

USAID

highlights

Vol. 4, No. 4

FALL 1987

Early Warning May Avert Famine

Many Americans watched in shock and dismay a few years ago as pictures of thousands of starving Ethiopians filled their television screens or stared at them from the pages of newspapers and magazines.

The crisis had a deep and profound effect on America and other countries that witnessed the suffering. The United States responded quickly and generously with \$2 billion in food and other aid, saving countless lives.

Unfortunately, food shortages are threatening once more. Because of historically poor rainfall and continued soil erosion, Ethiopia and other countries in the sub-Saharan region of Africa are susceptible to famine, which may again cast a dark shadow over that region of the world.

Compounding the effects of drought are the often disastrous policies in agriculture and marketing that some countries, particularly Ethiopia, continue to follow.

But if tragedy looms, the U.S. Agency for International Development (USAID) has an advantage that it did not possess in 1984-85. The Famine Early Warning System (FEWS), which is administered through the Agency's Bureau for Africa, is an important difference in today's situation from the one a few years ago.

The system, which emerged from the experiences of the last drought, alerts policy-makers, whether in the United States or in Africa, to potential famine conditions as early as possible, serving as a triggering mechanism for governments and private organizations



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to take action that will alleviate suffering and save lives.

WARNING SIGNS

When people hear the term early-warning system, they probably imagine radar and the very latest sophisticated technology—detection devices connected to some kind of mechanism that sets off alarm bells

when an attack is imminent.

FEWS incorporates satellite imagery and other sophisticated tools and, in many respects, is on the cutting edge of technology. But it has something else that makes it unique: the human element.

"Unlike other systems, FEWS emphasizes social data along with physical data," says Bill Trayfors, a USAID official in Washington, D.C. "In looking for potential famine conditions, we previously would examine climate, weather, crop patterns and other elements. We still review all those, but now we also look at people themselves, their condition and their behavior."

The result?

"We get a more complete picture of a particular situation at a particular time because FEWS is designed to be comprehensive," says Trayfors. "We might get reports from the ground that would indicate problems, and we can then try to confirm them through other means, such as satellite surveillance or aerial surveys. Or, we might notice something from satellite imagery but not be sure that a certain area is being affected until we confirm it through ground investigation."

A system based primarily on changes in the physical environment is too restrictive, says Paul Krumpke of the Office of U.S. Foreign Disaster Assistance (OFDA), which is part of USAID. "The idea that famine is caused principally by drought is too simplistic," he notes. "Famines can be as much a result of the behavior of

social systems as they are of natural calamities."

In the wake of the 1984-85 drought, Agency officials knew that the precarious climate conditions in Africa meant that famine could strike again. USAID and other donors were concerned that their information about certain areas or even entire countries was incomplete.

"The only way to achieve a comprehensive view of food-shortage problems is to merge weather information, physical information and agricultural information with observations of human behavior as reflected in social and economic systems," says Trayfors.

USAID decided to enhance its own reporting efforts and produce a system that would provide a more complete—and more accurate—picture. "The Agency already was conducting measurements of rainfall and other physical factors, which could be tracked over time," says Julia Taft, director of OFDA. "For example, we had been monitoring weather changes for several years. We then began to integrate on-the-ground reports into the system."

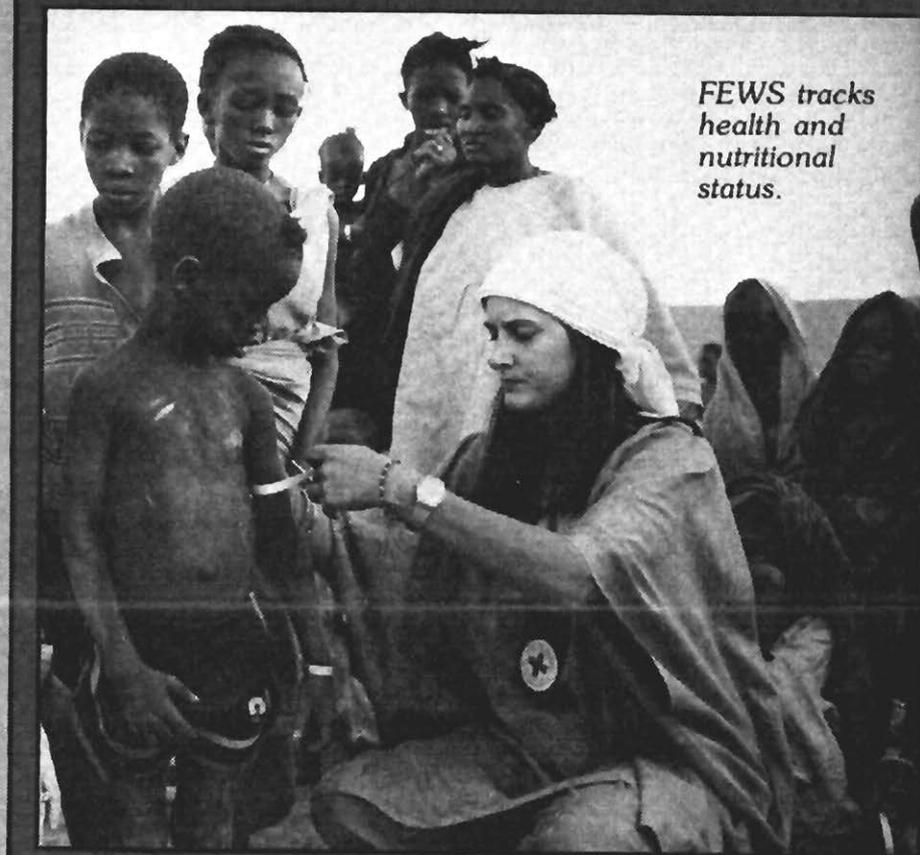
Trayfors notes that the Agency also refined some of its technology, particularly the use of satellite imagery and computer analysis, speeding the analyzing and reporting process considerably.

THE HUMAN ELEMENT

If an organization decided to establish a monitoring system to warn about impending famine, it would probably begin by tracking weather patterns, seasonal rainfall, vegetation change, crop yields and production. By monitoring physical elements over time, one could get some idea of recurrent patterns.

All those components are included in FEWS, and comparisons are constantly being made. But the system extends well beyond that.

"Under FEWS, we look at a whole range of social indicators," says Trayfors. "For example, where possible, we track health and nutritional



FEWS tracks health and nutritional status.

status, water supplies, prices, food stocks, seed availability and population movement."

The Agency contracts with Tulane University to provide advisers in eastern and Sahelian African countries most susceptible to drought. The advisers, working with USAID staff already in place as well as with host governments, other donors and private voluntary organizations (PVOs), are familiar with the cultures and customs of those countries. They are equipped with microcomputers and software designed to assimilate large amounts of information.

"The people who live in the sub-Saharan region of Africa live on the margin, and they know it," Trayfors points out. "They have faced this situation for a long time, and they have developed ways to cope with it."

USAID and other donors understand some of those coping mechanisms and are trying to comprehend others because determining the way people respond to an emergency is an important part of the FEWS effort. "People build in

resistance to drought and hard times," Trayfors continues. "They may have stored food or put aside some valuables that they can trade for food. They may change their diet or migrate temporarily.

"When people behave in a certain way in response to certain situations, a trained observer can look for those signs of change that can be a tip-off to problems."

Ground observers in some ways "are doing a lot of old-fashioned detective work," Trayfors says. Their efforts are combined with modern tools such as computer analysis that have added considerable sophistication to the traditional process of gathering and analyzing information.

"We call it 'convergence of evidence,'" says Trayfors. "We sift through the data collected from satellite imagery, from aerial photography and from our ground sources and try to put it together. With an overall picture, we can make an assessment that is often more complete and, we hope, more accurate."

EARLY WARNING MEANS BETTER PREPARATION

The comprehensive nature of the program gives the U.S. government and other donors a key advantage: By identifying potential problems at an early stage and avoiding reliance on conflicting estimates and analyses from various sources, policy-makers have more options and more time to exercise those options.

For example, Krumpke notes, **"Food aid often can be transported at lower cost by ship or land than by air, if sufficient warning is received."** Food prices can be adjusted or seed and food storage can be increased. And, aid can be pinpointed to an area that is particularly hard-hit or likely to experience hardship.

Donors also may be able to prevent a repeat of the mass migration that occurred during the 1984-85 famine. Taft points out, "FEWS can give policy-makers enough warning so that food can be delivered to people where they live so they don't have to leave their homes in search of food, become weak and possibly die."

BUILDING THE SYSTEM

Developing FEWS was no small task.

"We were basically starting from scratch in compiling some of our information," says Krumpke. For example, historical data about rainfall amount and distribution is lacking in some developing countries. Many governments have not completed a census in decades, which means USAID and other donors have little idea how many people actually live in some countries and where they are located within the country.

To overcome those obstacles, USAID obtains social data from a variety of sources, including host governments, the United Nations, various international organizations, PVOs and other donors.

Many of the sources that furnish social data also provide physical data. USAID works with government agencies such as the U.S. Department of

Agriculture, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration and the U.S. Geological Survey to obtain detailed meteorological and climatic data through remote sensing techniques.

USAID uses a private firm, Price, Williams and Associates of Silver Spring, Md., to analyze technical data and to produce the periodic bulletins and country reports.

After information has been collected and analyzed, it is disseminated to agencies and policy-makers. A two-page "FEWS Bulletin" goes out every 10 days, and a report on the affected countries is issued once a month. The bulletin contains brief summaries of the situation in each country, along with reproductions of satellite imagery and maps. The country report contains more detailed information.

The bulletin's one-paragraph summaries outline the situation in Chad, Ethiopia, Mali, Mauritania, Niger, Sudan and Burkina Faso. These countries, along with Mozambique, are the present danger spots.

In addition, the advisers from Tulane provide more extensive reports in French (the official language of much of Sahellian Africa) to local officials.

USAID also has access to a NASA-compiled data base for satellite im-

agery dating back to 1981, which permits analysts to compare imagery today to that of five or six years ago. The Agency also keeps records of all bulletins and country reports, along with records of crop production, weather patterns and geographical information.

A LOT FOR A LITTLE

From the time FEWS was started in 1985, USAID has invested about \$6 million in its development. The current cost of operating the system is about \$2 million a year, Trayfors says.

"Given the limited number of people involved and the dollars spent, FEWS is quite a bargain," says Trayfors. "Nonetheless, in these times of budgetary constraints, we are looking for ways to reduce the costs still further. One obvious way is to spin off the FEWS technology to other Agency development work."

The system already helps in different ways, as Taft notes. For example, throughout Africa locusts are often as great a threat to crops as lack of rain.

"After long periods of drought, locust eggs hatch when the rains come," she says. "We need to know where the rain has fallen so we can target our ground and air surveillance

Aid can be pinpointed to an area that is particularly hard-hit.



of the locusts. Once we know just where they are, we can continue our eradication efforts."

FEWS technology and concepts can be used to monitor potential drought situations in regions other than Africa, says Krumpe, adding, "We may be able to use it all through south Asia."

WHAT THE SYSTEM CAN—AND CANT—DO

Technology is proving to be an effective resource in recognizing drought and in helping the Agency and other donors combine their efforts to combat it.

"Computer software is now being developed that will give analysts more capability to interpret satellite data," says Trayfors. "The software will be compatible with small, personal computers that are in the field."

"But no matter how advanced the technology becomes, the people in the field will be a critical part of FEWS."

"You may have an image from a satellite and other information that you've received from aerial photography and geographical surveys and think you know what's going on," says Trayfors. "But until you have that essential information from the ground, you won't have a complete picture."

Taft notes, "FEWS is a means by which information can be conveyed,



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and then policy-makers have to decide what to do. That, in the end, is the most important thing. What do we do once we know problems exist?"

Host governments and the international donor community, of which USAID is a part, must act together, she says, adding that without sound economic policies or the cessation of regional hostilities, famine relief will

have only limited success.

"Ultimately, the solution to hunger and famine is the process of development by Africans," says Trayfors. "FEWS can be useful as a tool in providing and analyzing information needed to help decision makers at all levels achieve food security for the people of Africa."

IN THE FUTURE

FEWS has profound implications for long-term economic development, says Krumpe.

"If, over time, we can monitor weather and agronomic conditions, as well as social systems and behavioral patterns, we can tailor agricultural planning such as planting cycles and fertilizer treatments to maximize production. If production, in turn, is increased, food shortages are less likely, and political stability is enhanced."

In addition, says Trayfors, FEWS enables the Agency to make decisions based on its own data gathered through a system that incorporates the latest technology.

President Reagan in September 1986 announced the Initiative to End Hunger in Africa, a "policy against tragedy" as USAID calls it. The initiative involves a focused effort by international donors and host countries to end the curse of famine forever. FEWS is an integral part of that process.

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