3. Climate Fora

Efforts to Advance the Application of Climate Forecasts, July 1997-June 1998.[28]

Since 1993, the U.S. Agency for International Development's Office of U.S. Foreign Disaster Assistance (USAID/OFDA) has been working with the U.S. National Oceanic Atmospheric Administration's Office of Global Programs (NOAA/OGP) to use climate forecast information to reduce disaster impacts worldwide. This partnership reflects the organizations' complementary mandates, under which NOAA coordinates the provision and dissemination of early climate forecasts, based on El Niño and other key indicators. USAID promotes its application to prevent and prepare for impacts associated with droughts, floods and storms. Cooperation between these two U.S. government agencies has made information available to the International Research Institute for Climate Prediction, which publishes climate forecasts for use in vulnerable regions worldwide. Joint planning and funding also led to the convening of nearly a dozen regional climate outlook and applications fora in Latin America, Africa and Asia, which provided information that saved lives and reduced disaster relief costs during the ENSO 97/98.

In Latin America, climate outlook fora, applications workshops and conferences were convened in Peru, Uruguay, Brazil, Jamaica and Panama. Each event brought together climate stakeholders from research and forecasting communities, and individuals involved in risk management efforts in climate-sensitive sectors. Information generated by these events contributed to the reduction of risks and maximization of benefits posed by the strong El Niño event. Citing the actual and potential utility of these endeavors, participants recommended the institutionalization of mechanisms and activities to advance the production, dissemination and application of climate forecast information.

OFDA/Latin America-Caribbean (OFDA/LAC) has participated in each of these fora. OFDA/LAC's specific interest was to incorporate the concept of risk management into the work of those who prepare climate predictions and translate them for critical sectors, as well as for end users of climate information systems.

4. OFDA/LAC Strategy Regarding ENSO

As a result of the first climate forum in Peru in October, OFDA/LAC and OFDA/Washington agreed to develop an ENSO project for Latin America, as they were concerned by the potential effects of ENSO in several countries of the region – particularly Peru, Ecuador, and Bolivia. Although these countries were not the only ones likely to be severely affected by ENSO, the outlook provided by NOAA indicated that there was a high probability that they would experience the worst effects.

[28] OFDA/NOAA – PACIS Reports 1998.

Elements

The strategy adopted by OFDA/LAC consisted of the following three elements:

- A Mission ENSO Coordinator (MEC) would be hired in each of the USAID Missions in Ecuador, Peru, and Bolivia, with funding shared by OFDA and the USAID Missions;

- A Regional ENSO technical coordinator would provide periodic guidance and technical advice to the three Mission ENSO Coordinators; and

- An ENSO Documentation system would be established to collect, assemble, classify, cross-reference, preserve electronically and make available to concerned entities useful information on the effects, response, and lessons learned.

Guidelines for Missions

The following guidelines were given to the USAID Missions regarding the MEC's tasks:

- Compilation of information concerning El Niño - it was suggested that Missions consult the Internet Homepage for NOAA and other websites;

- Contact official government agencies, such as, Meteorology, Civil Defense, Health, Agriculture and relief entities, to determine the level of impact expected, and their capacity to respond to the event, including political, economic, social, cultural and institutional aspects;

- Contact international agencies to determine what actions are being planned in order to avoid duplication of efforts and emphasize the positive aspect of international cooperation, recognizing that the UN Development Program (UNDP), the Pan-American Health Organization (PAHO), the World Food Program (WFP), Inter-American Development Bank (IADB) and other multilateral and bilateral agencies, as well as non-governmental organizations (NGOs), play an important role;

- Analyze the possible impact of El Niño on USAID projects. Analyses should include projects in the design stage, those being carried out, and even those that have been terminated, in order to monitor ENSO's overall impact on development;

- Follow-up on El Niño by recording important facts and data such as:
  - Legislation and guidelines regarding the topic
  - Sectoral contingency plans
  - Significant press coverage
  - Agency impact reports
  - Ongoing institutional and community response to the impact of El Niño

- On-going feedback and recording of the evolution of the evolution of ENSO 97/98 will help the systematization of experiences gained during the current event and benefit future responses to El Niño events.

- Provide informed opinions concerning the probable impact of El Niño on emergency and contingency plans developed by national, regional, departmental and local governments, which should result in recommendations for the Mission as to its role vis-a-vis El Niño;

- Maintain continued contact with USAID/OFDA for sharing information regarding the above-mentioned points, and to establish a plan of action to confront the probable adverse effects of El Niño.

4.1 Risk Management

Risk management was an essential approach for OFDA-LAC's ENSO project. Some key terms are defined below:

Hazards result from a natural process or human activity that can affect a specific location with a specific magnitude and duration.

There are scientific indicators for measuring the progress of ENSO – changes in SST, atmospheric pressure, etc. – but for risk management, rains and temperature are the most practical and useful measures. Actions taken on the basis of these indicators can be designed either to avoid problems, or to take advantage of certain favorable conditions.

Vulnerability: an internal risk factor related to a subject or system exposed to a hazard, related to its intrinsic tendency to be damaged.

Scientific and technical hazard studies are important, but emphasis needs to be placed on understanding the internal characteristics of the subject exposed to specific hazards. Physical, social, economic, educational, political and cultural factors, among others, contribute to creating what is termed "global vulnerability".

In their book *Desastres Naturales, ¿Fuerza mayor u obra del hombre?*, Anders Wijkman and Lloyd Timberland write that, "vulnerability is equal to the lack of development." In other words, vulnerability is an unresolved development problem.[29]

Proximity or exposure to a hazard, capacity/resources and marginality determine the level of vulnerability:

- Given an increase in population, more people are exposed to hazards, i.e., more people are living in disaster-prone areas such as riverbanks, unstable soils, etc.;

[29] Wijkman, Anders and Timberlake, Lloyd, Desastres Naturales, ¿Fuerza mayor u obra del hombre?, First edition in Spanish, Earthscan, London, 1985.

- A high percentage of a population is worried about survival on a day to day basis. They don't think about an earthquake, or flash flood – only about how they can find food for today and tomorrow;

- Marginality is one of our main problems today. Ethnic, religious, social, economic, political and educational problems contribute to this marginality.

Risk: the probability of exceeding a specified level of social, environmental and economic damage, in a specific place and time.

Risk results from the relation between a specific hazard and vulnerability, which can be expressed by the equation R = H V.

Only when this relationship is understood, can we determine risks. Understanding risks will allow us to reduce both hazards and vulnerability, before they become disasters.

Acceptable Risk: the specific value of damage that the community is prepared to support.

Accepting risks is an action that each of us undertakes daily. When somebody, aware of the risks involved, decides to live on a dike, near or on a seismic fault, he or she accepts certain risks. When a mayor decides to build a bridge, he or she needs to know the flow of the river, its maximum levels, and have sufficient funds available to evaluate appropriate options and determine acceptable risk.

Until the 1990's, most people working in emergencies and disasters considered disaster management as the ultimate goal. The focus was on identifying hazards and anticipating measures to minimize the impacts. Disaster Management emphasizes preparedness and response/relief through a) scientific and technically-sophisticated agencies and; b) the relief agencies, health services, public works, the military and other logistical organizations.

Risk Management: interventions that will help to avoid and/or reduce the adverse effects of an event. Activities focus on prevention (avoiding risks) and mitigation (reducing risks). In risk management there are other, newer players – development institutions, planning offices, community organizations – in addition to the institutions mentioned above. The concept of risk management is still relatively new in Latin America, and while there has been some progress in its incorporation into planning processes, there is still a long way to go.

Because the term "risk management" is more comprehensive than "disaster management", it is preferred by today's academics and practitioners.

The ENSO event – given its periodicity, magnitude and the possibility of anticipating its arrival – presents a unique opportunity for applying and observing the results of risk management over the relatively short-term.

4.2 Implementation of the strategy

Juan Pablo Sarmiento, a consultant with experience in disaster management at the national level, was hired as the Regional ENSO Technical Coordinator in November 1997. Sarmiento also works with OFDA/LAC's Training Program. His role was to participate in meetings of technical and scientific nature, coordinate with international cooperation and funding agencies, and to provide advice to USAID Missions and national disaster institutions, in close coordination with the Regional Advisor for South America, René Carrillo.

November was also the month for moving the ENSO project forward in the three selected missions – Ecuador, Peru, and Bolivia. Freedom was given to the missions for selecting their MECs. While the missions used different selection and hiring processes, there was agreement that the contracts would have a six-month duration.

Not until December was the first MEC was hired - USAID/Ecuador being the first to comply. Michael Hacker was hired under a purchase order, which turned out to be the most expedient hiring process. Hacker is a former USAID direct-hire and resident of Ecuador.

In the case of Peru and Bolivia, the process was much slower as the Missions decided to use personnel service contracts (PSC), which required open competition. Staff was not hired until early January 1998, due to the bureaucratic hiring process. In Peru, an American citizen, Julie Leonard, was hired. Leonard has lived in Peru for several years and was the former representative of Save the Children Canada.

In Bolivia, Salvatore Pinzino, another former USAID employee, was hired. Pinzino is an American with vast experience in food programs and disaster assistance, and lives in Bolivia.

A documentalist with a background in Public Health – Jane Begala – was also hired in OFDA/LAC for a three month period. Her job was to organize the correspondence and the documentation on ENSO.

4.3 MEC Training

On January 13-14, 1998, a workshop was held in San José, Costa Rica with the purpose of presenting and discussing basic information related to El Niño. The topics included ENSO Team composition, guidelines, structure, and mode of operation for establishing an effective ENSO Team.

The participants were the MECs from Bolivia, Peru, and Ecuador; Dr. Ronald Woodman of the Instituto Geofisico of Peru; Paul Bell; Nina Minka; René Carrillo; and Juan Pablo Sarmiento.

As part of their training, the MECs were invited to participate in a course held in Columbia on "Disaster Assessment and Needs Analysis," which introduced them to the methodology promoted by OFDA in Latin America.

4.4 Location of the MECs and scope of work

The MECs had different locations within the Missions' structures. In Peru and Bolivia, the MECs worked in close coordination with the Mission Disaster Relief Officer (MDRO), while in Ecuador, the MEC reported directly to the Mission Director. During the first five months the initial approaches to the work were also different. Both Peru and Bolivia immediately experienced ENSO impacts that involved the Missions, and both MECs became involved in response operations.

USAID/Bolivia's El Niño response was based on Pinzino's experience and MDRO Laurence Rubey's interest. The MEC/Bolivia provided both proof and technical advice to the Mission and to the Bolivian governments' entities on the growing drought situation in the Sierra. Using resources from the Mission's regular food security program, three NGOs already working with USAID – and in particular, Project Concern International (PCI) – became involved in the emergency response, with very positive results.

Following the earthquake in Aiquile on May 22, 1998, an assistance project financed by OFDA and implemented primarily by PCI was initiated. As the MEC's contract had already ended, the response was handled by the MDRO with the support of OFDA Consultants Carlos Córdova and Jorge Grande.

In Peru, the principal impacts occurred during the months of January, February and March, which generated a response by OFDA, consisting of rolls of plastic sheeting, water reservoirs and grant funding. The grants were implemented by the NGOs, ADRA, CARE, and CARITAS, while some of the resources were transferred to the National Institute of Civil Defense (INDECI). The MEC's contract was extended twice, given the intensity and dispersion of El Niño impacts throughout the country, as well as the size of the assistance program.

In Ecuador, the USAID Mission decided to help the Ecuadorean government through its Economic Support Fund program (local currency), and the provision of technical advice. As the decision was made not to renew the MEC's contract, his functions were transferred to the Mission's Project Official, Patricio Maldonado. Maldonado, who has an in-depth knowledge of the Mission's portfolio, could identify specific response measures, to be implemented by USAID, OFDA, the Ministry of Health and the Ministry of Housing.

5. Forest Fires

ENSO simultaneously created both an excess and deficit of rains. A number of different 'deficit' situations occurred, such as drought in Bolivia and fires in areas where a number of variables come into play, including organic mass, temperature, moisture, and propitious winds. In the Brazilian state of Roraima, a forest fire that covered to 9,254 Km2[30] (925,470 hectares) was reported in March in the Amazon region. This fire destroyed the theory that there was little probability of fire in the Amazon jungle because of its high moisture and type of vegetation. It also showed the powerful influence of ENSO's extreme climatic variations on ecosystems, as well as the tragic impact of the "slash and burn" agriculture.

A few weeks after the fire in Roraima, the mass media began reporting an outbreak of fires in Central America. Fires occurred in the following countries: a) Mexico - 506,946 hectares affected;[32] b) Guatemala - 400,000 hectares affected;[33] Nicaragua - 804,000 hectares affected;[34] c) Honduras - 51,511 hectares affected;[35] and d) Costa Rica - 40,000 hectares affected.[36] Fires were reported as early as January, with the largest number occurring during May and June 1998. Visibility was reduced and air quality deteriorated in the affected countries due to the presence of smoke and ash. Smoke extended into the south and mid-western areas of the United States. Due to the severity of the conditions, drastic measures were taken to limit the outdoor activities of children and adults with respiratory problems.

During late June-early July, the state of Florida recorded the largest number of fires in its history, effectively destroyed 200,000 hectares.[37] Community volunteers, relief groups, military forces and the use of sophisticated land and air equipment were not sufficient to control these fires, which were finally extinguished by rain.

Over the past seven years Luisa Alfaro, a Costa Rican fire management specialist and OFDA/LAC instructor, has been developing a training program on forest fires. During the 1998 fires, this course material was adapted and applied rapidly. The course outlines the materials and equipment needed for fire control, which facilitated the purchase and distribution of appropriate materials to Mexico and the various Central American countries.

Currently, OFDA offers a basic course in Forest Fire Prevention and Control, which lasts for six days and is designed for Brigade Chiefs. A three-day version of this course, called the Forest Firefighter Course, has been developed for illiterate personnel. Given the

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[30] OCHAGVA-UN, Situation Report 98/0184, 09 Apr 1998.
[31] OCHAGVA-UN, Situation Report 98/0184, 09 Apr 1998.
[32] USAID/BHR/OFDA Situation Report #20 Mexico & Central America – Fires, 25 Jun 1998.
[33] USAID/BHR/OFDA Situation Report #12: Mexico & Central America – Fires, 08 Jun 1998.
[34] USAID/BHR/OFDA Situation Report #12: Mexico & Central America – Fires, 08 Jun 1998.
[35] USAID/BHR/OFDA Situation Report #12: Mexico & Central America – Fires, 08 Jun 1998.
[36] USAID/BHR/OFDA Situation Report #18: Mexico & Central America – Fires, 18 Jun 1998.
[37] CNN, 7 julio de 1998.

characteristics of the target audience, the material is primarily graphs and tables, with limited texts. Special emphasis has been placed on personal safety. A one-day seminar is being developed for lower level fire fighters, as well as an "training for trainers" course, which gives sustainability to the program.

6. Institutional Impact Assessment

Since August 1997, new structures in Colombia, Ecuador, Peru, Bolivia and Chile have been developed to deal with the situation caused by ENSO, supplanting the traditional civil defense or emergency management agencies. Without exception, their creation has caused conflicts and communication and coordination problems. International cooperation, promotion, and financing agencies have had to work with newly-created administrative entities, which basically have no experience. Some of these entities have already gone through multiple changes, especially in Ecuador and Peru.

This is not a new situation – the region has a history of sidelining the institutions created for emergency response when large-scale disasters occur. Politicians temporarily appoint trusted associates to deal with the situation, as disasters tend to become politicized rapidly. The following people were made responsible for ENSO management in their country: a) in Peru, the President of the Cabinet; b) in Ecuador the Vice President of the Republic; c) in Bolivia, the Minister of Defense; and d) in Argentina, the presidential candidate for the governing party.

These developments are significant for OFDA. For more than 10 years OFDA/LAC has implemented a training program for emergency and disaster management directed toward first response agencies such as health, education, and coordination organizations. During the current event, these agencies have been displaced or limited in their functions. However, once the ENSO is over, it is expected that the agencies will return to dealing with daily emergencies. OFDA has invited Dr. Richard Olson of Florida International University to study the causes and characteristics of the institutional impact of the ENSO 97/98.