional Analyses

- FEWS/Kenya, Tanzania, Rwanda and Uganda collaborated with the regional FEWS/Eastern Africa to analyze the impact of the regional shortfall of beans on food security.
- FEWS/Eastern Africa undertook a study of cross border food security linkages among the countries of the Greater Horn.
- FEWS/Eastern Africa has developed a historical database of exchange rates for each of the 10 GHA countries, which will allow regional analysis of price trends to be carried out in a common currency.
- FEWS/Washington produced Sahel regional price maps that were posted to the Web and sent to Sahel field offices to inform their price analysis.
- FEWS/Southern Africa worked with SADC/REWU and SADC/RRSU to strengthen the regional analyses from these institutions. For example, FEWS assisted in the development of a regional product in early 1998 to assess potential high/low agricultural grain production outcomes. This was the earliest that these analyses were completed, which was significant given that that was an El Nino-affected crop.

6.8. Remote Sensing Products Refinement

- The FEWS Agroclimatologist determined the causes of identified NDVI imagery problems and proposed solutions. She developed a stopgap procedure to allow resumption of limited analysis and sent instructions to FEWS field representatives. She worked with NASA and NOAA to eliminate the problems and to reduce the impact of problems that could not be eliminated.
- The Computer Systems Specialist also worked with USGS on developing an aligned imagery series.
- The Agroclimatologist developed a modelled “average” which would work comparably with imagery across the entire series.

- The FEWS Agroclimatologist identified problems with RFE imagery and worked with NOAA and USGS on developing solutions for the problems.
- FEWS and USGS are collaborated on a new land use and land cover classification method for Africa. This could lead to refinement in the way the project uses NDVI for crop and pasture monitoring.
- Various data smoothers were proposed to help eliminate cloud cover problems in NDVI imagery. The FEWS Agroclimatologist did an initial test of these and found the algorithm used in the VAST program to be the most promising in terms of required accuracy and global applicability.
- The FEWS Agroclimatologist investigated the relationship between RFE and NDVI. It was found that increases in NDVI followed rain events, typically one dekad later. Correspondence between NDVI and rainfall patterns across the season was high, indicating that both were comparable and that the best strategy would be to use both indicators for analysis at the end of season.

7. Collaboration with Early Warning Partners

7.1. *U.S. Geological Survey*

The USGS had a special relationship with the FEWS III contractor due to their own FEWS agreement with USAID. USGS provided technical support to FEWS in the areas of remote sensing, data processing, software development, GIS, and mapping. The USGS assisted the project in development of several data management tools that are now widely used by FEWS and by host government institutions.

At every FEWS Executive Committee (EXCOM) meeting, FEWS/ARD and USGS prepared a joint progress report. USGS also provided technical assistance directly to FEWS field offices. For example, FEWS/Ethiopia requested that USGS digitize new administrative maps for Eritrea, provide technical assistance on the development of a methodology for dis-aggregating Ethiopian agricultural production data, and perform a needs assessment for upgrading NMSA's remote sensing capability.

7.2. *Food and Agricultural Organization (FAO) of the United Nations*

FEWS collaboration with FAO occurred at the country level and through contacts with FAO offices in Rome. In the field, FEWS contacts were usually with FAO Country or Sub-Regional Office Representatives, or with FAO experts participating in FAO/WFP Crop and Food Supply Assessment missions. To a lesser degree, because their numbers fell, FEWS sometimes collaborated with FAO technical experts working on projects that had a food security-related theme (e.g. agriculture, marketing, etc.). In Rome, FEWS had common interests and collaborative efforts with the Global Information and Early Warning System (GIEWS) and with the newer food security initiative of the 1996 World Food Summit, FIVIMS, whose Secretariat is at FAO in Rome.

In 1995, FEWS and FAO/GIEWS reached a formal agreement to collaborate on software development, data exchange, and information sharing. Notably, this collaboration included joint efforts to develop the WinDisp software package and exchanges of data. Collaboration with FIVIMS was limited to FEWS attendance at regular FIVIMS meetings and a sharing of information on vulnerability assessment activities. At the field level there were numerous instances of FEWS participation in the WFP/FAO Crop and Food Supply Assessment Missions in various FEWS countries.

7.3. *The United Nations World Food Programme (WFP)*

As with FAO, FEWS maintained a number of collaborative links with WFP, both at the field-level and in Rome. WFP's leading role in providing food aid, and its desire to assess needs for such assistance, made FEWS an important source of information. Increasingly, where there were offices of both in an African country, FEWS and the WFP/VAM unit became close partners in monitoring and assessing food security and vulnerability. VAM is redefining its vulnerability assessment process, and is borrowing inspiration and technique from FEWS. Joint VAs were

produced in Zambia and Malawi, and were discussed in other countries. Joint training and exchange of map and statistical data was also common between the two organizations.

7.4. *Save the Children Fund—United Kingdom*

FEWS VA methodology incorporated elements from the SCF/UK food economy approach. As such, FEWS and SCF collaborated on VA work at the headquarters level, as well as in the field. FEWS/Somalia used the SCF approach in defining food economy zones and provided vulnerability updates during the drought emergency of 1996 and the flood emergency of 1998.

FEWS/Ethiopia regularly collaborated with SCF/UK by providing training on FEWS data management software and using data generated by SCF/UK to monitor the food security situation in the pastoral lowlands of the country. FEWS/Ethiopia also assisted SCF/UK by providing them with remotely sensed data and analyses, agricultural production databases and comments and input for improving their Nutritional Surveillance Program and food economy studies.

FEWS/Zimbabwe was involved in a joint agency survey of commercial farm-workers with SCF/UK and the Agricultural Labor Bureau.

7.5. *FEWS-FEG collaboration*

Following the VA Workshop in Rome in December 1996, SCF/UK followed up with a coordination visit to FEWS/Washington in early 1997. The consensus at that meeting was that collaboration was most appropriate at the field level and that there was general support at the FEWS/Washington level for that collaboration to flourish. Subsequent to that meeting, there was strong collaboration between FEWS/Somalia and FEWS/Rwanda on food economy work, but there was no formal effort to link the FEWS VA with the baseline Food Economy information. With the creation of the Food Economy Group (FEG) in 1999, FEWS and FEG renewed efforts to define concrete areas of collaboration. They met in April of 1999 to discuss concrete examples of potential FEWS-FEG collaboration on food economy work. The impetus for this collaboration was to take advantage of the comparative strengths of the two organizations. FEWS had a comparative advantage in early warning monitoring and current vulnerability assessments (CVAs) and FEG had a comparative advantage in gathering and organizing baseline food economy information that provided the context for interpreting current information.

7.6. *Others*

7.6.1. European Union (EU)

FEWS maintained largely technical food security-based relationships with various national EU offices in some FEWS countries. In Ethiopia, this collaboration extended to the joint publication of a Monthly Food Security Bulletin starting in September of 1995. With the creation of the EU RESAL whose focus in 5 FEWS countries (Mali, Ethiopia, Malawi and Mozambique) was on monitoring and improving the role of markets in food security, FEWS and RESAL shared an interest in food price monitoring, analysis and reporting. New opportunities existed at the end of FEWS III to define and strengthen complementary activities with RESAL.

7.6.2. IGAD

FEWS/Eastern Africa serves as REDSO/ESA's lead technical advisor to IGAD on the development of the Regional Integrated Information System (RIIS). This involves regular collaboration with IGAD staff on the design phase of the RIIS. FEWS/Eastern Africa also participated in the review of IGAD's Disaster Preparedness Strategy and the Food Aid Code of Conduct.

7.6.3. UNICEF

FEWS/Eastern Africa presented a summary of the potential effects of El Niño on food security for UNICEF country directors from East and Southern Africa during their strategy-planning meeting in late 1997.

7.6.4. Drought Monitoring Center—Nairobi

FEWS/GHA planned and implemented the Climate Outlook Forum for the GHA in February 1998, in partnership with the Drought Monitoring Center-Nairobi. The forum brought together more than 150 international and regional climate scientists and food security experts. A consensus forecast was reached and implications for national and regional food security were outlined. The Secretary General of the World Meteorological Organization in Geneva opened the forum, and two Kenyan Ministers and the U.S. Ambassador participated.

7.6.5. Southern African Development Community (SADC)

FEWS/Southern Africa was integrated into the SADC region's Food Agriculture and Natural Resources (FANR) sector located in Harare, Zimbabwe. The Government of Zimbabwe and specifically its Ministry of Lands and Agriculture manage the FANR for SADC. Within the FANR, FEWS collaborated with other SADC-FANR offices and projects, specifically with the Regional Early Warning Unit and the Regional Remote Sensing Project. Within the FANR, FEWS became a formal member of the Regional Early Warning System (REWS) which includes the National Early Warning Units (NEWU) and Systems (NEWS) in the SADC region.

FEWS' role in the REWS was fixed annually in conjunction with other REWS members, by creation and approval of a formal FEWS/REWS work plan that specified what joint activities FEWS would undertake as part of that system. FEWS' role within the REWS was generally acknowledged to include defining a regional VA method, the creation and publication of technical manuals for NEWU use and training in various topics (e.g. early warning techniques, mapping, VA). Manuals completed to-date include an Early Warning Primer, a Price and Market Analysis for Early Warning manual, and a Thematic Mapping manual. FEWS, the REWU, and the Lesotho NEWU undertook a joint VA for Lesotho in 1997/98.

7.6.6. CILSS/AGRHYMET

Beginning with a meeting in April 1998, FEWS and AGRHYMET have worked together to strengthen their cooperation. Subsequent dialogue and contacts led to agreement on an informal agenda for collaboration in the summer of 1999. The filling of the long vacant RFFR for

the Eastern Sahel position in the summer of 1999 led to a further intensification of cooperation. FEWS participated in the 1998 and 1999 meetings of the Network for the Prevention of Food Security Crises in the Sahel. At the 1999 meeting in Washington, FEWS presented its CVA methodology. FEWS also supported the meetings held in March of 1999 and 2000 that reviewed the agriculture season outcome and food aid needs. FEWS' presentation of the findings of its CVAs formed the centerpiece of its contributions to both of these meetings. Working directly with AGRHYMET and its sister organization within the CILSS, the Sahel Institute (INSAH), FEWS facilitated discussions between them concerning the integration of their respective databases. FEWS also serves on the technical and steering committees of the USAID-funded joint WFP-CILSS Vulnerability Assessment and Mapping project which, inter alia, seeks to harmonize and improve vulnerability assessment techniques within the Sahel. Working with INSAH, FEWS prepared a scope of work for a study of methods in current use, which was approved, with amendments, by the technical committee.

7.6.7. Somalia FSAU/UNDOS/FAO

FEWS Somalia participated in the development of crop production maps for Somalia (AgroScene Project), contributed to the development of an integrated FSAU food security database being established with support from FAO. An estimated 75% of FEWS/Somalia activities were undertaken in collaboration with FSAU.

7.6.8. Consultative Group on International Agricultural Research (CGIAR) Association for Strengthening Agricultural Research in East and Central Africa (ASARECA)

FEWS/Malawi attended a meeting in Nairobi on methods for analyzing agricultural markets. The workshop was organized by the CGIAR in collaboration with the regional network ASARECA. The main objective of the training course was to develop the skills of researchers within the national agricultural research system (NARS) and in organizations concerned with agricultural marketing research.

8. Information Dissemination

8.1. Monthly FEWS Bulletins

The FEWS bulletin was the one project-wide means to disseminate early warning information and food security analysis to decision makers within USAID and in Africa. FEWS Washington Published a monthly bulletin based on reports from the FEWS field offices and FEWS Washington analysis. The bulletin included country updates and regional summaries of food security and related issues. Starting in June 1996, there were 23 monthly inserts included in the bulletin. These included in-depth studies, special reports, or vulnerability assessment summaries. FEWS also provided a French translation of the bulletin and inserts, starting in 1996, to enhance access to FEWS reporting and analysis in francophone Africa. FEWS maintained a mailing list of approximately 900 bulletin subscribers from governments, international organizations, non-governmental organizations and the private sector. This list was culled in 1996 to reduce waste, and the mailing database was regularly updated. Each country FFR also maintained a distribution list that included government agencies, donors and NGOs in their respective countries. An advance copy of the bulletin, from the first print batch, was delivered to USAID as soon as it is available for distribution to the Africa Bureau.

8.2. World Wide Web (WWW) Publications

- An archive of past and present FEWS bulletins, special reports, and in-depth studies was available on the web. In 1998, FEWS initiated web publication of the French translation of the FEWS bulletin and inserts.
- FEWS provided regular WWW updates to weather analysis of rainfall estimates, El Niño observations, and ITCZ movements.
- In the final quarter of 1999, FEWS posted a Sahel regional price map on the WWW.
- Using information from FFRs and other sources, FEWS Washington prepared updates for AID/Washington, including dissemination via the USAID Corporate Web (Intranet). Each FEWS Watch was also published on the web for the AID internal corporate Intranet.
- FEWS added the Youth Page to its World Wide Web site with examples of FEWS analysis and methodology. Through the use of photography and simple graphic animation, the key issues surrounding drought and famine in Africa were outlined in a context accessible to younger readers.

8.3. Dekadal Weather Update

The Agroclimatologist standardized dekadal NDVI and Meteosat analysis and distributed results to all field staff, as well as posting on the FEWS Internet World Wide Web site. Intensive studies of agroclimatological conditions were completed for Angola, Djibouti, Kenya, Mozambique, and Somalia.

8.4. Local Publications

Several field offices published local bulletins and reports for the donor and NGO community. For example,

- In Kenya, Monthly Vulnerability Updates were published starting in 1995.
- FEWS/Somalia contributed the sections on rainfall update, vegetation monitoring, market price analysis, agriculture and livestock updates, and southern Somalia flood updates for the Somalia FSAU Monthly Reports. The FSAU Focus, an idea that originated from FEWS, looked at critical issues, synthesizing analysis from different disciplines and perspectives.
- In 1999, FEWS Somalia started preparing dekadal *Rain Watch* reports during rainy season. In Ethiopia, a joint FEWS/EU Monthly Food Security Bulletin was published.
- FEWS southern Sudan produced the joint FEWS/WFP Monthly Update and starting in 1999 produced monthly Vulnerability Updates in conjunction with WFP/FEAU and the newly established FSAG.

9. Computing and Information Systems Management

9.1. Development of FEWS Software Tools

In collaboration with the USGS, FEWS developed a series of data management software programs under Phase II. FEWS III conducted a software needs survey in 1995 to determine software development and upgrade priorities. All the major manager software packages (Agman, Rainman, Priceman, and Spaceman) were upgraded with enhanced features and a Windows-based interface. In 1997, a second round of upgrades was initiated based on user input and the need for 32-bit (Windows 95) compatibility. Priceman was the first one to be completed, followed by Spaceman.

FEWS, USGS, FAO, SADC, and other partners collaborated in the upgrade of the WinDisp software. This software allows analysts to perform basic remote sensing imagery analyses. The software was originally developed under FEWS II with later upgrades financed jointly by USAID/FEWS and FAO. FEWS III desired additional functionality in the software package and coordinated with its partners so that the requested upgrades from various user groups are prioritized and completed in an orderly manner.

9.2. Software Collaboration with FAO

FEWS Washington reviewed the FAO/GIEWS Workstation application for suitability as a management tool for FAO data. Since the FAO Workstation software is developed for FAO analysts in Rome, differences between the FEWS computer network and that of FAO, meant that the Workstation could not be installed directly on the FEWS network unless changes were made. These changes were minor but time consuming. Eventually, FEWS III extracted certain information (e.g. crop zones and road maps) from the Workstation, instead of using the Workstation directly. In 1998, FAO upgraded the Workstation to an Internet-based version called GeoWeb.

9.3. Database Development and Management

FEWS maintained the concept of a minimum database for each FEWS-monitored country. This included remotely sensed images, agricultural production, rainfall, market prices, and population. Whenever FEWS initiated coverage of a new country, this minimum database was created. Some specific examples of database development are:

- FEWS/Southern Africa developed a database on Lesotho containing agriculture, livestock, and census data.
- FEWS/Tanzania collected agricultural census and livestock price data to be incorporated into FEWS data archives and used in vulnerability assessments. It also continued collecting documents and information from regions to complete the national crop calendar and developed a crop calendar for seven zones.

- FEWS/Ethiopia developed large databases for Ethiopia and Eritrea for rain gauge data, prices and agricultural production that are all being maintained and manipulated in the new FEWS data managers. These well-formatted and internally consistent databases, along with the data managers to manipulate them, were provided to the DPPC and a host of other early warning and food security related institutions in Ethiopia. They were archived and used in vulnerability assessments and other FEWS analyses.
- Through close collaboration with the Government of Kenya's Ministry of Agriculture, Kenya Meteorological Department (KMD) and NGOs, FEWS/Kenya collected data that included:
 - Crop and livestock production data for 1991 for all districts and crops and livestock species
 - Food price data from 1992 to present
 - Dekadal rainfall data for 32 synoptic stations, from 1992 to present
- In 1998, FEWS/Eastern Africa compiled an historic database on exchange rate data to assist in the monitoring of regional trade flows. This was incorporated into a new feature in FEWS Priceman software, which allows for advanced price calculations.

9.4. Data Archives

Each dekad, remote-sensing data were downloaded by FEWS/Washington from NASA and USGS sites. Imagery products were converted to the FEWS software format and distributed to all FEWS field offices and FEWS partners, such as FAO, IGAD, and SADC. These data were archived at the USGS. FEWS/Washington also periodically sent market prices, agricultural production and rainfall to USGS for permanent archiving.

9.5. Development of FEWS' Computer Network

FEWS/Washington examined the software and hardware inventory at the beginning of the project, conducted a needs survey, and designed a multi-phase computer upgrade plan. The goal of the plan was to ensure that all FEWS offices had access to adequate computer hardware and software to carry out FEWS work. With rapidly evolving technology in the personal computer field, the plan was designed to include three major phases, implemented from 1995 through 1997. This allowed the project to adjust for changes in technology.

FEWS/Washington also designed an upgrade to the Local Area Network in the Washington office. With the installation of a Windows NT network, improvements in performance, stability and security were realized. The LAN upgrade was followed by office-wide permanent Internet access in June 1996. In early 1998, internet access was further upgraded to an ISDN connection, 6 times faster than the earlier 28.8 KBPS connection. The connection to the Internet provided FEWS Washington with access to data and information resources on the Internet and improved communications through electronic mail and file transfers.

Appendix A: List of FEWS Watches

Number	Date	Subject
1	March 25, 1996	Somalia (Current Jilaal season driest in memory); The Sahel (Suffering from food shortages)
2	May 17, 1996	Djibouti (Deteriorating situation for Pastoralists); Niger (Food Security situation unclear); Kenya (Poor rains)
3	May 28, 1996	Somalia (Deteriorating Situation)
4	June 10, 1996	Somalia (Erratic rainfall during Gu season); Namibia (1995-1996 crop season); Niger (Cereals be released from security stocks); Kenya (May rainfall in high-potential Central Province)
5	June 25, 1996	Djibouti (Appeal for drought relief); Somalia (Poor rains and looting in the Juba Valley); Mauritania (Cereals supplies dwindle); Sudan (Deteriorating food situation in Kordofan Province of N. Sudan); Niger (National Food Security requirements in most stricken parts)
6	July 16, 1996	Sudan (N. Kordofan risk of famine and insufficient time to ship in aid); Niger (Food Security situation remains unclear)
	July 26, 1996	Special Notice on the Sahel Growing Season
	August 6, 1996	Sahel (Rains improved recently in much of the Sahel); Sudan (The food situation in N. Kordofan State remains acute)
8	August 28, 1996	Sahel (Improved rains during late July through August); Ethiopia (Flooding along the Awash River during last July); Sudan (Food situation in N. Kordofan remains acute)
9	September 20, 1996	Special Notice #2 on the Sahel Growing Season for USAID
10	November 5, 1996	Kenya: Problems Reaching Critical Stage in Several Pastoral Districts
11	November 27, 1996	Kenya: "Alert" Status Continues; The Sahel (Effects of Poor Harvest Being Felt in Mauritania and Chad)
12	December 20, 1996	Kenya (Deteriorating Crop Situation)
13	January 27, 1997	Kenya (Disaster Declared in current food situation)
14	February 20, 1997	Need for Emergency Food Aid in the Sahel (MR, CH, NI)
15	February 21, 1997	Kenya (Emergency Food Campaign Under Way)
16	March 20, 1997	Ethiopia (Deteriorating food Security Situation in Southeastern)
17	April 14, 1997	Kenya and the Horn (Rains Begin)
18	May 7, 1997	Somalia (Food situation for farming households continues to deteriorate)
19	June 3, 1997	Somalia (Food relief to most vulnerable areas still stalled)

Appendix A: List of FEWS Watches (continued)

<i>Number</i>	<i>Date</i>	<i>Subject</i>
20	June 9, 1997	Chad and Niger (Continued hardship in parts as observed from FEWS Field Visits)
21	June 23, 1997	Mauritania (Delayed food shipments leave many in dire need)
22	June 25, 1997	Uganda (Eastern Districts face serious food shortages)
23	August 6, 1997	Mauritania (Poor rainfall jeopardizes harvest prospects)
24	August 26, 1997	Tanzania (Needs relief assistance)
25	September 25, 1997	Somalia (Armed clashes disrupts key grain markets)
26	October 30, 1997	Ethiopia (Freak rains threaten mail harvest)
27	November 3, 1997	Somalia (Heavy floods cause crisis in the Juba Valley)
28	November 6, 1997	Eastern Africa (Unseasonable rainfall adversely affects food security prospects)
29	November 6, 1997	Kenya (Exceptionally heavy rains damage maize crops and hamper relief efforts)
30	November 18, 1997	Somalia SPECIAL (Record floods affecting food security)
31	April 14, 1998	Rwanda (Delayed Food Aid Deliveries Exacerbate Food Insecurity)
32	April 28, 1998	Sudan (Increasing Relief as Conditions Continue to Deteriorate)
33	June 12, 1998	Sudan (Immediate Action Needed to Stem Spiraling Crisis in Southern Sudan)
34	July 8, 1998	Mauritania (Extreme Food Insecurity in Aftout Region)
35	July 9, 1998	Somalia (A Plethora of Plagues)
36	September 18, 1998	Tanzania (Central Regions Experience a Second Year of Poor Harvests)
37	November 19, 1998	Somalia (Rainfed Areas of Southern Somalia in Crisis)
38	January 15, 1999	Tanzania (Poor-to-Failed Rains Impact on Tanzania's Food Security)
39	February 24, 1999	Chad (Sudanian Zone – Looming Catastrophe)
40	April 21, 1999	Somalia (A State of Emergency in Northeastern)
41	July 1, 1999	Ethiopia (Rapidly Increasing Numbers of Food Insecure)
42	January 21, 2000	Somalia (Famine Alert in Bakool Region)
43	January 28, 2000	Ethiopia (Government appeals for food aid for 8 million people)
44	June 9, 2000	Kenya (Poor long-rains season leads to Government appeal for aid)

Appendix B: List of FEWS Special Reports and In-Depth Studies

Date	Type	Title
June 1996	FEWS In Depth	Food Security in Kenya
October 1996	Special Report	The Sahel Harvest
November 1996	Special Report	Zaire/Rwanda—Roots of the Problem
February 1997	Special Report	Trade in the Greater Horn
March 1997	Special Report	Southern Africa Food Security
April 1997	Special Report	Vulnerability in Malawi
May 1997	Special Report	Lake Chad—Untapped Potential
June 1997	FEWS In Depth	The Sahel—Living on the Edge
July 1997	FEWS In Depth	Lesotho—Changing Food Security Profiles
August 1997	Special Report	Relearning Lessons in the Sahel
September 1997	Special Report	Monitoring a Complex Emergency: Sudan
October 1997	Special Report	South Africa Going Into the Season
November 1997	Special Report	Floods and Food Security in Somalia
December 1997	Special Report	Uganda Food Security Update
January 1998	Special Report	Food Security in Ethiopia's Somali Region
February 1998	Special Report	FEWS Sahel Vulnerability Assessment
April 1998	Special Report	Southern Africa's Response to El Niño
July 1998	Special Report	East African Food Security
December 1998	Special Report	Current Food Insecurity in Southern Africa
March 1999	Special Report	Sahel Vulnerability Assessment for 1998/1999
July 1999	Special Report	Southern Africa Production Update
December 1999	Special Report	Food Insecurity in Southern Africa for 1999/2000
March 2000	Special Report	Sahel Current Vulnerability Assessment for 1999/2000

Appendix C: List of Acronyms

ACRONYM	Full Spelling
AFFR	Assistant FEWS Field Representative
AGRHYMET	Agronomie-Hydrologie-Météorologie, CILSS program for agriculture, hydrology and meteorology, (Sahel)
AGRITEX	Agricultural Technical Extension Service, Ministry of Agriculture (Zimbabwe)
ALRMP	Arid Lands Resource Management Project, Kenya
ASECNA	Aerial Navigation Security Agency for Africa and Madagascar
CFFR	Country FEWS Field Representative
CILSS	Interstate Committee for Prevention of Drought in the Sahel
COF	Climate Outlook Forum
COTR	Contracting Officer Technical Representative (USAID)
CPCR	contingency planning and crisis response
CRS	Catholic Relief Services
CVA	Current Vulnerability Assessment
CWS	Crop Water Satisfaction Index
dekadal	10-day
DFID	Department for International Development, UK
DMC	Drought Monitoring Centre
DPPC	Disaster Prevention and Preparedness Commission (Ethiopia)
DREM	Water Resources and Meteorology Directorate (Chad)
DSA	Agricultural Statistics Department (Chad)
EU	European Union
FANR	Food Agriculture and Natural Resources (SADC)
FAO	Food and Agriculture Organization (UN)
FEAU	Food Economy Analysis Unit (WFP)
FEG	Food Economy Group
FEWS	Famine Early Warning System
FFP	Food for Peace (USAID)
FFR	FEWS Field Representative
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
FSAG	Food Security Analysis Group (Sudan)
FSAU	Food Security Assessment Unit (Somalia)
FSVP	Food Security and Vulnerability Profile
GHA	Greater Horn of Africa
GIEWS	Global Information and Early Warning System (FAO)

ACRONYM	Full Spelling
GIS	Geographic Information System
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
IAWG	Inter-Agency Working Group
IFAD	International Fund for Agricultural Development (FAO)
IFPRI	International Food Policy Research Institute
IGAD	Inter-Governmental Authority on Development (Horn of Africa)
INSAH	Sahel Institute (CILSS)
ISDN	Integrated Services Digital Network
ITCZ	Intertropical Convergence Zone
KMD	Kenya Meteorological Department
MOA	Ministry of Agriculture
NDVI	Normalized Difference Vegetative Index
NEWU	National Early Warning Unit
NFIS	Eritrean National Food Information System
NGO	Non-Governmental Organization
NMSA	National Meteorological Service Agency (Ethiopia)
NOAA	National Oceanographic and Atmospheric Administration
OFDA	Office of Foreign Disaster Assistance
ONDR	National Development Office (Chad)
PAM	Programme Against Malnutrition (Zambia)
REDSO/ESA	Regional Economic and Development Support Office/East and Southern Africa
RESAL	Réseau Européen de Sécurité Alimentaire (European Food Security Network)
REWU	Regional Early Warning Unit
RFE	Rainfall Estimation
RFFR	Regional FFR
RIIS	Regional Integrated Information System
RRSP	Regional Remote Sensing Project (SADC)
ROPANAT	Natural Pasture Observation Network
SADC	Southern African Development Community
SCF	Save the Children Fund
SODELAC	Lake Chad Development Society (Chad)
SRRA	Sudan Relief and Rehabilitation Association
SRP	Sahel Regional Program
SST	Sea Surface Temperature
UN	United Nations
UNDP	United Nations Development Program

<i>ACRONYM</i>	<i>Full Spelling</i>
UNEP	United Nations Environment Program
USAID	United States Agency for International Development
USGS	United States Geologic Survey
VA	Vulnerability Assessment
VAM	Vulnerability Analysis and Mapping (WFP)
WFP	World Food Programme (UN)
WHO	World Health Organization (UN)
WWW	World Wide Web