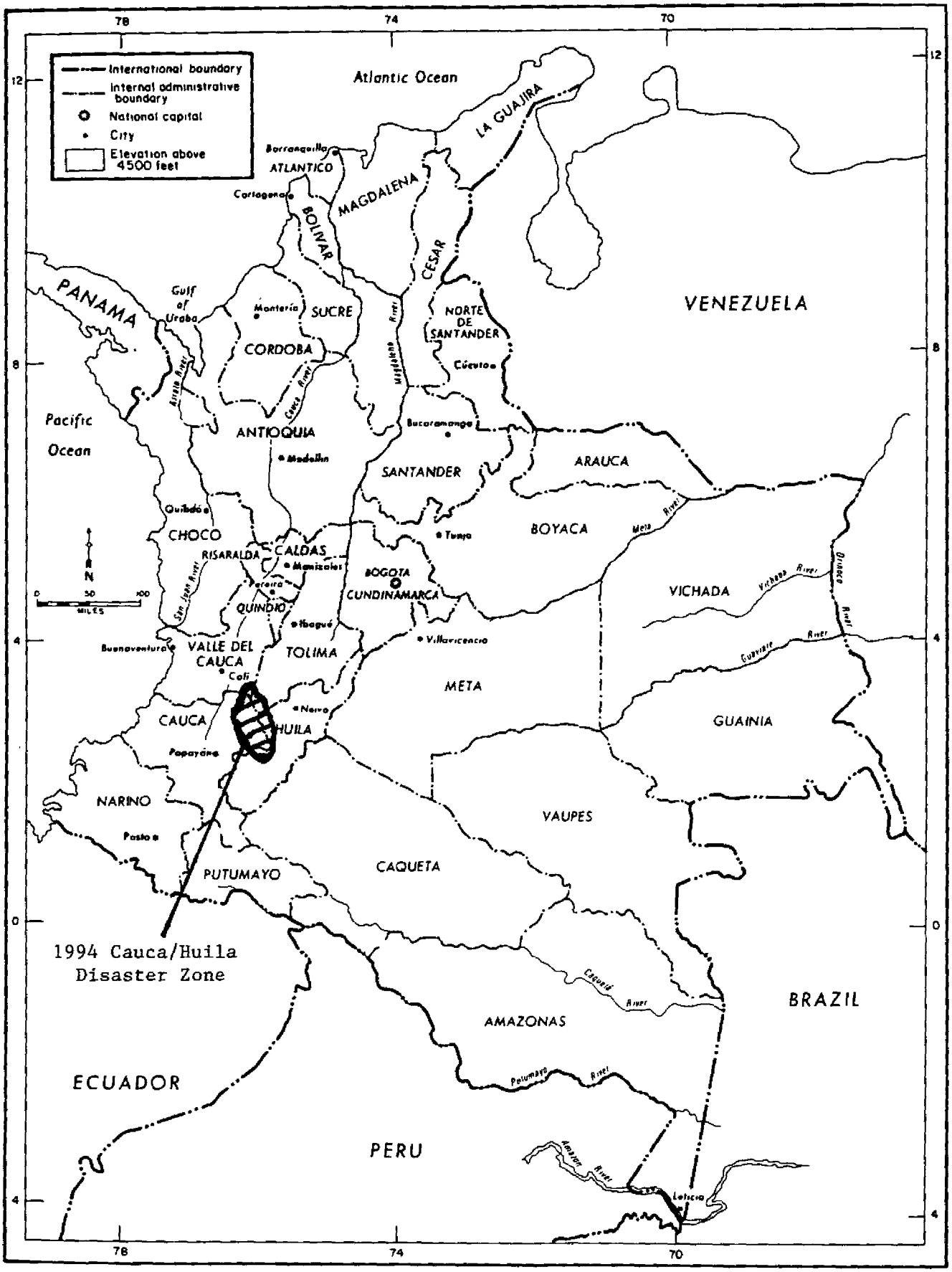

Map of Colombia, from Howard I. Blutstein and Thomas E. Weil, *Area Handbook of Colombia*, 3d ed. (Washington, DC: Government Printing Office, 1977).

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EXECUTIVE SUMMARY

In 1989 the USAID Office of U.S. Foreign Disaster Assistance (OFDA) initiated a "Disaster Training Program" for the Latin America and the Caribbean (LAC) region. The purpose of the training program is to increase the domestic disaster management capabilities of LAC nations and thereby decrease over the long term the need for large scale United States Government (USG) relief assistance. Of all the countries in the region, Colombia has been the most active in the program to date, and Colombian personnel trained in the OFDA/LAC program are the focus of this evaluation.

A June 6, 1994 compound disaster (earthquake, landslides, mudflows) in southwestern Colombia, affecting primarily indigenous populations in the departments of Cauca and Huila, provided a specific event context in which to evaluate the effectiveness and impact of the OFDA/LAC Disaster Training Program.

In this disaster, more than 600 people were killed and 200 injured. Approximately 6,000 were left homeless and another 11,600 temporarily displaced. The total number of people affected was approximately 28,000. Because the disaster occurred in a zone noted for guerrilla activity as well as for involvement in the illegal narcotics trade, Colombian security forces controlled access to the zone and were principal actors in the response. Both factors complicated the tasks faced by the responding civil agencies and also constrained the manner in which this evaluation was carried out.

The evaluation is based on a document review and interviews at OFDA/LAC offices in Costa Rica and field observations and interviews in Colombia. It focuses on individual and organizational performance in both normal and disaster response modes. The following conclusions derive from this evaluation:

(1) Colombian participants in the OFDA/LAC Disaster Training Program have changed their normal mode as well as disaster mode behavior as a direct result of the training, demonstrating increased competence and professionalism.

(2) Several Colombian organizations have adopted and internally funded all or part of the OFDA/LAC curriculum; adoption, however, is not uniform across relevant organizations, and the sustainability of commitments remains questionable.

(3) Colombian national response to the 1994 Cauca/Huila disaster was relatively self-sufficient and required only minor, highly specialized USG relief assistance, especially when compared with USG assistance to Colombia for the Nevado del Ruiz/Armero disaster of 1985.

I. Introduction

In 1989, the USAID Office of U.S. Foreign Disaster (OFDA) began developing a "Disaster Training Program" for the Latin America and Caribbean (LAC) region. The purpose was to increase national self-sufficiency in disaster management. To date, the single most active country in the program -- the country with the largest number of courses and participants -- has been Colombia.

In southwestern Colombia, on June 6, 1994, the area between the administrative departments of Cauca and Huila experienced a compound disaster: A Richter magnitude 6.4 earthquake near the Nevado del Huila volcano triggered landslides on the mountain itself and resultant mudflows in lower elevation valleys. Early reports of a volcanic eruption proved incorrect, but between the earthquake, the landslides, and the mudflows, more than 600 people were killed, 200 injured, and more than 17,000 left at least temporarily homeless. The total number affected by the disaster was approximately 28,000.

The 1994 Cauca/Huila disaster offers an event against which expected impacts of the OFDA/LAC Disaster Training Program can be evaluated. In addition, because of numerous similarities, the 1994 Cauca/Huila disaster allows an approximate "paired comparison" with a disaster nine years earlier (i.e., prior to the initiation of the OFDA/LAC Disaster Training Program) in the same country: the 1985 Nevado del Ruiz/Armero event.

While this evaluation report focuses primarily on the OFDA/LAC training program, overlap into event response issues is inevitable. The findings section especially will show the overlap.

II. Program Evaluation: Purpose and Methodology

Program evaluations serve a dual purpose: (1) they provide feedback to managers on the accomplishments and shortfalls of a program, and (2) they identify problems or issues in a program which may not be readily apparent to those responsible for daily operations. Evaluation information then becomes one part -- but only one part -- of an overall decisionmaking process on program expansion, contraction, termination, or redirection. External evaluations in particular serve as reality checks, or at least as inputs from a different perspective, on program status and evolution.

This evaluation report is based on (1) a review of documents in the OFDA/LAC offices in Costa Rica, (2) interviews with OFDA/LAC personnel and consultants in Costa Rica and Bogotá, (3) twenty-two confidential field interviews in Colombia both at the level of Bogotá and in the Cauca/Huila disaster zone, and (4) field observations in the disaster zone.

A methodological caveat: Financial limitations as well as security concerns in Colombia meant that the interview subjects were not randomly selected from the population of all Colombians who have taken one or more courses in the OFDA/LAC Disaster Training Program. Strictly speaking therefore, it is impossible to generalize from these interviews to the total pool of former participants. Nonetheless, because of familiarity with, and/or direct involvement in, the 1994 Cauca/Huila disaster, these interview subjects constitute minimally an informal focus group.

This report will open with a brief review of the origin and evolution of the OFDA/LAC Disaster Training Program. The next section outlines a framework for training evaluation which has become a classic in the field. However, disaster response agencies like OFDA present special evaluation challenges, so the framework required specific modifications, as will be explained.

The 1994 Cauca/Huila disaster and both the national and international (especially the USG) responses will then be reviewed. The report subsequently attempts to identify the impacts in the Colombian response of the OFDA/LAC Disaster Training Program -- a type of Sherlock Holmesian search for training program "footprints." These footprints are concentrated in the findings section. A conclusions section, a lessons learned section, and a recommendations section will round out this report.

III. The OFDA/LAC Disaster Training Program

For the Office of U.S. Foreign Disaster Assistance, 1985 was a critical year in the LAC region. A major earthquake in Chile on March 3 was followed on September 19 and 20 by twin earthquakes which devastated central zones in Mexico City. The Mexico disaster was followed less than two months later (November 13, 1985) by the eruption of the Nevado del Ruiz volcano in Colombia and the ensuing near total destruction of the city of Armero by lahar (a heated mudflow).

In these three events alone more than 30,000 people were killed (summing the official figures; unofficial estimates are much higher), and the number rendered homeless neared 1 million. The fact that all three disasters occurred within a nine month span had a cumulative psychological impact throughout the Western Hemisphere.

In December 1985, OFDA/Washington responded organizationally to this wave of disasters by formalizing a three-person Regional Team to be established in the LAC region and based in the USAID Mission in San José, Costa Rica. A fourth member was added to the team in 1987. The purpose of the Regional Team was to assure that the USG had a continuing and regionally sensitive presence in the LAC region to (1) respond to disasters and coordinate USG relief efforts in a timely and effective manner, and (2) promote disaster prevention, mitigation, and preparedness.

In 1989, the OFDA/LAC Regional Team, with the support of OFDA/Washington under the Prevention, Mitigation, and Preparedness (PMP) program, initiated the development of what would become the multi-course OFDA/LAC Disaster Training Program. The decision was based on constraints observed in the institutional capacity to respond to various disasters and on hazard assessments made throughout the region.

The long term project goal of the OFDA/LAC Disaster Training Program was national disaster management self-sufficiency for both disaster response as well as prevention, mitigation, and preparedness.

For the USG, the anticipated outcome of the OFDA/LAC Disaster Training Program would be a reduction in the need for large scale USG relief assistance in the aftermath of disasters in the LAC region.

Following a program review by OFDA/LAC, it was concluded that the key to achieving enhanced national disaster management in the region (and therefore a diminishing USG relief role) was the creation of "national emergency organizations," if they did not already exist, or to strengthen them if they already existed.

One measure of the seriousness of the problem was OFDA/LAC's determination that in 1989, only 10 of 17 Spanish/Portuguese-speaking Central and South American countries had national emergency organizations with viable operational capabilities: Guatemala, Honduras, Costa Rica, Colombia, Ecuador, Venezuela, Peru, Bolivia, Chile, and Brazil. ?

With the project goal (national self-sufficiency) set and the organizational base (national emergency organizations) in place or at least evolving, the OFDA/LAC project strategy then became raising the professional and technical level of the staffs of the various national emergency and closely allied organizations (e.g., Red Cross or health ministries).

More specifically, the OFDA/LAC strategy is intended to strengthen the national emergency organizations and related agencies internally, improve their capacity to respond to disasters, and thereby increase their profile and credibility within their governmental structures.

As a target pool for training, OFDA/LAC chose primarily technical and operational personnel in the national emergency and related organizations. This decision was based on the observation that personnel turnover occurs at a lower rate at the technical and operational levels than at the political level.

A critical assumption for the OFDA/LAC Disaster Training Program was that host country governments and agencies would eventually assume responsibility for the courses. That is, after initial development and delivery of courses, OFDA/LAC expected to "hand-off" the courses and see the major human and financial support provided by the host countries themselves.

A "train the trainers" approach is employed, utilizing a methodology which emphasizes goal-setting, objectives, and measurement criteria. By November 1994 the OFDA/LAC Disaster Training Program included three courses in Spanish, three in English, and one in Portuguese, with training workshops for instructors as well. The specific course menu was as follows:

1. Training for Instructors (TFI, "CPI" in Spanish) is a basic course in how to be a more effective training instructor and focuses on organizing materials, lesson planning, and classroom presentation.

2. Disaster Program Management (DPM, "APD" in Spanish) comprises an introduction to program management generally and to disaster concepts and definitions specifically.

3. Damage Assessment and Needs Analysis (DANA, "EDAN" in Spanish) is the first major "disaster content" course and explains the underlying logic and use of a pocket size field

manual for standardized post-event information gathering and transmission.

Each of these courses has a supporting workshop designed to train instructors in the delivery of the course. The workshop participants (i.e., future instructors) are drawn from a pool of the most outstanding course participants.

Participation in the OFDA/LAC Disaster Training Program varies considerably, with some LAC countries distinctly more involved in the program than others. As noted above, by 1994 Colombia had proved the most active LAC nation in the program, providing nearly 500 of the 3,000 total participants.

IV. A Training Evaluation Framework

Formal evaluations require explicit frameworks, and according to the American Society for Training and Development (ASTD), the ideal evaluation of a training program comprises assessment at four levels:

1. Participant Reaction
2. Participant Learning
3. Participant Behavioral Changes ("On-The-Job")
4. Organizational Results

Level 1 evaluation, Participant Reaction, assesses satisfaction or how the participants "feel" about the training experience as they leave the course. Generally, participants fill out evaluation forms -- the so-called "smile sheets" -- on the last day (and even in the last few minutes) of a course.

Level 2 evaluation, Participant Learning, focuses on what the ASTD has termed the "achievement of skill and knowledge objectives." The usual measures include end of course examinations and/or instructor grades.

Level 3 evaluation, Participant Behavioral Changes, shifts the focus from the course itself to what happens after the course -- when the participants return to their jobs. Evaluation at this level wants to know about changes in actual on-the-job performance by a participant or, in the words of the ASTD publication, the "transfer of learning to the job setting."

Level 4 evaluation, Organizational Results, wants to know if performance improvements from a training program are discernible at the organizational level, not simply at the level of individual participants. Again in the words of the ASTD publication, the search is for "positive effects of training on the organization."

OFDA/LAC has built both Level 1 (Reaction) and Level 2 (Learning) evaluation into its Disaster Training Program. The participant manual for every course in each language contains a course evaluation form which participants are encouraged to fill out and return as they exit the course. In addition, OFDA/LAC provides "Diplomas" for all participants who successfully complete a course, as determined by the instructor team. Not all participants receive diplomas (approximately 10% do not, for a variety of reasons), so this can be considered a Level 2 (Learning) measure.

As noted above, Level 1 and Level 2 are relatively easy evaluation efforts. For management purposes, the key levels are

obviously Level 3 (Behavioral Changes) and Level 4 (Organizational Results).

The ASTD four-level framework had to be modified for the disaster management arena, however, because unlike most organizations, emergency organizations (and therefore their personnel) operate in two very different time situations or modes: "normal" and "disaster." That is, disaster response organizations are generally in stand-by (normal, and let us call it "A") mode and then go into operational response (disaster or "B") mode when a triggering event occurs. Therefore, unlike with simpler training programs, mode differences have to be factored in when searching for the more important Level 3 (Participant Behavioral Changes) and Level 4 (Organizational Results) footprints.

It might be helpful to see the analytical situation for Level 3 and Level 4 in matrix form:

FIGURE 1

Level	Mode	Normal "A"	Disaster Response "B"
3	Behavioral Changes	Individual/ Normal Mode "3A"	Individual/ Disaster Response Mode, "3B"
4	Organizational Results	Organizational/ Normal Mode "4A"	Organizational/ Disaster Response Mode, "4B"

That is, Individual Level/Normal Mode ("3A") observations target former participants in the OFDA/LAC Disaster Training Program, but the focus is on stand-by or normal mode and any on-the-job changes they made as a result of their training experience (for example, altering assessment, planning, or training procedures).

For the Individual Level/Disaster Response Mode ("3B"), however, the focus shifts to behavioral changes evidenced by these individuals during a disaster response, searching in particular for standardized terminology and approaches, enhanced teamwork, and the use of explicit and measurable objectives.

Following the same logic, Organizational Level/Normal Mode ("4A") evaluation searches for observable organizational changes in stand-by or normal mode. For the OFDA/LAC Disaster Training

Program, a primary indicator would be content and/or process changes in an organization's own training program(s) -- for example adopting OFDA/LAC-type course modules or methodologies.

The lower right cell, Organizational Level/Disaster Response Mode ("4B"), is the proverbial "bottom line" for disaster training: organizational results observable in the response to an actual disaster event. The indicators here would reflect increased national self-sufficiency as well as improved response, reduced life loss and suffering, and enhanced preservation of property.

This matrix may appear rather abstract, but it serves a very concrete purpose: it disciplines discussion. Without a way to organize treatment of a complex training program, discussion tends to wander between the two levels of individual and organizational change and between the two different time modes. The utility of this matrix will be demonstrated below, after we review the specifics of the 1994 Cauca/Huila disaster and the response.

V. The Event

Shortly before 4 pm local time on June 6, 1994, a Richter magnitude 6.4 earthquake occurred near the Nevado del Huila volcano in southwestern Colombia, on the border between the administrative departments of Cauca and Huila. The area had been saturated by intense rains over the preceding weeks.

Destructive in itself, the earthquake triggered literally dozens of landslides, some of which blocked rivers in the high valleys on the flanks of the volcano. These temporary dams soon broke, however, and within hours sent huge mudflows down to lower elevation valleys, causing major additional death and destruction.

This was a compound disaster in the sense that destruction came from the earthquake, the landslides, and then from the mudflows. Moreover, the event confirms the blurring of the line between natural and man-made disasters, because deforestation contributed to the landslides, without which there would have been no mudflows.

The disaster had its major impacts on two different and non-Spanish speaking indigenous (Native American) tribes in Colombia: the Paeces and the Guambianos. Much of the damage took place in "*resguardos*," the best American English translation of which would be "reserves" or "reservations."

The earthquake impact area included the west side of the Nevado del Huila volcano toward the Cauca River valley in Cauca department, inhabited by the Guambianos. The worst damage occurred on the east side, in Huila department, especially along the Paez, Negro de Narváez, and La Simbola rivers and their respective tributaries, where the landslides and mudflows added to the earthquake damage (see map, following page).

By late June the statistical situation had clarified in the disaster area. Visible damage occurred in 34 separate towns and villages. Four were destroyed, and five more were in such a precarious state that the surviving populations could not return. Approximately 1,600 homes were destroyed, and more than 3,000 were seriously damaged. Five road bridges and 15 smaller "trail" bridges were destroyed, along with approximately 100 kilometers of roads, effectively isolating much of the area from land access. Air access was problematic, as fog and low clouds frequently hampered helicopter evacuation and relief flights.

Because the Government of Colombia insists that the death count be based on recovered bodies, many of which are buried deep under the valley mudflows, the casualty summary (as of late June 1994) showed an unusually high "missing" figure:

Confirmed Deaths:	148
Missing:	508
Injured and Treated:	207

Both Paeces and Guambianos have very strong communal structures, and the respective leaders ("Governors") were able to identify with great accuracy exactly -- including by name -- who was missing from each of their dispersed groups. Therefore, the vast majority of the missing must be counted as dead, so the number of fatalities should be put at 656.

The crux of any disaster, however, is not the number of people killed but rather the plight of the survivors. According to Colombian Red Cross figures, which were somewhat fluid, approximately 6,000 homeless were in 24 relatively large and organized shelters ("*albergues*"). Another 11,600 were in 119 smaller camps dispersed in the area. In total, approximately 28,000 people were directly affected by the various components of this compound disaster (earthquake, landslides, mudflows and resultant isolation).

VI. The Response

Stimulated by complaints about, and alleged deficiencies in, the response to the 1983 Popayán earthquake and the 1985 Armero disaster, in 1987 then-President of Colombia Virgilio Barco created a National Office for Disaster Response (in Spanish, ONADE).

In 1990, the new President of Colombia, César Gaviria, consolidated ONADE with various disaster related functions previously located in other ministries and renamed the resulting entity DNPAD (*Dirección Nacional para la Prevención y Atención de Desastres*), translated as the National Office for Disaster Prevention and Response. He placed the DNPAD within the Ministry of the Interior. The DNPAD is the national emergency organization. To it falls the actual coordination of national level response to disaster in Colombia.

The disaster occurred late on a Monday afternoon on a national holiday in one of the most isolated areas of Colombia, all of which contributed to early confusion in the response. Moreover, the earthquake knocked out electric power in the disaster zone, which prevented many of the hardest hit towns and villages from reporting their plight.

Complicating the situation even further was the fact that the zone is heroin poppy growing as well as a guerrilla conflict area. Prior to the disaster, the zone had been the site of a sensitive anti-guerrilla and anti-narcotrafficking operation (considerable overlap exists between the drug trade and guerrillas in Colombia), and access was under the effective control of Colombian security forces. Military control of access to the disaster zone delayed the civil response to the disaster, from initial assessment to operations.

In fact, President Gaviria did not arrive in the disaster zone until Wednesday June 8, when he met in Neiva, capital of Huila department, with local disaster committees and other authorities involved in the area, especially the National Police and the military.

A relatively complete damage assessment was not completed until Thursday June 9. On that same day President Gaviria issued (Decree 1178) a State of Emergency for the disaster zone and called for a national campaign to help the victims.

Also on June 9, United States Ambassador to Colombia Morris Busby sent a cable (Bogotá 8741) to Washington stating that "a major disaster has occurred in the departments of Huila and Cauca" and that "it is the Mission's judgement that Colombia's resources are

not adequate to respond to the needs." Ambassador Busby then issued the key statement, without which the USG cannot respond: "I therefore declare that a state of disaster exists in Colombia." Ambassador Busby's declaration activated both OFDA and the Department of Defense Southern Command in Panama (DOD/SOUTHCOM).

The OFDA/LAC Senior Regional Adviser based in Costa Rica visited the disaster zone over the weekend of June 11 and 12. Informed by earlier field reports and anticipating the need, however, the adviser had already arranged for shipment of two specific items from the OFDA stockpile in Panama: (1) plastic sheeting for temporary shelter for the homeless, and (2) individual-size water containers. OFDA had these items airlifted on June 11 to Neiva for distribution to the field.

For its part, and ultimately derived from its own budget, the DOD supplied two Chinook helicopters with support equipment and personnel, initially for evacuation of affected populations and subsequently for transport of supplies to the shelters and camps of the homeless. The Chinooks arrived at the Neiva airport from Panama on Sunday June 12 and commenced operations the following morning. The Chinook flight operations (75 flights, totalling 97.54 hours) continued until June 28, 1994.

VII. Findings: The Impacts of OFDA/LAC Disaster Training

It was noted above that in 1989, only 10 of 17 countries in Central and South America had national emergency organizations with actual operating capabilities. While more an indicator of increased regional awareness of the disaster threat and of the efforts of the OFDA/LAC Regional Team in general, the following should be noted: By 1994, 16 of the 17 countries had national emergency organizations with operational capacities (Uruguay was the exception but is currently organizing at the national level).

Also noted above was the OFDA/LAC expectation that "hand-off" to national disaster entities would occur as the disaster training program matured. In 1989, the first year of the training program, OFDA/LAC put on 4 courses for 92 total participants. Overall, from 1989 through September 1994, the OFDA/LAC curriculum counted 55 regional courses delivered by OFDA/LAC.

Indicative of the expected "hand-off," from program inception to date, 147 national courses have been held. OFDA/LAC calculates the total of these national contributions to the Disaster Training Program at $726,519.

A general review of findings shows that former participants in the OFDA/LAC Disaster Training Program who were interviewed evidenced a competence and professionalism traceable to specific aspects of the training. In addition to employing the training's standard terminology and general concepts in their response to the Cauca/Huila event, participants demonstrated the following specific elements of the training:

--Setting performance objectives for assigned tasks
--Organizing damage assessment teams and using standardized assessment field guide
--Carrying out needs analysis in determining external assistance levels
--Using flow charts for plotting sequenced actions
--Applying criteria to determine response phasing --Using teamwork/team leadership principles and feedback mechanisms

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In reviewing more specific training impacts, the matrix proved very useful, but the sequence needed modification: It was easier for all involved to discuss individual level changes in normal mode (3A) together with organizational results in normal mode (4A), and then individual level changes in disaster response mode (3B) with organizational results in disaster response mode (4B).

A. Individual Level/Normal Mode (3A) Evidence

The matrix generates the following question about individual changes in normal mode (3A):

> **After returning to their positions but in normal mode, did OFDA/LAC program participants change their on-the-job behavior in ways identifiably linked to the training experience?**

In response to direct questions about post-training changes made, all 22 interview subjects indicated ("self-reported") that they had altered both the content and the method of their own training presentations (indicating Training for Instructors, TFI, impacts). All but two of the 22 could indicate specific changes in how they did their jobs (for example, using lesson plans, employing visual aids, developing explicit and measurable performance objectives).

For those who had taken the DPM (Disaster Program Management) course, the discussions were more general and the specific effects more difficult to determine. All stated, however, that they felt more "professional" as a result of having taken DPM, and more than half mentioned the DPM course unit, "The Cycle of Disaster," as providing a standard approach and shared terminology which they continued to employ both with each other and with personnel from other disaster response organizations.

Because it has a physical take-home product -- a field guide -- effects of the Damage Assessment and Needs Analysis (DANA) course may ultimately prove the easiest to observe. That point, however, leads to later discussion of individual behavioral changes (3B) and organizational results in disaster response (4B).

B. Organizational Level/Normal Mode (4A) Evidence

The matrix provides the following question about organizational level changes in normal mode (4A):

> **Focusing on normal mode operations or functioning of an organization, is it possible to identify results of the OFDA/LAC training program?**

The interviews and documents in various organizations showed significant effects in, but considerable variance across, organizations.

In Colombia, four principal organizations have sent people to OFDA/LAC courses: (1) the national emergency organization, the DNPAD; (2) Civil Defense; (3) the Ministry of Health; and (4) the

Colombian Red Cross. The vast majority of participants in the OFDA/LAC training program have come from the Red Cross, and the Red Cross has delivered many OFDA/LAC courses itself, including TFI, DPM, and DANA. The Ministry of Health has been the next most active in the training program, followed by DNPAD. At the time of the disaster, Civil Defense was the least active in the program, but that may be changing.

The Colombian Red Cross has integrated all of the currently available OFDA/LAC training program courses and materials directly into its own training program, providing both the human and financial resources. That is, "hand-off" has been accomplished. Moreover, the Colombian Red Cross has carried out these training activities at the national, the departmental, and even at the local levels.

Two specific examples are noteworthy: (1) In Bogotá, the Red Cross has developed a disaster education program, called the "OPES" program, with the Office of the Mayor for Metropolitan Bogotá, utilizing the OFDA/LAC materials directly; and (2) in the Cauca River valley, in the area around Cali, all of the local Red Cross personnel have taken at least one of the OFDA/LAC courses, and the vast majority took them as "handed-off" national deliveries.

Although it appears that approximately 40 instructors in the training program of the Ministry of Health use OFDA/LAC methods and materials, they do so without the organization itself adopting the OFDA/LAC program. One instructor described it as "a group of us rebels trying to use the OFDA/LAC approach in a very tradition-bound setting."

In the national emergency organization (DNPAD), the official responsible for training programs, a veteran of OFDA/LAC courses, indicated that the organization intended to adopt and follow the OFDA/LAC Disaster Training Program but that full adoption was not feasible at that moment. Significantly, however, the DNPAD sponsored a December 13-14, 1994 DANA course for their various departmental committee heads.

For reasons having to do with inter-organizational rivalry going back several years, especially with the more recently created DNPAD, Colombian Civil Defense has resisted the OFDA/LAC program at the organizational level, although individuals have been active. This may be changing, however, as a result of the Cauca/Huila disaster. In July 1994, Civil Defense leadership contacted OFDA/LAC seeking materials from, and more participation in, the OFDA/LAC training program.

The Colombian military is a special case and must be treated separately. Given the extremely high level of violence in Colombia, the widespread guerrilla war, and a role in combatting

narcotrafficking, the Colombian military maintains a strong presence throughout the country. Indeed, in the Cauca/Huila disaster, they were effectively in charge, which meant that all responding organizations had to clear their activities through the local military zone commander, effectively slowing the response.

Possessive as the military is about its own training, Colombian military reaction to the required interface in the disaster zone with individuals from other organizations trained in the OFDA/LAC courses is revealing. It also shows both the promise and the vulnerability of the training program.

As a result of seeing OFDA/LAC trained people working on the Cauca/Huila disaster, and being especially impressed with their shared framework and terminology for response (a direct effect of the courses, especially DPM), the commanding military officer in the disaster zone contacted the Colombian Red Cross with the proposal that OFDA/LAC methods and materials be integrated into the program at the military officer training school in Bogotá. His idea was to give military personnel the same disaster response framework and "language." According to the Red Cross official who fielded the inquiry, this general contrasted favorably the work of OFDA/LAC trained personnel with the comportment of response personnel who lacked such training.

The opening to the military training program was lost within a month, however, for a reason all too common in Colombia: assassination. On July 20, 1994, the commanding general of the 4th Division was killed in a guerrilla ambush near Villavicencio, east of Bogotá. The general from the Cauca/Huila disaster zone was later promoted and moved to 4th Division headquarters, where he is fully occupied with what are, in effect, combat duties. Unhappily, at least temporarily, an opening for the OFDA/LAC Disaster Training Program to the Colombian military training program is closed.

C. Individual Level/Disaster Response Mode (3B) Evidence

Moving to disaster response mode, the matrix generates the following question for the individual level (3B):

> **In this or other disaster responses, have training program participants evinced behavioral changes identifiably related to the OFDA/LAC training?**

Two interview subjects in responsible field positions stated that OFDA/LAC trained personnel involved in the Cauca/Huila event stood out ("*se destacaron*") for being especially organized, professional, and using a standard terminology. The "standard terminology" reference is a major thrust in all the OFDA/LAC

courses. In fact, the standard terminology and the associated conceptual framework for response from the DPM course were the items which specifically caught the attention of the commanding general in the disaster zone.

The field guide developed in the DANA course was actively used in the Cauca/Huila disaster. In the long term, that field guide may be the most relevant OFDA/LAC training effect and leave the most visible training program "footprint" in disaster response situations.

Although this overlaps somewhat with a subsequent discussion on organizational results in disaster mode (4B), field interviews revealed an OFDA/LAC training effect in a different disaster (largely unknown outside Colombia). According to the DNPAD, on January 31, 1994, a violent thunderstorm developed in the watershed above three towns in the Cauca River valley. Subsequent landslides and flooding killed 41, injured 86, and left 2,000 people homeless.

All of the principal responders to the "La Florida" disaster had taken at least one of the OFDA/LAC courses, and several had been to two and even three courses. The OFDA/LAC approach and terminology were used (especially from the "The Cycle of Disaster" unit of DPM), and an early version of the DANA field guide was utilized. In terms of results, the entire response to the La Florida disaster was handled internally in Colombia without request for any external assistance.

Obviously, such a self-sufficient disaster response cannot be attributed solely to the OFDA/LAC training program, but explicit evidence -- a real footprint -- was discernible in the words of the local lead coordinator of the response to the La Florida event:

> "I thought OFDA would be proud of us. We did it on our own."

For comparison with the La Florida disaster, consider the fact that in FY 1993, OFDA reported responding to 11 disasters worldwide where fatalities totalled fewer than in this Colombian event.

Indeed, four USG "declared disasters" in the LAC region in FY 1993 involved fewer fatalities than the La Florida event (Jamaica floods, Mexico floods/mudslides, Nicaragua floods, and Venezuela storm). Another declared disaster (Bolivia landslide) registered only 8 more deaths (49) than were registered in La Florida. The La Florida disaster, however, was never USG-declared and required no USG response.

Therefore, in attempting to assess OFDA/LAC training program impacts, it should be kept in mind that disasters which do not generate requests for external assistance tell us as much -- or more -- about the development of internal response capability as those disasters which do generate assistance requests.

D. Organizational Level/Disaster Response Mode (4B) Evidence

The final cell in the matrix (4B) focuses on organizational results in a specific disaster response and yields the following question:

> **Is it possible to identify improvements in a nation's organizational response to a disaster event as a result of the OFDA/LAC Disaster Training Program?**

This is the proverbial "bottom line" question in the evaluation of any training program. Despite such uncontrolled variables as organizational maturation, resource changes, effects of other training programs, political support, and quality of leadership, conclusions can be drawn -- with caution. Introducing an element of controlled comparison, the Colombian national level response to the 1994 Cauca/Huila disaster, and the requested USG assistance, can be analytically paired with the 1985 Armero disaster and response.

In November 1985, the lahar off of the Nevado del Ruiz volcano killed at least 22,000 Colombians, all but a thousand of those in the city of Armero. It injured 5,000, left approximately 7,700 homeless, and (from Colombian sources) directly affected 30,000.

As noted above, the crux of any rapid-onset disaster, however, actually is not the number killed but rather the survivor situation. On that basis, Cauca/Huila 1994 was similar to Armero 1985. While only 656 were killed and 207 injured in the Cauca/Huila disaster, at least the 6,000 in the more formal shelters were left completely homeless. The number directly affected was put at 28,000. Especially the Cauca/Huila homeless figure, but also the number affected, make the comparison with the Armero event feasible.

According to OFDA in its FY 1986 Annual Report, total USG (100% of it OFDA) assistance to Colombia in the aftermath of Armero was valued at $2,748,328. This figure, however, is in 1985 dollars and not controlled for inflation. If we take an average 4% inflation per year and convert the total USG assistance for Armero to 1994 dollars, it comes out to $3,911,728.

In other words, controlling for inflation (i.e., by converting to 1994 dollars), the USG total for Armero 1985 was nearly $4

million. By comparison, OFDA assistance for Cauca/Huila 1994 was only $53,550: $36,300 for 132 rolls of the plastic sheeting; $1,250 for the water containers; and $16,000 for the C-130 airlift of the plastic sheeting and water containers from Panama to Neiva.

To calculate the USG total for the Cauca/Huila disaster, and not just the OFDA expenditures, the dollar value of the DOD/SOUTHCOM (Chinook) helicopter operations must be added in. Given the 97.54 flight hours at the official DOD rate of $7,082 per hour, that would be $690,778.

Therefore (in constant 1994 dollars), total USG expenditures for Armero 1985 were $3.9 million but for Cauca/Huila 1994 were less than $750,000.[1]

Perhaps an even more salient indicator of national self-sufficiency in disaster response is the relatively few person days OFDA/LAC had to devote to field visits and assistance management for Cauca/Huila. For Armero 1985, OFDA person days in Colombia totaled 120 and involved five individuals; for Cauca/Huila 1994, it was five days and involved one individual.

An important proviso to comparing the Nevado del Ruiz/Armero event of 1985 with the Cauca/Huila event of 1994, however, is that in the aftermath of Armero, the possibility of a second volcanic eruption at Nevado del Ruiz had everyone on edge. As a result, part of the USG effort in late 1985 went toward organizing and managing volcano-monitoring assistance.

Finally, virtually all Colombians involved in the response to Armero 1985 call that response "the disaster within the disaster" and learned from it -- the hard way. For example, the entire organizational structure for disaster response in Colombia was changed, empowering ultimately DNPAD at the expense of Colombian Civil Defense, resulting in lasting inter-organizational rivalry and friction.

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[1]A cautionary note in this comparison of two disastrs in two time periods must be mentioned. The higher level of OFDA's response to the Armero disaster was influenced not only by the traumatic number of casualties, but also by the assumption that USG assistance might be able to help local authorities with search and rescue operations.

VIII. Conclusions

Can we say that the OFDA/LAC Disaster Training Program is having the intended results?

With the caveat that the sample interviewed was not random, in normal mode at the level of individual participant on-the-job changes resulting from the training, the answer is definitely yes and nearly unanimous. For individual changes occurring during a disaster response, the answer is also yes.

Can we identify training program results at the organizational level during normal mode? The answer here is yes, but sustainability is open to question, and the results are uneven across organizations. One organization, the Colombian Red Cross, has adopted the underlying OFDA/LAC training approach and all of the available courses, but with the departure of a key individual, the commitment may waver. In three other organizations, cautious optimism is warranted, but the jury is still out on sustained organizational commitment to the OFDA/LAC training program. On the question of the Colombian military adopting all or parts of the OFDA/LAC program, the door is at least temporarily closed.

At the organizational level in disaster mode, and based on the comparison with Armero 1985, it appears clear that Colombia was much more self-sufficient in responding to Cauca/Huila 1994. It is too long a stretch to say that such improvement was solely the result of the OFDA/LAC training program, but it is not far fetched to say that the OFDA/LAC Disaster Training Program played a part in the improvement. The major factor, however, was certainly the disaster learning Colombia had to endure at Armero.

In fact, we may be seeing in Colombia trend evidence toward a more likely organizational result: national response self-sufficiency in small to moderate events, with only minor and well focused relief assistance from the outside (e.g., from OFDA or the USG in general). This trend may even extend to the ability to manage the response to a major event.

On the day that a near final draft version of this report was being printed (February 8, 1995), at 1:40 pm in Colombia, a Richter magnitude 6.4 earthquake occurred 75 miles to the west of the city of Pereira, capital of Risaralda department. Preliminary figures indicate 40 people killed, 200 injured, and 4,000 left homeless. However, the Government of Colombia did not

request external assistance, and the U. S. Ambassador in Bogotá did not make a disaster declaration -- again reflecting increased national disaster response self-sufficiency.

National response self-sufficiency in small to moderate disaster, and perhaps even major events, however, begs the question of what happens in a catastrophic event.

It is highly unlikely that any LAC government in the foreseeable future will allocate adequate resources to a national emergency organization or response structure which would allow it to maintain a stand-by capacity (in "4A mode") to manage all aspects of a catastrophe. Catastrophes in the LAC region occur too infrequently to justify such stand-by national capacities. When catastrophes do occur, the entire international community will have to continue to respond.

OFDA should probably take this "catastrophe contingency" as a given and continue to focus its Prevention, Mitigation, and Preparedness program energies and resources on strengthening national emergency organizations to the point where only true catastrophes require major input from the international community.

Following this line of thought, in the less than catastrophic events, any needed external international community assistance would be integrated into the national emergency organization response. The result would be diminished requirements for large scale USG relief assistance except in the case of catastrophe. Even in the case of catastrophe, the requests should prove more focused and therefore limited to specialized items and/or technical assistance.

IX. Lessons Learned

1. Rapid evaluations (at the latest in the field within a few weeks of a disaster event) are the best way to capture reliable data on the impacts of the OFDA/LAC Disaster Training Program and especially the linkages between the training program and an actual disaster response.

2. A random sample of previous training program participants would have been ideal from a methodological viewpoint, but methodology has to be adapted to field realities. Given financial limitations, confidentiality assurances to training program participants, and security concerns in Colombia, a focus group was an adequate alternative.

3. A more easily accessible and user-friendly database at OFDA/LAC in Costa Rica would have been useful to track, locate, and provide background information on former participants in the training program.

4. It proved very efficient and useful that the external (U.S.) evaluator was teamed with a host country colleague to facilitate arrangements for interviews and document collection and to help place in appropriate country context the observations. The result was added depth and sensitivity to the findings.

5. In the mid to long term, much of the evaluation work on the OFDA/LAC Disaster Training Program, especially data collection and preliminary analysis, can be turned over to host country individuals. The external, U.S., evaluator can contribute best by managing the evaluation and finalizing the report.

6. Significant interest exists in the results of this type of evaluation study, and there were requests for Spanish and Portuguese translations.

X. Recommendations

1. OFDA/LAC needs to follow-up systematically with former participants in the Disaster Training Program to maintain and reinforce the professional network both among the participants and between the participants and OFDA/LAC, using newsletter-style information and offering course refresher opportunities.

2. OFDA/LAC should enhance its database to facilitate a retention study to determine the percentage of former participants who remain in the disaster response field, the rate at which they leave the field, and the organizations or fields to which they move. It is to be expected that specific results will vary by country, so OFDA/LAC priority countries should be emphasized.

3. OFDA should conduct a regional review of the current status and capabilities of the national emergency organizations (and related agencies) in the LAC region to assess training and other assistance needs, and these reviews should be scheduled every two to three years.

4. Given that the best test of the training program will always be performance in a disaster event, OFDA should see to it that whenever feasible, event response evaluations and training impact evaluations are combined or at least closely coordinated.

5. For a relatively small number of selected individuals, the OFDA/LAC Disaster Training Program should be supplemented with a one to two day session on participant tracking and program evaluation so that these individuals, upon return, will be able to provide updated information to the OFDA/LAC database and carry out most of the monitoring and evaluation tasks in their own countries.

6. OFDA/LAC should consider adding to the training program a module which focuses on civil-military relations in all aspects of the disaster cycle, in light of the prominent role played by the military in the Cauca/Huila event response and in LAC region disasters generally.