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**INTRODUCING A
DISASTER PREPAREDNESS
AND MITIGATION
PROJECT IN
SOUTH AMERICA:

A RHUDO/SA INITIATIVE**

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PREFACE

This project was designed by Abt Associates Inc. for the USAID Office of Housing and Urban Programs and its Regional Office of Housing and Urban Development for South America (RHUDO/SA), based in Quito, Ecuador. The project is based on field work in Ecuador in September 1991.

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ACRONYMS

AME	Asociación de Municipalidades del Ecuador
BEDE	Banco Ecuatoriano de Desarrollo Económico
BEV	Banco Ecuatoriano de la Vivienda
CEMOPLAF	Centro Médico de Orientación y Planificación Familiar
CIDAP	Centro Interamericano de Artesanías y Artes Populares
CINTERFOR	Information Network based in Uruguay
DPM	Disaster Preparedness and Mitigation
FECOAC	Federación de Cooperativas de Ahorro y Crédito
FEMA	Federal Emergency Management Agency
FIAD	Fundación Investigación Acción para el Desarrollo
FUNHABIT	Fundación para el Habitat
GOE	Government of Ecuador
GTZ	German Aid Agency
IDB	Interamerican Development Bank
INFODEM	Instituto de Fomento y Desarrollo Municipal
LAC	Latin America and Caribbean Bureau
LACUM	Latin America Center for Urban Management
NGO	Non-governmental organization
OAS	Organization of the American States
OFDA	Office of Foreign Disaster Assistance
RHUDO/SA	Regional Housing and Urban Development Office of South America
SECAP	Servicio Ecuatoriano de Capacitación y Aprendizaje Popular
SENA	Servicio Nacional de Aprendizaje
UNDP	United Nations Development Programme
UNDRO	United Nations Disaster Relief Office
UNICEF	United Nations Children's Education Fund

EXECUTIVE SUMMARY

RHUDO/SA intends to expand its capacity to assist disaster preparedness and mitigation (DPM) activities in South America. The goal of this new program is to reduce the impact - the loss of lives, damage to housing, and lifelines -- and disruption to development of natural disasters in low-income communities.

This program has been designed to address earthquakes, volcanoes, and floods since these natural hazards have the potential to cause devastating damage and disruption to development growth throughout South America.

It is expected that the early stages of this program will be carried out in Ecuador as a pilot effort, although it is anticipated that RHUDO/SA will expand its initiative throughout the region in the future to achieve a comprehensive impact on disaster protection.

The core of this project encompasses three basic objectives directed at enhancing the participation and capabilities in disaster preparedness and mitigation of a) local governments; b) community-based organizations; and c) the private sector.

The participation of these actors in disaster preparedness and mitigation is essential: disaster management activities by necessity cannot count on substantial financial participation by national governments, but rather must seek the involvement of other sectors. However, the participation of these sectors involves particular constraints. For example, when a disaster strikes, municipalities, which are the first line of institutions from which communities request assistance, are ill-prepared to respond to natural disasters -- due primarily to the lack of planning, and economic and human resources. Community-based organizations are not well integrated into existing disaster programs and lack the necessary knowledge to respond to catastrophic events. And, the private sector has typically not played a significant role in disaster planning and mitigation activities.

A range of strategies and recommendations has been designed to increase the participation of these sectors. These strategies and recommendations are designed to be placed within the normal development process of the recipient institutions and selected communities and to be amenable to a solution which can be sustained once the project has formally ended. This project has been designed so that a number of nationally based institutions in Ecuador, such as Partners of the Americas, IDB, UNDP, World Bank, and the OAS, might provide collaboration in areas of interest, thus increasing the leverage of RHUDO/SA initiatives in Ecuador.

Strategies and recommendations include the following:

Increasing Local Government Participation

Municipal governments are key institutions within a country's system of government. Municipalities provide the necessary means for the collective well-being; contribute to the protection of local interests; plan and promote community development; and deliver basic services. It is within this context that municipalities are the most appropriate government institution to carry out preparedness and mitigation activities.

Unfortunately, municipal governments typically are solely equipped to carry out functions under normal circumstances and do not have the resources to respond to the massive demands of the community when a disaster strikes.

Moreover, as major cities experience rapid urban growth, the opportunities for municipalities to play an effective role in disaster mitigation become more difficult. Local governments find it difficult enough to plan and provide a satisfactory environment to absorb the growing levels of an urban population, much less plan for future events such as disasters.

The strategies and recommendations related to local governments are oriented to increase the intervention of municipalities in pre- and post-disaster activities. They are designed to be implemented equally in the municipalities of Quito, Ambato, Riobamba, and Latacunga. The underlying assumption of increasing local government participation is that if municipal governments a) include within their normal planning process actions to be taken before and after a disaster; b) promote the involvement of other economic sectors; and c) undertake training activities directed to staff and the community, they will be better able to effectively respond to natural hazards.

Several municipal governments are taking definitive steps to update, expand, or prepare their master plans. This activity is supported by several international institutions. RHUDO/SA should provide assistance to selected municipalities so that DPM activities are adopted within masters plans as part of the normal development process of municipalities.

In the last decade, there is a growing tendency to develop public/private partnerships to expand the local resource base in support of development programs. Local governments are increasingly entering into agreements with the private and informal sectors to address community needs. RHUDO/SA should promote collaboration and communication between municipalities and various leading community sectors to promote DPM activities. Public/private partnerships might include private and informal sector and partnerships with the media.

There is a growing consensus that local government staff need more systematic training in supervisory, managerial and other technical skills related to DPM activities. This type of activity is supported in many countries by bilateral and multilateral donors. Training that has an impact on DPM activities includes policy and awareness, traditional municipal

management and administration, and resource mobilization, as well as specialized disaster-related skills. Training should focus on mayors, technical staff, council persons, political leaders, and community outreach.

Increasing Community-Based Organization Participation

A recent study shows that 57 percent of Ecuador's population is considered poor and that 27 percent is living below the poverty line. These facts are unlikely to be reversed in the near future. Cultural patterns have traditionally constrained the assimilation of large segments of the Ecuadorean Indian population into a productive modern society. In addition, Ecuador has experienced the strong effects of the recent international economic crisis which has set back the economic growth of most of the developing world.

Low-income communities are experiencing a substantial deterioration in their quality of life and at the same time, population is increasing. Both population growth and poverty are factors that irreversibly increase natural hazard vulnerability. As a result, in Ecuador, large family groups have less opportunity to live in a safe environment and recover from a future natural disaster.

The strategies and recommendations related to community-based organizations are oriented to increase the abilities of low-income communities to respond to natural events. The underlying assumption is that increased opportunities for community-based organizations to play a major role in pre- and post-disaster activities will be available if a) existing community organizations are strengthened through training; b) DPM activities are linked to programs that could improve the standard of living and address the basic needs of the community; and c) DPM activities can transcend the concept of physical shelter and address other related concerns, such as environmental degradation which is presently hindering development opportunities of low-income settlements.

Most low-income communities lack technical resources; they may not be aware that technical solutions to major community problems exist; resources might not be available to obtain needed information; residents may lack access to technical expertise required to select and implement the most appropriate interventions. It is within this context that training can provide a path to new technology and resources, especially in terms of minimizing the effects of natural hazards.

Training can be effectively delivered through an already existing network of NGOs that operates in Ecuador and elsewhere in the region. NGOs are educational in nature. They teach through their actions in the field or through interactive programs with the community; they are typically a successful mechanism for increasing local awareness.

Initial training activities in Ecuador can be delivered through FIAD, which is a highly organized community-based organization that provides assistance to el Comité del Pueblo - a large neighborhood in northern Quito; through FECCOAC which includes more than 250 affiliated credit unions; and through CEMOPLAF, which operates as a national network of 500 representatives.

Training activities might focus on improving the design and quality of the shelter sector, improving disaster-resistant construction techniques and materials, and on addressing issues such as maintenance and credit opportunities for disaster reconstruction and retrofitting programs.

In most communities visited in Ecuador interest in DPM activities was most clear when an actual or threatened disaster was linked to programs that could improve the economy and living conditions of the community. Since disasters are regarded as events that might not take place within the lifetimes of the residents, the strongest community concerns are linked to present needs. La Lucha de los Pobres is a small community located in southern Quito. El Comité Pro-Mejoras is a grassroots organization that has provided assistance to this neighborhood. Presently UNICEF is delivering very successfully a program for the children in this community. Any program involving assistance for the children would have a positive reception within the community. In this sense, a program oriented to increase hazard awareness of the youth in La Lucha de los Pobres is appropriate. In addition similar training programs to the one proposed for the Comité del Pueblo should be carried out here for homeowners.

Communities are increasingly concerned with the impact of ecological/environmental degradation as one of the primary problems that are presently hindering their development process. In the past, economic development, environmental preservation, and disaster management were issues neatly compartmentalized within separate sectors. Presently, there is an increasing awareness that these issues are intimately interrelated. Natural and environmental disasters are mutually reinforcing events. The approach that jointly addresses natural hazards and environmental concerns will increase the opportunity to maximize the development opportunities of low-income settlements.

This program can be delivered with the support of Natura Foundation which is a local NGO that focuses on environmental conservation. A set of guidelines can be prepared on Urban Forestry Techniques to prevent soil erosion, a phenomenon which extensively affects various low-income settlements throughout Ecuador. In addition, the resources of LACUM might be utilized to develop a network of NGOs dedicated to environmental issues that have an interest in DPM activities.

Increasing Private Sector Participation

The private sector -- in this case, the construction industry (builders, material producers and suppliers, architects, engineers), insurance companies, and financial institutions -- has traditionally not been involved in disaster preparation and mitigation activities. When disaster strikes, the private sector is impeded in its response by among others,

- procurement and contracting procedures that are slow at best;
- governments which attempt to carry out normal private sector functions such as the procurement of construction materials;
- technically unsound construction practices;
- an insurance system that simply does not cover the losses of the families most in need; and
- a financial system that is not prepared to provide credit for rebuilding to families most in need.

In addition, the technical expertise residing in the building professions are generally not focused on natural disasters, and consequently not utilized in DPM activities such as appropriate building codes, and planning and zoning regulations.

The strategies and recommendations related to the private sector are oriented to apply the expertise of the private sector to DPM activities and to increase the ability of this sector to respond to natural disasters. The underlying assumption of increasing private sector participation is that if a) the building professions participate in DPM activities; b) insurance mechanisms are developed for low- and middle-income communities; and c) credit is made available for post-disaster rehabilitation activities, then the special expertise of the private sector will enhance the resources available for pre- and post-disaster activities.

The building professions are affiliated in several different associations. There are two sound reasons to include these associations of professionals in DPM programs. First, the technical subjects they do pursue in their research and training have clear application to disaster mitigation efforts, and second, their membership includes specialists in virtually any needed technical skill. Within this context the active participation by the building professions in the preparation of municipal regulations that mitigate the effects of natural disasters; and the applied research by this group in areas such as construction technology for low-income housing is most appropriate. In addition expediting the procurement and contracting of private sector services in the event of a disaster, and delivering training both by and to building professionals are viable strategies.

In Ecuador, as in most of the developing countries, no law requires a homeowner to have insurance. Higher income families frequently do carry hazard insurance on their homes; lower income families -- those whose homes are most at risk and whose greatest equity is that home -- do not carry hazard insurance. RHUDO/SA should promote working with the

insurance industry to develop a program of traditional and innovative means by which the housing investment of low- and middle-income families can be financially protected in high risk areas.

It is extremely difficult for low-income families to secure any type of loans under normal circumstances, and it becomes virtually impossible for them to obtain credit quickly under emergency conditions. These circumstances are even more severe in the case of informal housing settlements. As part of the overall effort to increase the awareness, participation, and capabilities of the private sector in disaster mitigation, RHUDO/SA should coordinate the necessary activities to develop and implement a structure-framework whereby credit could be channelled for rehabilitation and reconstruction to low-income families residing in informal communities. By necessity, this approach is highly dependent on both local government and community-based organizations to interact with the private banking sector; their role is to assist in overcoming the barriers that traditionally stand in the way of low-income lending (repayment risks, high service cost, and low profit margins).

On-lending schemes designed for low-income groups should be in concert with promoting a fully market-oriented environment; if subsidization is desired, it should be done through transparent, direct transfers. If however, the circumstances with regard to income level, land titling, foreclosure, and so forth, are such that market schemes are not feasible at the present time, the special assistance to be provided by the local government and the NGOs, as far as reducing both risk and cost should, along with appeals to humanitarian consideration, assist in reaching workable accords.

Project Implementation

The proposed DPM project concept will first be applied in Ecuador as a pilot effort. Then the concept will be adapted for future application in other RHUDO/SA countries.

The program described in this report will be implemented by a structure that integrates and applies the resources of international, regional, national, and local institutions. The strategies will be achieved by activities that focus resources on municipal governments, the private sector, and low-income communities. The experience and lessons learned will be continuously shared through various dissemination routes with neighboring communities, cities, and other countries. Project activities will be evaluated mid-way through implementation and a number of indicators have been identified for this purpose.

PART I: PROJECT OVERVIEW

1. PROJECT BACKGROUND

Throughout South America, earthquakes, volcanoes, and floods have the potential to cause significant loss of life, damage to the built environment (housing, infrastructure, and lifelines systems) and disruption of the development processes. To address these concerns, RHUDO/SA intends to expand its capacity to assist disaster preparedness and mitigation (DPM) activities in the region.

1.1 GOAL

The goal of this project is to reduce the impact -- the loss of lives, damage to housing, and lifelines -- and disruption to development of natural disasters in low-income communities.

1.2 OBJECTIVES

In order to achieve this goal the objectives of this project are to enhance the participation and capabilities in disaster preparedness and mitigation of a) local governments; b) community-based organizations; and c) the private sector.

1.3 FOCUS

A well focussed natural disaster project by necessity cannot count on substantial financial participation by national governments, but rather must seek the involvement of other sectors -- local governments, community based organizations, and private sector. In this way, the effective use of available physical, economic, and human resources will be maximized.

The constraints and opportunities for participation by these actors in disaster preparedness and mitigation activities can be summarized as follows:

- o **Local Governments:** When a disaster strikes, municipalities are the first line of institutions from which communities request assistance. However, local governments are traditionally ill-prepared to respond to natural disasters; they lack emergency response programs as well as the economic and human resources necessary to provide effective emergency assistance to the affected communities.

A project directed to local governments should aim to assist municipalities in developing and maintaining a comprehensive and integrated disaster program. The program should be designed according to those specific hazards that threaten the jurisdiction. It should provide an agenda to be pursued before and after a disaster in an effort to improve the operational capacity of the municipalities.

- o **Community-Based Organizations:** The urban and rural poor -- constituting the vast majority of the total population in developing countries -- are usually those most affected by a natural disaster as they tend to occupy the most vulnerable sites and shelters. Normally, when a disaster occurs, these groups are not well integrated into existing disaster programs and lack the necessary knowledge to respond to catastrophic events.

A project directed to low-income communities affected by natural hazards should foster self-sufficiency in community-based organizations. In addition, it should assist communities in the effective use of local and human resources, and improve local capabilities to minimize and respond to the effects of natural disasters.

- o **Private Sector:** The protection of life and property from disasters requires the full mobilization and use of all resources of a community. An important and necessary component is the private sector which until now has not played a significant role in disaster planning and mitigation activities.

A project directed to the private sector should aim to increase the involvement of the private sector in preparedness and mitigation programs. It should contribute to planning for the mobilization of resources to be used during an emergency, as well as in mitigation strategies of land use and building codes, standards, and techniques, hazard insurance, and rehabilitation credit programs. The private sector can identify roles, responsibilities, key personnel, institutions, and physical assets that can be applied to pre- and post- disaster activities.

1.4 LOCATION: PILOT ACTIVITIES IN ECUADOR

The early stages of this project are designed to be carried out in Ecuador. However, the project has been broadly formulated so that it is not only applicable in Ecuador, but also to other countries of the region (i.e., Bolivia, Chile, Peru, and Colombia). Indeed, it is anticipated that in order to achieve a comprehensive impact, RHUDO/SA will expand this program throughout the region.

In selecting Ecuador as the initial country, three primary factors were considered: a) Ecuador is one of the most naturally hazard-prone locations in South America; b) RHUDO/SA has its headquarters in Quito, making a project in Ecuador easily monitored; and c) over the past year, RHUDO/SA's Disaster Office has developed important relations with national and local institutions.

2. PROJECT ASSESSMENT

Municipalities, communities, private sector organizations, and international agencies were visited in Ecuador to collect information and opinion in order to assess:

- the possibility of implementing DPM programs in Ecuador;
- preparedness levels;
- mitigation opportunities;
- willingness to participate in DPM programs; and
- post disaster response and technical capabilities.

2.1 COUNTRY ASSESSMENT

Several meetings were held with the **municipal governments** of Quito, Ambato, Riobamba and Latacunga. These municipalities described their serious needs and expressed their strong interest in undertaking DPM programs. Indeed, in spite of the fact that municipalities well aware of the local implications of natural hazards -- many municipalities have already developed natural hazard maps -- they lack a coherent approach to mitigate the effects of natural disasters.

Quito, due to its primacy as the capital of Ecuador, has been experiencing for the last ten years an uncontrolled and uneven population growth. City in-migration has caused the increase of informal inter-urban neighborhoods in the city. Substandard housing built in highly eroded hillsides are increasing the risks from natural disasters throughout the city.

The Municipality of Quito has identified areas at risk from future eruptions of the Pichincha volcano. An eruption will precipitate large mudflows along Pichincha's two major ravines, Rumipamba and Rumiurco. A few villages in the surrounding areas as well as two major hospitals are at risk.

Ambato is the capital city of the Province of Tungurahua. Ambato is economically active, with urban commerce and leather manufacturing and industry. This situation has caused the proliferation of informal settlements on highly eroded hillsides. Considering the construction quality in these neighborhoods, an earthquake will cause major damage.

Riobamba is the capital of the Province of Chimborazo. It is an administrative and business center as well as a market town for agricultural production in the region. In recent years, however, Riobamba's economy has been affected by a decrease in agricultural production due to, among other factors, an excessive exploitation and erosion of agricultural land.

Cooperatives play a major role in Riobamba's urban development. They have become the force behind the proliferation of illegal settlements. Such neighborhoods increase the vulnerability and risk to major parts of the city. In the neighborhood of Santa Teresa, a

dispute over land by two cooperatives resulted in the municipality finding new land for development, and providing technical assistance and economic support for a housing project.

Latacunga is the capital of the Province of Cotopaxi, located on the slopes of the volcano of the same name. The Municipality of Latacunga has identified areas at risk from the Cotopaxi volcano. Two settlements, La Nueva Vida and Escurandia, with 50 and 120 houses respectively, are at major risk. The municipality has been successful in stopping further growth at these locations.

Two types of **community-based organizations** were visited. The first type included organizations with a national scope, such as Federación de Cooperativas de Ahorro y Crédito (FECOAC) which provides credit and technical assistance for 250 affiliated cooperative organizations; Centro Médico de Orientación y Planificación Familiar (CEMOPLAF) which provides community assistance in family planning education throughout Ecuador; and Fundación Natura which provides environmental education to communities and public officials, as well as technical assistance and management of environmental programs such as the debt-for-nature swaps.

The second type of community-based organizations included the Fundación Investigación-Acción para el Desarrollo (FIAD), a non-governmental organization (NGO) that provides community development support to El Comité del Pueblo (a highly organized neighborhood in northern Quito); Comité Pro-Mejoras, a grassroots organization that promotes community development activities in the neighborhood of La Lucha de los Pobres in southern Quito; and Fundación Casa Campesina de Cayambe which is an NGO that undertakes community development programs with the indigenous groups of the Cayambe area. In addition, the municipality of Otavalo assisted the team's search for community interest in DPM activities.

In order to ascertain the capabilities and interest of the **private sector** to participate in DPM activities, several meetings were held with representatives of developers, architects, and engineers in Quito and Guayaquil. The associations of architects, of engineers, and of developers together represent thousands of professionals, with experience in construction technology, materials technology, building codes, and seismic standards. These designers, builders, analysts, researchers, and professors expressed serious interest individually and on behalf of their associations in working with municipal governments and community groups, and in hosting DPM training events.

The team met with representatives from the insurance and financial sectors to gain an understanding of the opportunities and obstacles to their participation in DPM activities. Issues such as inadequate laws and regulations, traditional markets, and perceived poor creditworthiness were raised. Nevertheless, the industry recognizes the significant financial role that they can play in providing protection and credit to low-income families who suffer after natural disasters, and consequently expressed serious interest in working with the project.

In summary, there is very good receptivity and willingness within different sectors of Ecuador to undertake disaster mitigation activities. Together with the Ecuador's risk and vulnerability to natural disasters, these facts suggest that DPM activities can be implemented in a sustainable manner in the country.

2.2 NATURAL DISASTER ASSESSMENT

2.2.1 PROJECT FRAMEWORK

Natural disasters are defined as those disasters resulting from the consequence of a natural phenomenon such as climate or geologic conditions. Such disasters include earthquakes, floods, hurricanes, and volcanic eruptions. Although the results of natural disasters are determined by man's actions or lack thereof, man has no control over the disaster's occurrence.

In contrast, man-made disasters are defined as those disasters whose occurrence result from decisions or lack of decisions made by human beings or entities instilled with the responsibility for these decisions. These disasters include such phenomena as dam failures, bridge collapses, building collapses, hazardous material accidents, fuel storage and pipeline explosions, and nuclear accidents. This proposed program does not specifically deal with man-made disasters for one primary reason. The governmental responsibility in preventing such disasters is paramount, the resulting destruction to the individual low-income homeowner is a direct result of the government's (or in some cases private corporation's) action or lack of action.

This proposed project deals specifically with natural disasters. However, some issues addressed in this project are an outcome of man-made disasters, such as erosion which might increase the damages caused by earthquakes and floods. Furthermore, many of the results of this project can be used to develop a similar project for man-made disasters through the necessary change of focus and roles and responsibilities (primarily increased government responsibility and a corresponding reduction in homeowner responsibility).

2.2.2 NATURAL DISASTERS IN ECUADOR

Ecuador is one of the countries in South America that has the highest vulnerability and risk of natural disasters. For example, in the last decade alone, Ecuador has lived through two devastating natural disasters: widespread coastal flooding in 1982-83 caused by the cyclical El Niño phenomenon and the 1987 earthquake which affected four provinces in northeast Ecuador (Pichincha, Imbabura, Carchi, and Napo).

Ecuador is located along the circum-Pacific belt known as the ring of fire which encircles the Pacific Ocean. This area is well known for its long history of volcanic eruptions, earthquakes, tsunamis, landslides, and floods which typically characterize dynamic tectonic settings such as the Andes mountains.

The Andean mountain range divides mainland Ecuador into three principal geographic regions:

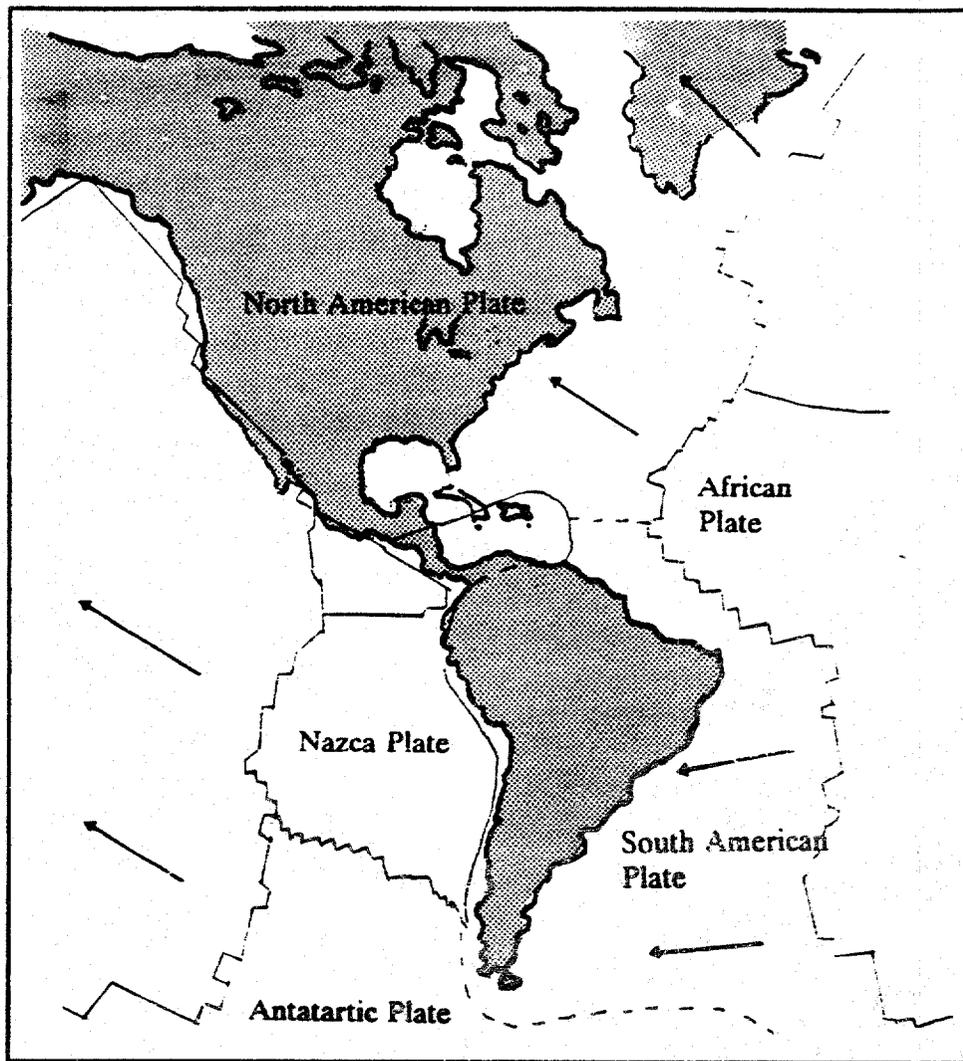
- The tropical coastal region to the west of the Andes. This area comprises a relatively flat terrain, except for a low mountain range along the shoreline. In the coastal region the population amounts to 52 percent of the country's total.¹ The population is divided among Guayaquil, Ecuador's largest city, numerous small cities, and a scattered rural population.
- The Andean region rises more than 6,000 meters above sea level and is dominated by two principal mountain chains: the Western and Eastern Sierra. Both systems are crowned by enormous strato-volcanoes. Lying between them is the Interandean Valley, a great elongate depression which comprises many of Ecuador's principal cities. The inhabitants of the Andean highlands make up 43 percent of the country's population, residing principally in the cities and agricultural areas located in or near the Interandean Valley.
- The Amazon plain begins at the foot of the Andes and spreads eastward. It is the least populated region in Ecuador. Population has been estimated at 5 percent of the total, mostly living in the Amazon region.

Ecuador's major natural hazard risks are:

- o **Earthquakes:** Ecuador is well known for its severe earthquakes as it is located along one of the most active subduction systems of the world. As the oceanic Nazca Plate moves eastward it pushes its way under the South American Plate, while the latter moves westward. In addition, the Carnegie Ridge, under Ecuador has intensified the stresses acting upon the continent resulting in a well developed set of active geological faults.

As a result, intermediate and large magnitude earthquakes have frequently occurred causing large loss of lives and property in Ecuador. During the past 460 years more than 80,000 have died as a consequence of major earthquakes.

¹Ecuador's total population has been estimated at 10.2 million.



Tectonic plates affecting the earthquake and volcanic systems in South America.

The following tectonic environments are responsible for most of the destructive earthquakes in Ecuador and neighboring countries:

- Offshore under the submarine continental platform, at the contact between the colliding plates. In Esmeraldas a series of four major earthquakes with magnitudes greater than seven have taken place in this century (1906, 1958, 1974 and 1976); the 1906 earthquake was one of the largest ever registered in the world (magnitude = 8.6). These earthquakes caused damage not only in the coastal areas, but hundred of kilometers inland as well.

Furthermore, the frequent recurrence of major shocks along Ecuador's coast suggests the presence of a seismic fault which has been projected to have an earthquake with a magnitude larger than seven before the year 2000.

- The Andean tectonism which manifests itself as a long belt of active faults along the eastern foot of the Andes. The intersection of several of these active fault systems lies in the populated Interandean Valley. As a result, devastating earthquakes have frequently occurred in this area, such as that in Riobamba in 1797 causing 40,000 deaths, Ibarra in 1868 resulting in 20,000 victims, and Pelileo in 1949 with 5,000 deaths.

Most recently, the 1987 earthquake affecting the Northern and East Sierra (magnitude = 6.9) resulted in 2,000 deaths, generated thousands of landslides that blocked petroleum transportation and export for eight months, and has severely damaged Ecuador's economy for many years to come.

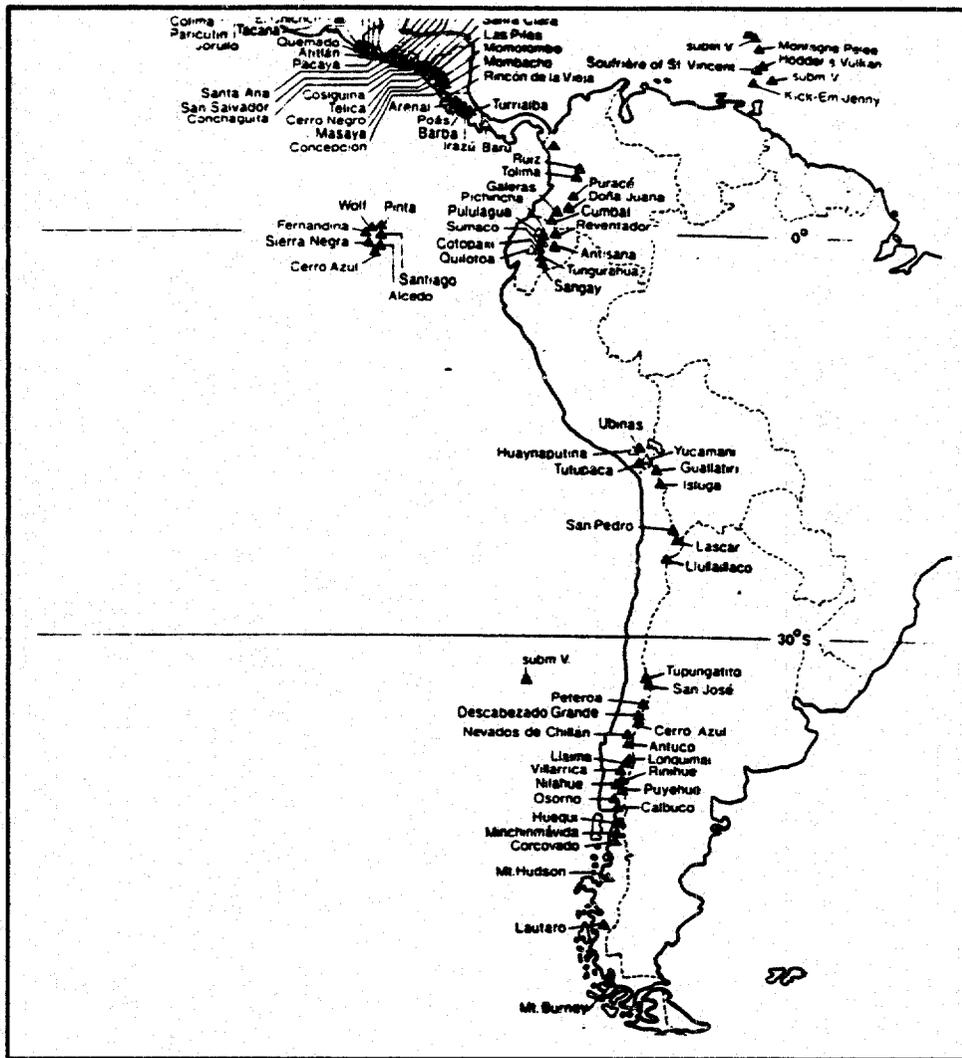
- o **Volcanoes:** More than 200 volcanoes have been recorded in Ecuador of which 25 are active or have the potential to become active. At present the volcanoes that show major activity are Reventador, Guagua Pichincha, Antisana, Cotopaxi, Quilotoa, Pululagua, Tungurahua, and Sangay.

In Ecuador four parallel rows of active volcanoes are identified (single rows of active volcanoes typically characterize most of the South American volcanic chain):

- The Western Sierra is dominated by nearly 20 volcanoes, many active, characterized by explosive eruptions, extensive pyroclastic flows, and calderas. This system includes the Chimborazo, Guagua Pichincha, Cuicocha, and Quilotoa volcanoes.

The Guagua Pichincha has had three periods of activity and eruptions over the past three hundred years. Volcanologists believe that Guagua Pichincha might become active again in the near future. Eruptions of the Guagua Pichincha could completely destroy various small villages located on the flanks of the volcano, and generate enough volcanic ash and secondary mudflows to seriously impair Quito's water supply and infrastructure systems.

- The Eastern Sierra includes nine young volcanoes, most of them with extensive snow and ice caps. This system includes Antisana, Cotopaxi, Tungurahua, Sangay, and Cayambe volcanoes. These volcanoes are characterized by abundant lava flows, lahar (mudflows), and small pyroclastic flows. Because the prevailing winds are from the east, ashes from the eruptions have commonly been carried westward into the Interandean Valley where several important cities of Ecuador are located.

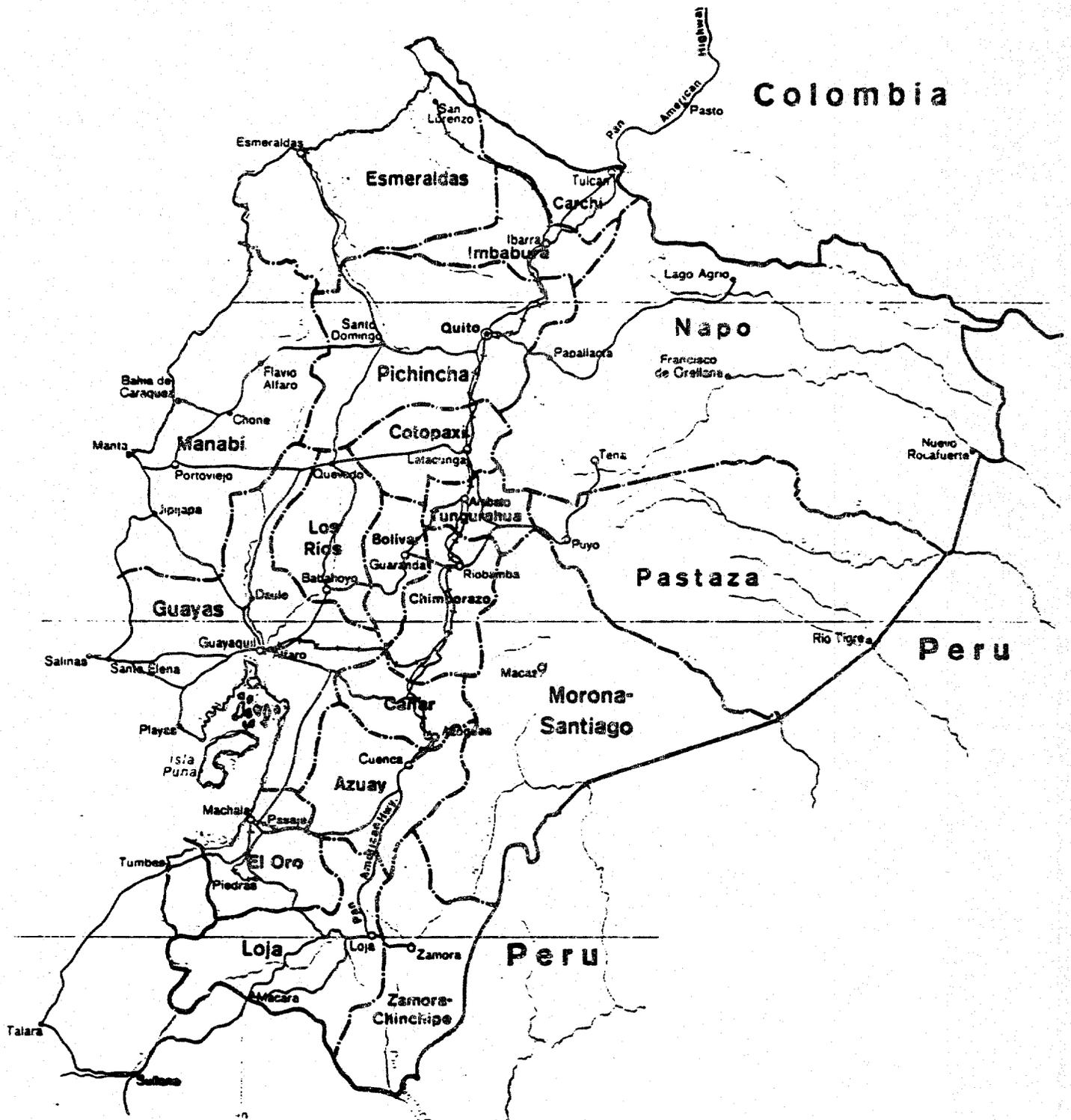


Volcanic system of Central and South America. Courtesy of the Republic of Germany.

Much of the damage from the volcanoes of this group has been caused by devastating debris and mudflows, generated by the sudden widespread melting of the snowcap by the eruption activity. Within this group, Tungurahua has erupted more than 25 times. Based on its history of eruptions, Tungurahua is likely to erupt within the next fifty years.

Cotopaxi volcano has erupted more than 30 times in recorded history and has generated nine major lahar disasters since 1742. Cotopaxi has remained quiet for the past 113 years; however based on its eruptive history volcanologists believe an eruption can be also expected within the next fifty years. When eruptions occur in the future it is estimated that about 30,000 to 130,000 people will be affected in Quito, Latacunga, and Los Chillos.

Ecuador



- The Interandean Valley includes several extinct volcanoes. However, recent studies have determined that Mojanda and Imbabura volcanoes, both surrounded by numerous towns, are not extinct, but have had major eruptions and rock avalanches in the recent past. For example the capital of Imbabura Province, Ibarra, with its 80,000 inhabitants, is built entirely on a widespread avalanche deposit only a few thousand years old.
- Due to its remoteness, the volcanoes of the Amazon Basin have been generally considered to pose no special danger. However, during the 1987 earthquake, which occurred near one of these volcanoes, loose volcanic deposits slid off the mountainous slopes and were converted into enormous debris flows, which swept away the principal petroleum pipeline and the only highway to the oilfields.

- o **Floods:** Two principal types of flood disasters occur in Ecuador, those related to the intense El Niño events and those due to the occasional, but severe local storms.

The movement of warm tropical water along the coast brings in a vast convective air movement which produces rainfall. Occasionally the tropical air mass shifts farther south causing intense and persistent rainfall throughout the coast. This phenomenon is known as El Niño and occurs approximately every five to eight years. In this century, El Niño has been observed in 1917, 1925, 1932, 1953, 1966, 1972, 1982-1983, and 1987-1988.

The 1982-1983 El Niño was the most severe in recorded history. Rainfall in Guayaquil increased nearly two-and-a-half times normal levels. Abnormal rainfall occurred as far south as Trujillo on the north-central coast of Peru, to the extreme northern coast of Ecuador, as well as part of the Sierra. In Ecuador, El Niño resulted in hundreds of deaths and hundreds of million of dollars worth of damage. An estimated 13,750 houses were severely damaged or destroyed; 40,000 families were affected; and 223 schools, 25 bridges, and 1,300 kilometers of roads were damaged or destroyed. Economic losses were estimated at US\$640.6 million.

The second type of floods that affect Ecuador are due to local storms which in turn cause flash flooding. This type of event is precipitated by a large surface runoff which rapidly becomes concentrated in deep, narrow canyons cut into the steep flanks of the Andes. Flash floods have caused extensive damage to villages and roads located along the banks and floodplains of the rivers.

2.3 INSTITUTIONAL ASSESSMENTS

The following organizations are local and international institutions that might play a significant role when implementing this project.

2.3.1 LOCAL INSTITUTIONS

The Civil Defense, created by the National Security Law in 1979, is the highest authority empowered to regulate and organize natural disaster activities in Ecuador. One of the major problems faced by the Civil Defense is the lack of funds. The Civil Defense frequently turns to international donors for program support, thereby becoming increasingly dependent on external funding.

Although research has shown that disaster mitigation measures are more beneficial than emergency relief, Ecuador's Civil Defense programs still focus extensively on relief and preparedness, devoting very limited attention to mitigation itself. The allocation of resources to post-disaster reactions is clearly not sustainable; at this national level, mitigation measures must be promoted.

The Civil Defense operates through "Juntas" and "Jefaturas" that are structured as follows:

- At the provincial level, the Junta is comprised of the Governor, the "Prefecto", and the Mayor. The "Jefatura" includes the Police Department, the Red Cross and the Fire Department.
- At the canton level, the "Jefatura" is comprised of the President of the Municipality, the Police Chief, the Fire Chief, and representatives of the Red Cross, religious institutions, and political groups.
- At the parochial level, the "Jefatura" is comprised of important political, religious, and community representatives.

Theoretically, the Civil Defense is a nationwide network. However, it has failed to effectively deliver its programs at the community level. For example, although the Civil Defense has developed various emergency plans related to different types of hazards affecting Ecuador, the information has not reached the communities visited during the team's fieldwork. Moreover, community residents regard the institution of the Civil Defense as a remote and unknown entity.

When developing disaster programs, a permanent relationship between Civil Defense and communities is important. The Civil Defense itself might well benefit from RHUDO/SA initiatives in DPM activities. However, the most effective approach will be to strengthen the "Juntas" at the parochial level since important community leaders are involved at this

level; in this way, Civil Defense might expand its outreach to an important segment of society.

In preparation for a U.S. government response to a natural disaster, each USAID Mission Disaster Relief Officer in the region has prepared a relief plan and established working relations with national civil defense offices. This provides the opportunity to work with civil defense authorities on programs besides emergency relief, namely mitigation and preparedness.

2.3.2 NATIONALLY-BASED INSTITUTIONS

In Ecuador there are several nationally-based international institutions that are developing programs in the areas of natural disaster, municipal government, and community development. These institutions include Partners of the Americas, World Bank, Interamerican Development Bank (IDB), United Nations Development Programme (UNDP), and Organizations of the American States (OAS).

Coordination between this project and such organizations will expand the resources of the project, avoid duplication of activities, and consolidate a national network capable of undertaking DPM activities. Many of the objectives and activities of these institutions converge with those of this project.

- o **Partners of the Americas:** Partners of the Americas has substantial experience in disaster preparedness activities in Latin America. In Ecuador, it is currently implementing an Emergency Preparedness Program with several activities relevant to this project.

Partners provides extensive training to low-income communities through its program of Public Awareness and Preparedness Education. This private volunteer organization is providing training in emergency management; disaster volunteer corps personnel; and school safety and preparedness. It is also working very closely with the Corporación Ecuatoriana de Trabajos Voluntarios. Through this "Voluntariado", Partners has been able to disseminate its training program throughout the country. In addition, Partners has created seven subcommittees for Emergency Preparedness. These subcommittees are actively working in Quito, Guayaquil, Cuenca, Ambato (where an excellent training program for children is being developed), Santo Domingo, Machala, and Esmeraldas which are the most vulnerable cities in Ecuador.

The DPM project will benefit from close coordination and collaboration with Partners. Selected material from Partners' school safety and preparedness program can be utilized in this program. Opportunities to disseminate its material on DPM activities, and expand its network in the field through Partners' subcommittees and the Corporación Ecuatoriana de Trabajos Voluntarios can be pursued.

- o **Interamerican Development Bank:** The IDB is implementing a program whose main objective is the promotion of municipal development by strengthening the administrative and financial capacity of local governments. This program finances construction, rehabilitation and extension of urban infrastructure. A credit line has been established in Banco Ecuatoriano de Desarrollo Económico (BEDE) for this purpose.

The program provides financial support for projects that are considered priorities within the planning activities of municipal governments. This is important given the intent of this DPM project to place DPM activities within the normal planning process of local governments.

Local governments should be encouraged to request that the IDB municipal program finance natural hazard programs -- i.e., risk assessment studies and natural hazard management -- that are integral to projects of potable water, community upgrading, roads, markets, and other lifeline elements. The convergence of project objectives should be built on.

- o **United Nations Development Programme:** The UNDP has long been involved in disaster-related activities in various ways: as a funding source; as the field representative of the United Nations Disaster Relief Office (UNDRO); and as coordinator of disaster relief activities.

The UNDP is currently supporting disaster mitigation and preparedness projects in several countries. UNDP and UNDRO are promoting an initiative to provide training activities to in-country personnel, NGOs, bilateral donor representatives, and representatives of central government planning organizations in disaster reduction. The activity emphasizes the links between disaster reduction and ongoing development.

In addition, UNDP is implementing a program in which it has prepared manuals to improve the construction of low-cost housing. Information is presented on construction technology, disaster resistant methodologies, and building materials for each of Ecuador's three main geographic regions. RHUDO/SA's DPM project will be able to benefit from this work, applying the manuals in the pilot projects and disseminating them to appropriate community groups in the country.

- o **World Bank:** The World Bank is developing a program that will provide education and training to Ecuadorean NGOs. The DPM project should coordinate closely with the World Bank and one of its implementing institutions, the Fondo de Interés Social, which will be responsible for the disaster mitigation for housing component.
- o **Organization of the American States:** The OAS is developing maps that combine assessments of two or more natural hazards. The combined effects of natural

phenomena on an area can be determined and mitigation techniques applicable to all disasters can be identified. With such maps, vulnerability and risk can be analyzed. Critical lifeline facilities -- transport and communication, utilities, medical, police, and fire stations -- can also be mapped. Combining lifeline mapping with hazard mapping permits the identification of appropriate mitigation measures. The OAS is undertaking this program throughout the Americas, and DPM activities should utilize those resources in Ecuador.

**PART II: AN APPROACH TO EXPAND PREPAREDNESS AND
MITIGATION ACTIVITIES IN ECUADOR**

3. PROJECT APPROACH

The project approach has been designed to achieve the project objectives of expanding the participation of local governments, community-based organizations, and the private sector in disaster preparedness and mitigation programs.

Each of the major objectives of this project have been divided into two elements: the problem and strategies and recommendations. The latter reflects the most appropriate activities to be carried out during the first stages of RHUDO/SA disaster initiatives in South America. It is anticipated that the major portion of RHUDO/SA's funding for DPM programs will be devoted to the implementation of these strategies.

The following elements were taken into consideration during the development of the project approach:

o **Basic Guidelines**

- effectiveness from the standpoint of preparedness, mitigation, and the environment;
- a receptive municipal government;
- a receptive and well established community;
- interested NGOs and/or grassroots organizations;
- effectiveness from community standpoint;
- receptive institutions in the private sector;
- affordable technology and solutions;
- problems in common to be a source of concern in other locations; and
- prompt results.

o **Potential for Success**

- **Strategies must be amenable to a solution which can be sustained by the community and/or recipient institution once the project has formally ended.** The selected municipalities are considered the strongest in Ecuador in terms of organization, personnel, and economic resources; the selected communities are highly organized, and community organizations have been operating in those communities for a long period of time, carrying out self-help programs (i.e., El Comité del Pueblo has recently completed a potable water project for 6,000 persons by working with a strong community).

From the private sector, institutions from the building professions, credit institutions, the insurance industry, among others, who recognize that DPM activities as an area of interest were identified.

- **Preparedness and mitigation activities should be able to be located within the normal development process of the recipient institutions and selected communities.** The activities of this project have been designed to place disaster events in the development process. The project considers the current planning functions of local government, community needs, and private sector interests in disaster response. The underlying logic for this approach is that disaster programs are not sustainable if they are set apart to respond exclusively to emergency situations. The tasks of strengthening awareness and institution building in disaster preparedness and mitigation activities must be an integral component of the normal development planning process.

o **Subsequent Steps**

The Action Plan in Part III details the short, medium, and long-term activities to be carried out. It is expected that the experience and lessons learned from this project will lead to similar activities throughout Ecuador, and in other countries.

The selection of future locations for project activities in Ecuador should be based on information about low-income communities (various poverty studies have been prepared in Ecuador; e.g., el Fondo de Seguridad Social recently completed a study which identifies 59 communities with incomes below the poverty line) and on disasters affecting different locations.

DPM activities in terms of lifelines are limited in Ecuador to addressing only the overall infrastructure system in targeted low-income communities. However, it is expected that as RHUDO/SA expands its initiative throughout the region, lifelines systems should be addressed as a full strategy. Lifelines play a critical role during natural disasters. The most important lifelines are those that provide water, electricity, transportation (roads, highways, and bridges), fuel, sewage removal, and communications. Other important community lifeline facilities that are essential after a disaster event include such public services as schools, hospitals, police stations, and other vital public utilities. When these elements are most needed -- in times of disaster -- they can fail or be disrupted as a result of the disaster itself. DPM activities can reduce the vulnerability of lifeline failures and by keeping them functioning and effective, the effects of natural disaster can be reduced.

MAJOR PROJECT COMPONENTS

<p><u>RHUDO/SA</u> Regional Housing and Urban Development Office for South America.</p> <p>Responsible for promoting DPM activities in South America.</p> <p>Responsible for project management and implementation.</p>	<p><u>DPM activities</u></p> <p>This term reflects three concepts:</p> <p><u>Disaster:</u> An occurrence of severity and magnitude that normally results in deaths, injuries, and property damage.</p> <p><u>Mitigation:</u> Mitigation refers to measures which eliminate, reduce, or change the occurrence or effect of a disaster.</p> <p><u>Preparedness:</u> Preparedness is planning how to respond when a disaster occurs and working to increase resources available to respond effectively.</p>	<p><u>Municipal Government</u></p> <p>In this project, the role of municipal governments is to include within their normal planning process actions to be taken before and after a disaster, to promote the involvement of other economic sectors, and to undertake training activities directed to staff and key community sectors.</p>
<p><u>Community-Based Organizations or Non-Governmental Organizations (NGOs)</u></p> <p>These organizations are community groups working on one or several community development problems. Their primary responsibility is to assist local communities in gaining the resources and leverage necessary to control their own development process.</p>	<p><u>Private Sector</u></p> <p>In this project private sector includes the construction industry (builders, material producers and suppliers, architects, engineers), the insurance industry, and credit institutions that might become involved in DPM activities.</p>	<p><u>Nationally-Based Institutions</u></p> <p>In this project nationally-based institutions are those international organizations operating in Ecuador that are presently supporting development programs and that might have a role in supporting DPM activities.</p>

4. OBJECTIVE I: INCREASING LOCAL GOVERNMENT PARTICIPATION

4.1 THE PROBLEM

Municipal governments are key institutions within a country's system of government. Municipalities provide the necessary means for the collective well-being; contribute to the protection of local interests; plan and promote community development; and deliver basic services.

It is within this context that municipalities are the most appropriate government institution to carry out preparedness and mitigation activities. It is the level of government closest to and with the most impact on communities and individuals.

Unfortunately, municipal governments typically are ill-prepared to anticipate or respond to natural disasters. While they may be equipped to carry out functions under normal circumstances, they do not have the resources to respond to the massive demands of the community when a disaster strikes.

Municipalities generally have not prepared plans to minimize and respond to catastrophes. They do not devote their limited administrative resources to DPM activities. For instance, although hazard awareness studies have been initiated in many municipalities, the information developed is limited to disaster relief activities, not preparation and mitigation, and in any case, is not disseminated to the community.

As major cities experience rapid urban growth, the opportunities for municipalities to play an effective role in disaster mitigation becomes more difficult. Local governments find it difficult enough to plan and provide a satisfactory environment to absorb the growing levels of an urban population, much less plan for future events such as disasters.

Municipal governments face serious administrative problems which also hinder their ability to provide efficient services to their constituency. The deficiency of municipal finances is rooted in the inability to collect taxes and other municipal revenues. This inability is tied to, among other issues, the lack of an accurate cadastral system. This problem has an important impact for DPM activities. The lack of adequate land controls allows the number of informal settlements to increase -- built virtually without any control and standards and where the legalization of land ownership has not yet started. This well documented phenomena -- informal settlements in high risk locations, substandard housing, lack of adequate infrastructure, and overcrowded conditions -- is a major contributor to the devastating effects of natural disasters.

4.2 STRATEGIES AND RECOMMENDATIONS

The following strategies and recommendations are intended to increase the participation of municipal government in DPM activities. The underlying assumption of these strategies is that if municipal governments a) include within their normal planning process actions to be taken before and after a disaster; b) promote the involvement of other economic sectors; and c) undertake training activities directed to staff and the community, they will be better able to effectively respond to natural hazards.

The strategies and recommendations included in this section are designed to be carried out simultaneously in the municipalities of Quito, Ambato, Latacunga, and Riobamba.

4.2.1 INCORPORATING DPM ACTIVITIES WITHIN THE MASTER PLANS OF MUNICIPAL GOVERNMENTS

A. STRATEGY

Several municipal governments are taking definitive steps to update, expand, or prepare their master plans. This activity is supported by IDB, the World Bank, the German Aid Agency (GTZ), and the Asociación de Municipalidades del Ecuador (AME), among others.

DPM considerations can easily be included in city master plans. For example, a land use plan that identifies urban service areas where urban development is encouraged can also identify hazard areas -- flood plains, fault zones, volcanoes -- emergency shelters, and land for relocation. Such plans will improve the likelihood that local governments will adopt DPM activities in a permanent and sustainable manner since they will become an integral part of the city's normal planning process.

All municipal governments included in these strategies and recommendations are presently preparing master plans. Quito, Ambato, Riobamba, and Latacunga had already developed natural hazard maps; vulnerable communities have been identified. Recommendations are in place to improve hazard resistance codes.

The core of these strategies is that DPM activities should be promoted within municipal governments and adopted as part of the normal development process of municipalities. This in turn will increase the potential for RHUDO/SA's natural disaster initiatives being developed in a sustainable manner in Ecuador.

B. RECOMMENDATIONS

- o **To develop collaborative efforts with the municipalities to expand their planning activities to incorporate DPM measures.**

RHUDO/SA should provide assistance to the municipalities of Quito, Ambato, Riobamba, and Latacunga on the following issues in order to include DPM activities in their planning process.

- To identify and define objectives and policies of DPM activities to be introduced into local government plans, policymaking, and operations.
- To prepare vulnerability and risk studies as integral parts of municipal development planning programs.
- To ensure that codes, ordinances and regulations controlling development are reviewed within the framework of natural disasters, and that as such, they provide protection consistent with the degree of risk.
- To develop alternatives for legislation to control the growth of settlements in high risk zones.
- To develop affordable minimal standards for construction of housing by the informal sector that provide disaster protection.
- To develop land tenancy practices (supported by cadastral systems) for the informal sector (excessive high land development standards; streamlining of certain administrative procedures; softening of titling procedures) that promote DPM practices.
- To identify land for possible reallocation of housing from high risk areas to lower risk areas; this should consider the demand for land and housing by distinct market segments, future roles of the public and private sectoring both formal and informal land development, and the legal and regulatory institutional framework.
- To develop adequate taxation or disincentives for development in designated high risk zones.
- To develop retrofitting practices in high risk areas; these can be introduced during homeowner and public building renovation.

- To help municipalities seek opportunities to undertake mitigation studies and activities when, for instance, nationally-based institutions are supporting municipal development projects.

4.2.2 DEVELOPING PUBLIC/PRIVATE PARTNERSHIPS

A. STRATEGY

There will always be emergencies and disasters. Mitigating them, preparing for them, responding to them, and recovering from them continue to be fundamental responsibilities of local governments, even as they face serious budget constraints.

One of the problems that contributes to municipal government weakness is that national resources are managed by central governments; the economic model of the 1960s and 1970s gave a leading role and major control to a centralized public sector. When a disaster strikes, local governments do not have the resources to respond quickly to local needs and the central government is too far removed to quickly and effectively devote national resources to the affected community. In this sense, local governments become administratively and operationally ineffective during a disaster.

In the last decade, there is a growing tendency to develop public/private partnerships to expand the local resource base in support of development programs. Local governments are increasingly entering into agreements with the private and informal sectors to address community programs. For instance, municipal governments are installing basic infrastructure as private developers undertake housing projects for low-income families. Public/private partnerships will continue to grow in importance in the coming years.

The underlying assumption of this strategy is that public/private sector partnerships can be a positive force in developing disaster programs, and can help reduce the economic burden on municipalities when responding to local disasters.

B. RECOMMENDATIONS

To implement public/private sector partnerships, RHUDO/SA should promote collaboration and communication between municipalities and various leading community sectors. The purpose of this activity is to develop a cadre of institutions with shared responsibilities in DPM activities. These recommendations derive from the view of municipal government needs.

RHUDO/SA could support meetings, workshops, and if necessary, act as a coordinator within these sectors when promoting this strategy. It is anticipated that the Latin American Center for Urban Management (LACUM, see annex 1) can provide an appropriate forum for these activities.

o **Promoting partnerships to increase the adoption of mitigation measures within private sector projects.**

Municipal partnerships with the private sector can promote incentives such as loans, guarantees, grants, or tax reductions for those institutions and individuals that comply with disaster initiatives in high risk areas. Incentives can be provided, for example, for the use of building hazard-resistant codes and locally manufactured building materials.

Equally critical is to promote the collaboration of community planners, architects, and engineers, professional associations, and banking/financial institutions to collaborate in the formulation of the master plan and training activities programs of municipalities (other complementary recommendations from the private sector view are presented in section 6). The advantage can be mutual; municipalities can take advantage of the practitioners in the field while professionals can have an input on the decision making process of local urban development. This type of activity can result in projects such as new land-use policies that limit construction projects in hazard-prone areas.

o **Promoting partnerships to increase the adoption of mitigation measures within the informal sector projects.**

Due to unplanned construction, the use of non-conventional materials, and the absence of sound technical skills, the quality of construction in most peripheral settlements is poor. Municipalities should strengthen their relationship with community-based organizations, neighborhood associations, grassroots organizations, cooperatives, and financial institutions that provide credit to the informal sector members and/or participate in community development projects. Partnerships between municipal governments and the informal sector can address the following roles for municipal governments:

- To serve as guarantors for NGOs when they have the potential to receive local or international loans for development activities, such as improving housing and infrastructure conditions in poor neighborhoods.
- To make loans to informal private sector organizations or jointly-held financial institutions that agree to make specific types of housing loans, such as for those that comply with seismic resistant mitigation measures.
- To promote a program of public/private participation to solicit views from interest group and concerned citizens at the community level. For example, NGOs and key leaders can collaborate on the preparation of hazard assessments in their communities; they usually have first hand experience from

past disasters. Pilot project activities might start in the neighborhoods of La Nueva Vida and Escurandia in Latacunga, and Santa Teresa in Riobamba.

- To utilize NGOs and key leaders in the preparation of documentary material about natural hazards. Pilot project activities might be initiated in the neighborhoods of La Nueva Vida and Escurandia in Latacunga, and Santa Teresa in Riobamba.

o Promoting partnerships with the media.

The media is a powerful resource that can be used to deliver DPM activities in an accurate and objective way to the community. Municipalities should invite the media to participate in educational programs for preparedness, mitigation, risk reduction, and rehabilitation activities.

4.2.3 DELIVERING TRAINING ACTIVITIES

A. STRATEGY

There is a growing consensus that local government staff need more systematic training in supervisory, managerial and other technical skills related to DPM activities. This type of activity is supported in many countries by bilateral and multilateral donors. The underlying assumption of this strategy is that the more professionally managed and operated a city government is, the better prepared for natural disasters it will be.

B. RECOMMENDATIONS

Training that has an impact on DPM activities includes policy and awareness, traditional municipal management and administration, and resource mobilization, as well as specialized disaster-related skills.

- o Mayors, council persons, and other political leaders should be trained to understand the importance of disaster preparedness and mitigation.**

National level training events to which city representatives are invited can include DPM awareness in courses.

- o Staff should be trained in the characteristics of hazards and their consequences and severity.**

An effective program can be prepared and applied through forums, workshops, actual drills, and other such activities. Subjects will include hazard definitions, risks, and vulnerability (the potential impact on the population, property, economy, environment, and the ability to recover).

o **Community outreach and technical staff should be trained in mitigation measures.**

Hazard-prone structures can be made safer through rehabilitation. Residents can be provided with information, through neighborhood workshops, that promotes the incorporation of hazard mitigation techniques in maintenance, repair, and home improvement projects.

o **Strengthening the capacity of municipal planning units.**

To assist municipalities, technical information can be collected on natural disaster related issues. Many relevant documents have been prepared by OAS and the Federal Emergency Management Agency (FEMA).

Some of LACUM's current municipal government training events should be focussed on DPM activities in local planning units. The AME and the Instituto de Fomento y Desarrollo Municipal (INFODEM) are presently delivering training courses to municipalities on subjects of municipal development. Municipalities might request that DPM topics be included in workshops and training activities of these and similar organizations (e.g., land use studies that include mitigation measures in high risk neighborhoods).

4.3 SUMMARY OF LOCAL GOVERNMENT ACTIVITIES

Activities will be carried out in the municipalities of Quito, Ambato, Riobamba and Latacunga.

o TECHNICAL ASSISTANCE

Assistance will be provided to selected municipalities in the preparation of their Master Plans. Assistance should be directed to:

- . The formulation of policies related to DPM issues.
- . Vulnerability and risk studies.
- . Codes and ordinances.
- . Legislation.

o PREPARATION OF NATURAL HAZARD INFORMATION AND VULNERABILITY MAPS

The communities of La Nueva Vida and Escurandia in Latacunga and Santa Teresa in Riobamba will develop natural hazard information and prepare hazard vulnerability maps with the support of the municipality. Assistance must be provided to carry out this program.

o TRAINING

Training will be provided on DPM-related issues to:

- . Mayors and officials (Consejales, Prefectos).
- . Administrative staff.
- . Community outreach program staff.
- . Community development program staff.
- . Municipal planning staff.

Several workshops will be prepared to increase the collaboration of different sectors in programs launched by municipal governments. Workshops should be directed to:

- . Private construction sector, such as community planners, architects, engineers, professional associations.
- . Private financial sector, such as banking, credit, and insurance institutions and their associations.
- . Community based-organizations and community leaders.
- . The media.

5. OBJECTIVE II: INCREASING COMMUNITY-BASED ORGANIZATION PARTICIPATION

5.1 THE PROBLEM

A recent poverty study sponsored by USAID shows that 57 percent of Ecuador's population is considered poor and that 27 percent is living below the poverty line.²

These facts are unlikely to be reversed in the near future. Cultural patterns have traditionally constrained the assimilation of large segments of the Ecuadorean Indian population into a productive and modern society. In addition, Ecuador has experienced the strong effects of the international economic crisis which since 1981 has set back the economic growth of most of the developing world. The effects of this crisis on low-income families are tangible: as oil prices experienced a decline in Ecuador and a number of economic measures were adopted to reduce the deficit in the balance of trade, social programs were reduced. This situation has largely affected the economic growth and consolidation of low-income families.

Indicators on health and education reflect the substandard conditions of most low-income communities in Ecuador. Remoteness, difficult topography, lack of basic services, and limited acceptability by the economically dominant population have become part of a social framework which inhibits the delivery of effective public services. Infant mortality in low-income groups has been recorded as high as 95.5 per thousand live births; 82 percent of the population has never attended school; in the Andean region this percentage is sometimes as high as 92 percent.³

At the same time that low-income communities are experiencing a substantial deterioration in their quality of life, population is increasing. Both population growth and poverty are factors that irreversibly increase natural hazard vulnerability. In Ecuador, large family groups each day have less opportunity to live in a safe environment and recover from a future natural disaster.

The following table shows some of these trends:

²Pobreza Urbana y Crecimiento Económico en el Ecuador, page 14, volume 1. The poor are defined in this study as individuals or households that do not have access -- on a sustainable basis -- to a family basket of basic food, as well as to education, physical development, employment, and social justice.

³Social Indicators of Development 1989, The World Bank.

POPULATION GROWTH 1950-2000
(in thousands)

Regions	1950	Census			Projections		
		1962	1974	1982	1990	1995	2000
Total	3202.8	4564.1	6521.7	8139.0	10781.5	12314.1	13939.3
Andean	1856.4	2359.4	3146.6	3825.1	4926.8	5525.2	6132.4
Coast	1298.5	2127.4	3179.4	3984.9	5359.7	6173.6	7039.4
Amazon	46.5	74.9	173.5	263.8	407.3	513.9	639.6
Others	1.3	2.4	22.2	65.2	87.7	101.4	127.9

INCREASE IN POVERTY IN SELECTED CITIES

City	Needs Factor	No. of Poor	% of Total Population			Ranking
			Without Water	Under Nourish.	Substand. Housing	
Sto. Dgo.	44.86	54,846	49.7	36	43.6	1
Chone	32.19	22,229	70.5	51	29.3	2
Quevedo	37.39	45,904	62.3	40	34.1	3
Ambato	45.10	55,809	47.1	53	38.2	4
Riobamba	45.55	38,258	30.6	69	44.3	5
Babahoyo	40.94	23,355	54.7	47	27.8	6
Tulcán	55.43	15,608	28.5	38	44.7	7
Machala	51.20	57,802	40.6	40	33.6	8
Ibarra	49.35	26,156	23.6	60	44.8	9
Esmeraldas	45.55	47,532	46.2	44	29.7	10
Loja	56.31	36,609	21.8	42	44.6	11
Cuenca	47.62	73,587	38.9	63	30.2	12
Quito	56.92	383,732	20.3	71	38.3	13
Guayaquil	56.98	521,708	35.1	32	27.9	14
Portoviejo	52.00	45,906	37.9	40	23.7	15
Milagro	54.26	29,456	23.1	33	28.4	16
Manta	48.36	37,848	23.3	68	26.8	17

Source: Pobreza Urbana y Crecimiento Económico en el Ecuador, pages 19 and 61.

5.2 STRATEGIES AND RECOMMENDATIONS

The following strategies and recommendations are directed at increasing the interventions of community-based organizations in pre- and post-disaster activities and promoting community self-reliance by increasing the knowledge base of low-income families in terms of DPM activities.

The underlying assumption of increasing community-based organization participation is that increased opportunities for community-based organizations to play a major role in pre- and post-disaster activities will be available if a) existing community organizations are strengthened through training; b) DPM activities are linked to programs that could improve the standard of living and address the basic needs of the community; and c) DPM activities can transcend the concept of physical shelter and address other related concerns, such as environmental degradation which is presently hindering development opportunities of low-income settlements.

5.2.1 STRENGTHENING EXISTING COMMUNITY PROGRAMS THROUGH TRAINING

A. STRATEGY

One of the most effective ways to introduce DPM activities to low-income communities and strengthening the capacity of NGOs is through training. Within this strategy, training activities should be understood as a path to guide technology and resources to community-based organizations and to promote a constructive approach to minimize the effects of natural hazards. Such an approach should be developed to support consistent methodology, and language and cultural characteristics.

When a methodology does not succeed in taking advantage of the distinguishing cultural characteristics of the people who are targeted by it, it will fail.

The legends and myths through which communities explain the occurrence of disasters are usually considered as immutable factors that limit the effective prevention of these phenomena. Through a creative and respectful approach to these popular beliefs, however, what is commonly considered an obstacle or a constraint can be turned into a positive tool for change.

There is a legend that Sor Mariana de Jesús, a saint from Quito, prophesied that Ecuador would never be destroyed by volcanoes nor by earthquakes but rather by poor government. During the model workshop held in the community of La Lucha de los Pobres, the consultants used this legend and other fatalistic attitudes of some of the participants to demonstrate that the lack of adequate land use regulations (urbanization in high risk zones) and the absence of standards and controls that govern seismic resistant construction (lack of reinforced structures, lack of quality control for construction materials, etc.) are actions that a "good government" can undertake to reduce the harmful effects of disasters.

Most low-income communities lack technical resources. They may not be aware that technical solutions to major community problems exist; resources might not be available to obtain needed information; residents may lack access to technical experience required to select and implement the most appropriate interventions.

Existing NGOs are an effective vehicle to undertake training activities. NGOs are educational in nature. They teach through their actions in the field or through interactive programs with the community; they are typically successful in increasing local awareness on a particular subject; they have the field experience and the ability to reach target groups. Due to the diversity of their capabilities, there is an explicit opportunity to deliver community-based preparedness and mitigation in pre- and post-disaster activities.

In Ecuador, there is a wide range of community-based organizations that are playing an increasingly important role in almost all sectors of the national economy. Importantly, they are willing to work on DPM activities. (In addition to the community-based organizations discussed below, other possible NGOs in Ecuador are included in annex 2.)

As these organizations, and others, become vehicles to disseminate DPM training and information, their institutional capacity itself is strengthened by refining their agendas and improving their technical skills in subjects such as land use practices, the use of indigenous materials, sound environmental practices, among others.

One of the main objectives of a strategy is to strengthen the autonomy and capacity of the communities to respond to natural events. Communities should depend less and less on external aid for assistance in the aftermath of a disaster.

B. RECOMMENDATIONS

o To undertake DPM training activities in the neighborhood of El Comité del Pueblo through FIAD

FIAD is in the process of increasing its involvement in the production of housing for low-income families. As mentioned earlier, FIAD was responsible for managing and implementing a self-help project which provided potable water to the community of El Comité del Pueblo. FIAD is seeking technical assistance to develop illustrated guidelines and a book/catalogue of practical information on construction subjects.

The central intent of this recommendation is that by promoting appropriate design concepts, materials, construction techniques, codes, and standards in the traditional building process, disaster resistant houses can be delivered at economical costs. Moreover, the adoption of this strategy has the advantage of adding disaster-resistant units to the existing stock of lower and middle-income housing. In the absence of such activities, illegal and usually uncontrolled settlements require increasingly greater financial resources and efforts by the

urban poor, and result in units with short lives, and unable to resist the effects of natural disasters.

RHUDO/SA disaster initiatives might provide training support in the following areas:

- Design concepts that address the development of appropriate land use practices, housing layout, building dimensions, topology, configuration, and assembly methodology according to traditional needs and disaster-resistant techniques.
 - Construction costs, local labor issues, and the optimum use of existing resources.
 - Minimum building code requirements and standards designed for low-cost housing (standards should be viewed in terms of costs and benefits, with special attention to disaster-resistance benefits); squatter settlement upgrading issues.
 - Construction materials, including issues of appropriate building materials; the use of indigenous materials versus commercial materials (indigenous materials may have severe limitations, such as long curing times, poor weathering resistance, and low strength); cost; quality; production; construction skills; availability; and sustainability.
 - The opportunity for the commercial production of appropriate construction (this could be an income generating activity that might increase the willingness of community residents to undertake adequate hazard-resistant techniques for their own homes).
 - Maintenance. One of the factors that accelerates the deterioration of the low-income housing stock is the lack of maintenance; however, maintenance costs are generally high and unaffordable by the poor; several studies have indicated that the average annual cost of maintenance is about ten percent of the present cost of a one-bedroom unit.
 - Techniques to minimize erosion (on bare slopes, rainfall cannot be retained to soak into the soil and replenish the water table), improve the drainage system, and conserve topsoil.
- o **Federación de Cooperativas de Ahorro y Crédito (FECOAC) and DPM activities**

More than 250 cooperatives are affiliated with FECOAC in Ecuador. It provides assistance to several Quito neighborhoods including El Comité del Pueblo.

FECOAC is developing a manual on low-cost construction techniques for application in Ecuador. FECOAC has expressed willingness to introduce DPM construction technologies into the manual. The following areas have been identified as area of interest:

- The introduction of mitigation measures as a normal element in the planning of low-income housing.
 - The provision of technical support to cooperative members for the construction of earthquake resistant homes.
 - The promotion and use of traditional materials and construction systems that are found in the locality and that can be used to strengthen or upgrade the most vulnerable components of low-income shelter.
 - The promotion of those construction techniques which will increase the efficiency of the community in post disaster recovery activities.
 - The promotion of credit programs for the strengthening of existing homes and small business establishments in high risk zones.
 - The introduction of environmentally sound programs that help to minimize the effects of natural disasters.
 - The promotion of recovery of the communities' traditional knowledge as an educational resource.
- o **Centro Médico de Orientación y Planificación Familiar (CEMOPLAF) and DPM activities**

CEMOPLAF operates through a national network of 500 representatives, nearly 20 percent of whom are from the Ecuadorean Indian population. The following areas of DPM interest have been identified:

- Introduction of the subjects of disaster preparedness and mitigation in courses for staff personnel; using extension workers to introduce disaster prevention to participant communities.
- Planning the utilization of the extensive CEMOPLAF network of 20 clinics around the country as local resources for disaster assistance, thereby benefiting participating NGOs.

o Collaborative Efforts

There are several ongoing activities in the region that might support this project.

- UNDP in Ecuador and the Servicio Nacional de Aprendizaje (SENA) in Colombia, have designed booklets for the construction of low-cost, seismic-resistant housing. These booklets can be adapted to the specifics of each zone and community and used extensively in training activities.
- In Ecuador, the Servicio Ecuatoriano de Capacitación y Aprendizaje Popular (SECAP) provides professional training similar to that provided by SENA. Similar training is available in Chile and Bolivia.
- These kinds of organizations are members of the Uruguay-based CINTERFOR, an information network for professional training, through which LACUM could work to disseminate disaster training materials.
- Contact should be established with the Centro Interamericano de Artesanías y Artes Populares (CIDAP), a Center of OAS, in Cuenca, Ecuador, dedicated to the investigation and promotion of the culture of the peoples of the Americas in order to get support for the publication of brochures, posters and other written materials for indigenous communities.

5.2.2 PROMOTING COMMUNITY NEEDS

A. STRATEGY

In most communities visited in Ecuador interest in DPM activities was most clear when an actual or threatened disaster was linked to programs that could improve the economy and living conditions of the community. Since disasters are regarded as events that might not take place within the lifetime of the residents, the strongest community concerns are linked to present needs. That said, however, the need to reduce the impacts of natural disasters in low-income communities is increasingly recognized by residents of those communities themselves.

There are a number of programs that do not have an apparent relationship to natural hazard programs but nevertheless have a direct impact on the delivery of DPM activities. For instance, for most members of the community of Cayambe major needs are related to electricity, sanitation, and road maintenance. As part of a program directed to those needs, La Casa Campesina de Cayambe is working on erosion problems on the slopes of the Cayambe volcano. The Director of La Casa de Cayambe has said that "for the peasants and the indigenous peoples, neither the past nor the future exist as realities. As a consequence, they can only be reached through their present needs."

When implementing these types of activities in low-income communities, two issues must be considered. First, DPM programs should be initiated based on the needs of the beneficiary communities, even when in some cases, those needs have no apparent relationship to housing or to the hazard risks identified as priorities in this project (floods, earthquakes and volcanic eruptions). Second, DPM programs should yield short-term benefits, in terms of improving the quality of life of the community and its members.

B. RECOMMENDATIONS

- o To undertake DPM educational programs for children and homeowners in the neighborhood of La Lucha de los Pobres through El Comité Pro-Mejoras**

La Lucha de los Pobres is a small community located in southern Quito. El Comité Pro-Mejoras is a grassroots organization that was organized as a result of an earlier invasion of the present settlement. For more than six years it has helped numerous members of the community purchase a substantial portion of the land, legalize titles, and build their homes. Presently the United Nations Children's Education Fund (UNICEF) is sponsoring a program for the children in this community by helping poor families with food support and educational programs for the children. Leaders of this community make clear that due to the success of the UNICEF program, any program involving assistance for the children would have a positive reception within the community.

A program oriented to increase hazard awareness of the youth in La Lucha de los Pobres is appropriate. The benefits of addressing the educational needs of children can be summarized as follows:

- Topics on DPM activities will enhance children's curricula in science and social studies.
- Knowledge of DPM activities will increase children's survival opportunities in case of a natural catastrophe.
- Children will talk with their parents and relatives about concepts that they have learned during DPM training, thus turning into excellent DPM dissemination-multipliers.
- When DPM activities are delivered within a young population, there is a great opportunity to adopt mitigation measures -- over the years -- as part of the normal development process of the community: children are the future leaders and decision-makers of their communities.

The contents of a natural hazard program for the children of La Lucha de los Pobres should be fully discussed and accepted by the community before implementation.

Support material to initiate this activity is available. The Children's Television Network, is in the process of developing a complete educational series that educates children in DPM activities through their world renowned "Sesame Street" characters (see annex 3). In addition, FEMA has three publications in Spanish on the subject: "Aspectos de Seguridad en Casos de Terremotos - Actividades para Los Niños"; "Guía para Desarrollar un Programa de Seguridad en las Escuelas en Caso de Terremotos"; and "Cómo Luchar Contra las Reacciones de Los Niños a Los Terremotos y a Otros Desastres". Also, Partners of the Americas is in the process of developing training material in natural disasters for children.

In addition, La Lucha de los Pobres has a strong need for hazard-resistant housing and infrastructure. Similar training programs to the one proposed for the Comité del Pueblo should be carried out in La Lucha de los Pobres for homeowners. Special emphasis should be placed on techniques promoting the appropriate use of local materials, seismic resistant construction techniques, maintenance, repair, home improvement projects, techniques to minimize erosion, improvements in water drainage system, and conservation of topsoil.

5.2.3 ADDRESSING RELATED ENVIRONMENTAL CONCERNS

A. STRATEGY

The measures that can reduce damage from natural disasters are far more than those applied to the construction of the physical "shelter". A comprehensive strategy for the shelter sector in low-income communities should transcend the concept of "a simple physical structure" and incorporate other related development issues. In this context, one of the issues that hinders the development opportunities of low-income communities is environmental degradation.

A mainspring for economic development is technology, and while this technology offers the potential for economic growth it also entails a high risk for rapid consumption of finite resources, the creation of new forms of pollution, and the introduction of new variations that could change evolutionary pathways. At present, society has been forced to be concerned with the impacts of ecological stress -- degradations of soils, water, atmosphere, and forest - upon our economic future due to the impacts and trends of past economic development upon the environment.

In the past, urban growth, economic development, environmental preservation, and disaster management were issues neatly compartmentalized within sectors. Presently, there is an increasing awareness that these issues are intimately interrelated. Urban growth is usually

triggered by economic development in the form of factories, industries and human settlements; and this trend of urbanization without planning -- as usually undertaken in the Third World -- has serious impact on the environment. Such environmental degradation can have major consequences on the effects of natural disasters which in turn, usually retards and even destroys the benefits achieved through economic development.

Natural and environmental disasters are mutually reinforcing events. For example, the vulnerability of Ecuadorean coastal communities to the consequences of El Niño, and to seismic sea waves or tsunamis, increases considerably as a result of the destruction of mangroves which in their natural state are a protective barrier against the winds and ocean waves. The destruction of mangroves is closely linked to the massive construction of ponds for raising shrimp, an activity that has experienced substantial growth on the coast in the last decade. The consequences of this destruction will be evident after, as is forecasted, the phenomenon of El Niño occurs in a near future.

The adoption of this strategy which combines DPM and environmental activities allows RHUDO/SA to address, in an integrated way, two primary obstacles to community development. Natural disasters and environmental degradation can decimate development gains of low-income settlements. By improving the country's ability to mitigate the effects of natural disasters and environmental degradation, RHUDO/SA increases its opportunity to maximize the impact of its development programs.

In most instances the following conditions would support the incorporation of related environmental concerns within DPM activities:

- Where increased benefits from the environmental concern(s) can be shown from DPM activities without major additional funding requirements.
- Where the related environmental concern(s) are found to be mutually supportive with DPM activities.
- Where the inclusion of the environmental concern(s) can bring increased support and participation from additional funding mechanisms.
- Where the environmental concern is well acknowledged by both public and private sectors and coupling the concern with natural disasters will increase the chance of a successful implementation of DPM activities.

In most instances the following conditions would not support the incorporation of related environmental concerns within DPM activities:

- Where the environmental concern(s) is not well acknowledged and the increased awareness building would detract from and reduce the successful implementation of DPM activities.

- Where increased funding would be required for addressing the related environmental concern(s) thereby slowing or detracting from the implementation of DPM activities.
- Where the related environmental concern(s) actually are found to be mutually conflictive. In this case, both issues must be well studied to determine appropriate future activities.
- Where the inclusion of the environmental concern(s) will polarize the various participants in the DPM program and will decrease the chances of a successful implementation.

B. RECOMMENDATIONS

o Development of Urban Forestry Techniques with Natura Foundation

The Natura Foundation is focussed on environmental conservation; training of government personnel in charge of monitoring, management and supervision of national wilderness parks; education of the community through the media; ecology training for school teachers; and community work in "buffer zones" around national wilderness parks.

As part of this project design, a model disaster workshop was organized and carried out at the RHUDO/SA office. Participants included representatives from Natura, the Red Cross of Ecuador, FECOAC, and the FIAD Foundation as well as RHUDO/SA and Mission staff. The purpose of the workshop was to bring together interest groups that generally work independently -- environmental, disaster, and community, and test the potential benefits of such coalitions. The workshop was very well received by Natura's staff.

DPM activities should include an educational component for disaster mitigation in Natura's programs.

The following elements can be used:

- Concepts such as the environment, vulnerability, and risk during the formulation, execution and evaluation of community programs. For example, poor farming practices and land clearing for human settlements can cause irreversible harm to the quality of topsoil leading to rapid surface runoff of water that the soil can barely absorb).
- Concepts such as environmental management, ecological efficiency and profitability within the normal planning process of low-income community programs, especially in high risk areas with poor construction and high

population densities. Environmental degradation, beyond hindering economic and sustainable development, also is a triggering mechanisms that can constrain the capacity of poor settlements to improve their standard of living.

- Projects where the use of natural resources does not exceed the regenerative capacity of the environment.
- Reforestation and the protection of river basins (i.e., contamination protection at the same time that a flood control program is being implemented).
- Substitution of harmful technologies with environmentally sound practices to decrease community vulnerability.
- Ecologically appropriate livestock and crop production systems (i.e., biodigestors, protective reforestation, appropriate pesticides).

In addition a set of guidelines can be prepared on Urban Forestry Techniques (such as planting slopes with hedge grasses, gardens, or fruit trees) to prevent soil erosion, a phenomenon which often exacerbates the impacts of earthquake, floods, and landslides. In many of the communities visited in Ecuador, such programs are clearly necessary. In Quito, Ambato, Latacunga and Riobamba, substandard housing is located on the edge of deep slopes (see photos included in annex 4). An appropriate medium term activity might be to apply these guidelines in Quito, Ambato, Latacunga, and Riobamba.

When designing an environmental program linked to natural hazards, the promotion of natural resource conservation and ecological education for critical areas is essential. In this sense, several approaches should be promoted when implementing these types of activities in low-income communities:

o **LACUM Environmental Networking**

Colombia's new Ministry of Ecology will provide for permanent interaction with the government's national disaster office (Sistema Nacional para la Prevención y Atención de Desastres). Similar organizations exist throughout the region. The resources of LACUM should be utilized to develop a network of NGOs dedicated to environmental issues that might have an interest in DPM activities. The main objective of this networking is to promote the exchange of information between natural resource preservation and disaster programs within organizations operating at the community level. Areas of interest can be summarized as follows:

- Environmental deterioration in urban areas.
- Deforestation.

- Surface and underground water contamination.
- Destruction of biological diversity, particularly in tropical forests, lowlands, and coastal zones.
- Devastation of ravines and tributaries.
- Deterioration of coastal resources, particularly the shoreline, beaches, and coral reefs.
- Contamination of agricultural lands caused by the use of chemical fertilizers.
- Deterioration of the natural and cultural heritage of indigenous communities.

In addition to a network of NGOs, the following types of environmental institutions might be included: international institutions that carry out activities in the region through national groups; institutions that focus in a particular geographic area on a specific environmental topic; institutions that carry out environmental education programs, lobbying activities, and public information campaigns intended to influence government policies; institutions that represent varied environmental groups, serving as a network for or federation of such groups; and institutions that work with local and/or regional indigenous groups in economic, social, and environmental programs.

5.3 SUMMARY OF COMMUNITY -BASED ORGANIZATION ACTIVITIES

Activities will be carried out in selected low-income, hazard-prone neighborhoods.

o PREPARATION OF MANUAL AND GUIDELINES

- o Develop a manual on mitigation techniques applicable to training activities on housing design concepts, construction techniques, costs, construction materials, home improvement techniques, repairs, maintenance, erosion and drainage improvements.
 - . Coordinate the development of the manual with FIAD and La Lucha de los Pobres.
 - . Deliver training to the neighborhoods of Comité del Pueblo and La Lucha de los Pobres.

- o Develop educational manuals and carry out training for the children of the neighborhood of La Lucha de los Pobres.
 - . Coordinate the content with community residents.
 - . Deliver training.
 - . Disseminate the manual to other interest groups.

- o Develop guidelines for FECOAC on mitigation, earthquake resistance, retrofitting techniques, and issues on hazard-oriented credit programs, and environmental practices.
 - . Support dissemination and training activities to FECOAC members.

- o Prepare guidelines on urban forestry techniques. These guidelines might become part of Natura training programs, and be disseminated in low-income communities already identified in Quito, Ambato, Riobamba, and Latacunga.
 - . Establish coordination with Natura Foundation.
 - . Establish coordination with communities.
 - . Support training activities for Natura staff members in DPM issues

o TRAINING

Design training activities for NGOs, homeowners, self-help builders, credit union members on disaster mitigation related issues.

- . Organize workshops.
- . Prepare brochures, posters, and other training devices.
- . Establish collaboration with UNDP, SENA, CIDAP, CINTERFOR, and LACUM to support these activities.

Prepare of DPM courses for CEMOPLAF staff.

- . Establish coordination with staff for dissemination of DPM materials.
- . Preparation of courses for CEMOPLAF staff on DPM issues.

o **LACUM ACTIVITIES**

- . Support all training and collaboration activities of this project.
- . Organize NGO environmental networking.

6. OBJECTIVE III: INCREASING PRIVATE SECTOR PARTICIPATION

6.1 THE PROBLEM

The private sector -- in this case, the construction industry (builders, material producers and suppliers, architects, engineers), insurance companies, and financial institutions -- has traditionally not been involved in disaster preparation and mitigation activities. When disaster strikes, the private sector is impeded in its response by:

- the lack of necessary construction materials;
- the consequent cost increases of materials;
- procurement and contracting procedures that are slow at best;
- governments which attempt to carry out normal private sector functions such as the procurement of construction materials;
- technically unsound construction practices;
- an insurance system that simply does not cover the losses of the families most in need; and
- a financial system that is not prepared to provide credit for the rebuilding to families most in need.

In addition, the technical expertise residing in the building professions are generally not focused on natural disasters, and consequently not utilized in DPM activities such as appropriate building codes, and planning and zoning regulations.

6.2 STRATEGIES AND RECOMMENDATIONS

The private sector has considerable expertise to apply to DPM activities, and indeed it is integral to the local government and community components. Public/private sector partnerships can be a positive force in developing disaster mitigation and preparedness programs. The underlying assumption of these strategies is that if a) the building professions participate in DPM activities; b) insurance mechanisms are developed for low- and middle-income communities; and c) credit is made available for post-disaster rehabilitation activities, then the special expertise of the private sector will enhance the resource base available for pre- and post-disaster activities.

6.2.1 PROMOTING THE PARTICIPATION OF THE BUILDING COMMUNITY

A. STRATEGY

The building professions in Ecuador, as in the other countries in the region, are represented by the designers, developers, builders, contractors, material producers, and material suppliers who are affiliated in several different associations. Associations of the construction industry (which includes material producers and suppliers), of architects, and of engineers function at the provincial and national levels. As professional and trade associations, their primary missions are to assure compliance by their members with national laws, and to disseminate information, undertake research, and provide technical training to their members.

There are two sound reasons to include these associations of professionals in DPM programs. First, the technical subjects they do pursue in their research and training have clear application to disaster mitigation efforts, and second, their membership includes specialists in virtually any needed technical skill.

Consequently, one of the major objectives of this project is to apply the expertise of the building professions to low-income communities and local governments by assisting in mitigation measures such as sound land use planning and building standards. The construction sector should be organized that members are prepared to act immediately after a disaster to enter devastated informal sector communities to assist in an organized fashion to provide shelter after the disaster and to improve the shelter's resistance to future disasters.

B. RECOMMENDATIONS

The following recommendations are proposed for promoting building profession participation in DPM activities:

- o Active participation by the building professions in the preparation of municipal regulations that mitigate the effects of natural disasters**

Municipalities regulate, or have the power to regulate both, construction and where construction takes place, through the zoning and building permit process that emanates from comprehensive land use planning and building codes processes. The municipality can, for example, prohibit construction in designated flood prone areas. The municipality can establish codes and standards which serve to mitigate the structural risk in buildings. They can limit construction densities in high risk areas. The effectiveness of these ordinances can be significantly enhanced by the technical input available from professional architects and engineers; this is an example of public/private collaboration. Indeed, there is some experience in both Quito and

Guayaquil in which the respective Construction Associations have provided such technical advice to the municipalities.

o **Applied research by the building professions in areas such as construction technology for low-income housing so that the housing will better withstand disasters**

Professional associations can build on the many studies and technical information already available about roofing materials and building reinforcement methods that can be applied to the kind of self-help housing construction that takes place daily in low-income communities. LACUM can play an important role in promoting these kinds of activities. The Fundación para el Habitat (FUNHABIT), for example, is a non-government organization whose architects have established two research centers in Ecuador (in Pujili and Guallabamba) to promote the use of appropriate materials and traditional construction technology in low-income areas. In the community of Tigua (near Salcedo in Cotopaxi Province), FUNHABIT has recently completed the first stage of a project in which 40 houses have been constructed, built to withstand earthquakes. The project was carried out with the participation of an organized community and benefitted from in-kind assistance from the municipality.

o **Expediting the procurement and contracting of private sector services in the event of a disaster**

It is not only important that a disaster be so declared by the authorities, but it is vital that such an action permit the expeditious actions of the construction industry. It is necessary to develop standard forms for contracts, pre-negotiated between the government and the construction industry, for immediate use in an emergency. It is necessary to establish pre-negotiated procedures for the purchase of construction materials for immediate use in an emergency. And, pre-established management systems that use, for example, private architecture and engineering firms to supervise and certify work progress, and accounting firms to audit the use of funds, must be put in place. The project will work with the construction industry to develop these mechanisms.

o **Training that raises consciousness and conveys technical information -- seminars, workshops, conferences, and the consequent technical material produced -- both by and to building professionals in fields such as, how to build with disaster recoverable building materials and construction techniques**

Technical training and workshops, as well as information dissemination to promote consciousness raising and technical mitigation measures in construction (both building materials and construction techniques), to sell the concept of public/private collaboration in a disaster, and to develop and disseminate the procedures and model contracts, should be developed, promoted, and carried out by the project.

6.2.2 PROMOTING INSURANCE MECHANISMS

A. STRATEGY

In principal, the insurance industry can play the very important role of insuring homes and infrastructure against losses caused by natural disasters. An industry operating under laws that require home and infrastructure insurance and armed with hazard assessments by locations would be in a position to assist homeowners and infrastructure companies recover their losses.

In Ecuador, the reality is quite different. No law requires a homeowner to have insurance. Higher income families frequently do carry hazard insurance on their homes; lower income families -- those whose homes are most at risk and whose greatest equity is that home -- do not carry hazard insurance.

Insurance is usually required on homes under mortgages provided by financial institutions, but such insurance is required to assure the institution that its investment retains its value. Although low-income borrowers from the Banco Ecuatoriano de la Vivienda (BEV) are required to carry mortgage insurance, the amount insured is based on the mortgage value, not the actual value of the house which presumably has increased substantially. The World Bank and IDB are currently working with the BEV so that it is sufficiently insured to cover the market value of the insured units. Laws also do not oblige infrastructure companies to carry insurance, and indeed they do not. This strategy promotes working with the insurance industry to develop a program of traditional and innovative means by which the housing investments of low- and middle-income families can be financially protected in high risk areas, and by which the providers of vital infrastructure can be protected.

B. RECOMMENDATIONS

o National legislation, local ordinance enforcement, and community-wide insurance

The development and adoption of national legislation to adopt or promote disaster insurance, the adoption and enforcement of local ordinances requiring insurance and the implementation of community-wide insurance programs are all long-term activities. These actions might require several years and must be accomplished before embarking on a full plan for the adoption and implementation of such an approach. A number of intermediate steps must be accomplished before the final implementation of these recommendations.

Short-term considerations might include the following:

- The development of a national insurance plan which defines the building risks on an actuarial basis. RHUDO/SA in a joint effort with OAS might provide

technical assistance to municipalities/insurance companies for the preparation of natural risk maps. OAS is already preparing these kinds of maps throughout the Americas.

- The development of a national insurance policy based on this plan. RHUDO/SA might coordinate this activity and provide technical assistance to key public and private sector institutions for the development of these policies.
- The development of local ordinances and laws to regulate the program. RHUDO/SA might coordinate this activity and provide technical assistance to key public and private sector institutions for the development of such ordinances and laws.

Long-term considerations might include the following:

- The promotion of the participation of the commercial insurance industry through a public/private partnership which distributes the risks by spreading these risks over the entire country and throughout all building sectors including commercial, as well as low-income housing.
- The use of non-traditional insurance schemes for very low-income families, so they can be covered if their homes (or businesses) are destroyed by a disaster. This program can be accomplished by promoting community saving plans that include insurance schemes. Casualty insurance companies could, for instance, offer a program to insure earthquake-resistant construction in low- and medium-income communities. In Ecuador, the Federación Ecuatoriana de Seguros is in a position to collaborate on these issues.
- Issuing insurance by specific hazard. Eligibility for the purchase of insurance by specific hazard might be made available to those individuals whose insurable property is located within a municipality that has agreed to adopt ordinances that will mitigate the effects of a particular hazard (earthquake, volcanoes, and floods). The most effective example of this are ordinances that condition the issuance of building permits for new housing construction in areas of special flood hazard upon the requirement that the unit be constructed so that the lowest floor will be located above the base flood elevation or when building construction has complied with seismic resistance ordinances.

o **Preparing Flood Hazard Maps and Flood Insurance Rate Maps**

Eligibility for the purchase of flood insurance might be made available only to those individuals whose insurable property is located within a municipality that has agreed

to adopt ordinances that will mitigate the effects of future flooding. The most effective examples of this are ordinances that condition the issuance of building permits for new housing construction in areas of special flood hazard upon the requirement that the unit be constructed so that the lowest floor will be located above the base flood elevation. For this purpose, flood hazard maps and flood insurance rate maps would be developed and used. OAS might assist in the preparation of these maps. Even now, without such a technical base, recurring flooding risks in specific locations are well known in many local communities.

6.2.3 SECURING CREDIT FOR HOUSING REHABILITATION AND RECONSTRUCTION

A. STRATEGY

One of the most serious consequences of natural disasters to low-income families is the sudden loss of their single biggest investment -- their home. That which often takes a lifetime to build, incrementally as resources are available, is suddenly gone. In the absence of an effective insurance system, and beyond whatever immediate outside help arrives, the family needs financial credit. They need loans, usually small, to buy materials in order to rebuild after a disaster.

The incorporation of DPM activities for low-income housing within the private financial sector primarily involves three activities:

- Ensuring that there is an appropriate degree of disaster resistance in all new housing construction being produced.
- Providing credit for housing improvements to increase their resistance to natural disasters.
- Providing credit for housing reconstruction or repair after a natural disaster.

However, it is extremely difficult for low-income families to secure any type of loans under normal circumstances and it becomes virtually impossible for them to obtain credit quickly under emergency conditions. These circumstances are even more severe in the case of informal housing settlements.

As part of the overall effort to increase the awareness, participation, and capabilities of the private sector in disaster mitigation, RHUDO/SA should seek to design a structure whereby credit could be channeled for rehabilitation and reconstruction to low-income families residing in informal communities affected by natural disasters. For reasons discussed below, however, this may not be an easy task, given the traditional reluctance of private sector lenders to extend credit to these household groups under any circumstances.

A structural framework to be promoted by RHUDO/SA for low-income lending should have validity as a market approach under normal conditions and could be specially mobilized in times of disaster. By necessity, the approach is highly dependent on both local government and community-based organizations to interact with the private banking sector; their role is to assist in overcoming the not inconsiderable barriers that traditionally stand in the way of low-income lending.

Constraints and barriers to low-income lending can be summarized as follows:

Throughout the developing world, institutional, legal, and regulatory barriers have inhibited both the development of private sector housing finance institutions and their willingness to lend to low-income households, particularly those in informal neighborhoods. In a market context, the foremost issue is simple affordability, but the inter-related concerns of collateral, land titling, and effective foreclosure procedures further complicate the concerns. In the end, the perceived spread that the banks insist is necessary to cover higher default probabilities and administrative burden (whether real or perceived) usually renders the cost prohibitive to small borrowers.

Ecuador is no exception. Its private banking system is a conservative one. It has no tradition of working with low-income families in poor communities and regards their business as too risky. Nor does the banking community have any tradition of facilitating credit in low-income communities on an emergency basis after a disaster.

B. RECOMMENDATION

To develop an enabling framework for the provision of housing finance from local private sector financial institutions to low-income communities following a disaster

RHUDO/SA is well aware of the constraints that hinder the evolution of a housing finance system toward the middle and lower groups in terms of income distribution. It is, nevertheless, important to keep in mind the long-term "enabling" and structural issues while at the same time developing a short-term "break through" strategy designed for post disaster events. The following recommendations address these issues:

With regard to long-term structural issues, RHUDO/SA should assist local governments to understand the realities of the legal and financial framework in which the banks operate. What is the status of various communities regarding land ownership and titling? What is the situation regarding foreclosure within a realistic time frame (and thus the situation of the courts)?

A break through strategy should be designed to circumvent structural barriers though the combined efforts of local government and community-based groups working with

local financial institutions. NGOs can serve as intermediaries between the banks and low-income communities in a variety of ways. The basic goals can include some or all the following:

- assistance with the administrative burden in both application and collection;
- assistance in educating potential borrowers on the terms of the lending;
- assistance in setting up programs such as a save now/borrow later scheme, described below.

Local governments should determine whether NGOs have experience with on-lending programs for poor households; if none have such experience, those best able to offer the necessary administrative and financial expertise should be brought into the planning of the program.

On-lending does not necessarily have to involve NGOs. In many regards it is preferable to lend directly to the household, with the community groups acting as facilitator; this places the responsibility for repayment more clearly on the household.

Loan guarantees may or may not be part of the scheme. This decision might depend on the status of collateralization, the savings scheme noted above, and the ability of local government to provide the necessary funds. In any event, it is the commercial nature of the program that is important for both the banks and potential recipients.

Local governments might inventory local areas to assess their varying situations with regard to title and therefore collateral.

A save now/borrow later scheme involves poor households making modest but regular savings payments to the bank for an extended time period. Such programs should be set in motion as soon as possible. In this context, they would serve several purposes. The savings enhance the creditworthiness of the household and also serves as collateral against a loan. This type of program is valuable under any circumstances and could be extended in times of a disaster. (This also has the beneficial macro effect of increasing savings in the formal sector and quite possibly increasing net savings overall.)

Communities may try to introduce a market-based, home improvement credit program for low-income households. The loan amounts are small and in many circumstances, the informal dwellings are saleable, so that collateral is less of a problem. These types of programs are worthy in their own right, and could also serve as pilot programs for those desired in a disaster environment.

In concert with promoting a fully market-oriented environment, any credit extended under a disaster program must be at market rates. (Not only should interest rates not be subsidized, but rates may well rise in these circumstances as demand from

other groups increases.) If subsidization of low-income households is desired, it should be done through transparent, direct transfers.

Once the local government and the appropriate community groups have developed policies with regard to administrative procedures, repayment schemes, foreclosure issues, eligibility, and the possibility of loan guarantees, the financial community should be invited to workshops and training sessions. There are two options for introducing a post-disaster credit scheme: a) as merely a continuation/extension of schemes that are viable in a market context under any circumstance; or b) as special cases of post disaster activity. For many reasons, option a) is preferable. If, however, the circumstances with regard to income level, land titling, foreclosure, and so forth, are such that market schemes are not feasible at the present time, the special assistance to be provided by the local government and the NGOs, as far as reducing both risk and cost, should, along with appeals to humanitarian considerations, assist in reaching workable accords.

6.3 SUMMARY OF PRIVATE SECTOR ACTIVITIES

The private sector will participate in project implementation in the following ways:

o TECHNICAL ASSISTANCE

Assistance by the building professions to municipalities in the preparation of municipal regulations that mitigate the impacts of natural disasters. Such regulations include building codes, construction standards, land use ordinances.

Assistance to the construction industry and relief agencies to develop and disseminate procedures and model contracts to be activated to purchase materials and carry out relief services in the event of a disaster.

Research by the building professions in construction technology and building materials that apply in low-income communities.

Preparation of a national insurance plan, national insurance policies, and the development of local ordinances and laws to regulate the insurance sector.

Study the use of non-traditional insurance programs for very low-income families.

Assistance to municipal governments and NGOs to develop and implement a structure whereby credit could be channelled for rehabilitation and reconstruction to low-income families.

Assistance to municipal governments on promoting a fully market oriented environment for on-lending schemes after a disaster.

Assistance to municipal government and NGOs on issues such as land titling, foreclosures, and so forth in order to create a regulatory environment to facilitate credit after a disaster.

OAS might provide technical assistance to municipalities/insurance companies for the preparation of natural risk maps.

o POLICY DIALOGUE THROUGH TRAINING

Training, through workshops and other information dissemination programs, to the building professions and construction industry to promote mitigation measures in construction, and to promote the importance of public/private collaboration in a disaster.

The insurance industry will be engaged in dialogue with the intent of developing community-wide insurance programs; issues include affordability, the enforcement of local ordinances, and the need for national legislation.

The financial industry will be engaged in dialogue with the intent of making credit easily and quickly available to low-income families that suffer from disasters. This strategy might include the promotion of a range of locally capitalized (non USAID) housing guarantee funds; the promotion of regulatory incentives; the promotion of specially implemented low interest rates for low-income housing affected by a natural disaster; and the formation of cooperatives and business associations to share capital requirements and risks.

PROJECT SITES, OBJECTIVES, STRATEGIES, AND RECOMMENDATIONS

QUITO	LATACUNGA	RIOBAMBA	AMBATO
<ul style="list-style-type: none"> . Comité del Pueblo . La Lucha de los Pobres 	<ul style="list-style-type: none"> . Nueva Vida . Escurandia 	<ul style="list-style-type: none"> . Santa Teresa 	<ul style="list-style-type: none"> . Low-income communities

OBJECTIVES, STRATEGIES AND RECOMMENDATIONS

OBJECTIVE I: INCREASING LOCAL GOVERNMENT PARTICIPATION

- . Incorporating DPM Activities Within the Master Plans of Municipal Governments
 - To Develop Collaborative Efforts with the Municipalities to Expand their Planning Activities to Incorporate DPM Measures
- . Developing Public Private Partnerships
 - Promoting Partnerships to Increase the Adoption of Mitigation Measures within Private Sector Projects
 - Promoting Partnerships to Increase the Adoption of Mitigation Measures within Informal Sector Projects
 - Promoting Partnerships with the Media
- . Delivering Training Activities
 - Mayors, Council Persons, and other Political Leaders Should be Trained to Understand the Importance of Disaster Preparedness and Mitigation
 - Staff Should be Trained in the Characteristics of Hazards and their Consequences and Severity
 - Community Outreach and Technical Staff Should be Trained in Mitigation Measures
 - Strengthening the Capacity of Municipal Planning Units

OBJECTIVE II: INCREASING COMMUNITY-BASED ORGANIZATION PARTICIPATION

- . **Strengthening Existing Community Programs through Training**
 - To Undertake DPM Training Activities in the Neighborhood of El Comité del Pueblo through FIAD
 - Federación de Cooperativas de Ahorro y Crédito and DPM Activities
 - Centro Médico de Orientación y Planificación Familiar and DPM Activities
 - Collaborative Efforts
- . **Promoting Community Needs**
 - To Undertake DPM Educational Programs for Children and Homeowners in the Neighborhood of La Lucha de Los Pobres through El Comité-Pro Mejoras
- . **Addressing Related Environmental Concerns**
 - Development of Urban Forestry Techniques with Natura Foundation
 - LACUM Environmental Networking

OBJECTIVE III: INCREASING PRIVATE SECTOR PARTICIPATION

- . **Promoting the Participation of the Building Community**
 - Active Participation by the Building Professions in the Preparation of Municipal Regulations that Mitigate the Effects of Natural Disasters
 - Applied Research by the Building Professions in Areas Such as Construction Technology for Low-Income Housing so that the Housing Will Better Withstand Disasters
 - Expediting the Procurement and Contracting of Private Sector Services in the Event of a Disaster
 - Training that raises consciousness and conveys technical information -- Seminars, Workshops, Conferences, and the Consequent Technical Material Produced -- Both by and to Building Professionals in fields such as how to build with disaster recoverable building materials and construction techniques
- . **Promoting the Use of Insurance Mechanisms**
 - National Legislation, Local Ordinance Enforcement, and Community-Wide Insurance
 - Preparing Flood Hazard Maps and Flood Insurance Rate Maps
- . **Securing Credit for Housing Rehabilitation and Reconstruction**
 - To develop an enabling framework for the provision of housing finance from local private sector financial institutions to low-income communities following a disaster

PART III: PROJECT IMPLEMENTATION

7. MANAGEMENT PLAN

7.1 BASIC STRUCTURE

The project will be implemented by a structure that integrates and applies the resources of international, regional, national, and local institutions. The strategies will be achieved by activities that focus resources on municipal governments, the private sector, and low-income communities. The experience and lessons learned will be continuously shared through several dissemination means with neighboring communities, cities, and other countries. RHUDO/SA's management of the project's basic elements may be summarized as follows:

- o The project will be coordinated by a regional disaster advisor with management responsibilities for the entire project.
- o In order to benefit from the available international expertise, three types of international institutions will be contracted to provide technical assistance in the following:
 - municipal government,
 - community development, and
 - the private sector.
- o At the regional level, the project will utilize
 - the institutional network and training program of the Latin American Center for Urban Management (LACUM), RHUDO/SA's principal regional policy promotor, and
 - other well-qualified regional expertise.
- o At the national level, the project will utilize the expertise of
 - non-governmental organizations,
 - professional and trade associations, and
 - national advisors within USAID Missions.
- o Counterpart agencies in Ecuador, and ultimately in other countries, will provide National Coordinators.
- o The project will coordinate and collaborate with the several international donors and national agencies with specific disaster programs or development programs with disaster components.

7.2 RESPONSIBILITIES AND LEVEL OF EFFORT

7.2.1 REGIONAL ADVISOR

Over the three year life of the project, the primary responsibility of the Regional DPM Advisor is to manage the project, assuring the coordination among all project actors, and providing technical direction and oversight on all project activities. As the initial project focus will be in Ecuador, the Regional Advisor will devote most of the attention there. The Regional Advisor will:

- Establish and maintain continuing personal contact throughout South America with USAID Mission management, with OFDA in Washington, as well as represent USAID with top public policy makers, and influential private sector and community leaders in areas and professions relevant to DPM activities;
- Manage, evaluate, provide direction, and otherwise assist each of the project components undertaken by other contractors;
- Manage the design and implementation, in coordination with LACUM, of the DPM national and regional training activities aimed at USAID and host country public and private officials and community leaders;
- Draft policy and procedural statements that reflect the lessons learned in the pilot projects and how they may be applied in other locations;
- Advise RHUDO/SA and USAID Mission officials on how to integrate DPM planning into long-term USAID urban shelter policy objectives, with emphasis on the needs of the urban informal sector and the functions of municipal governments; and
- Prepare semi-annual reports of project activities and expenditures, and prepare a qualitative and quantitative final report that reflects the project's progress toward achieving its goals and objectives, and recommendations for future projects.

The Regional Advisor should have a degree in urban planning, architecture, engineering, or other appropriate field, and graduate level training in a similar technical field. The Advisor should have several years of experience in disaster mitigation activities, shelter and infrastructure provision, municipal government, and community development and have experience working with USAID or similar development agencies. Due to the need to operate in the field with USAID and host-country counterparts, fluency in both English and Spanish is required. The Regional Advisor must have the ability to work with high-level national and local officials, private sector representatives, NGOs and the community level. The Advisor will be supervised by the Director, RHUDO/SA, but will be expected to establish project work plans, to take an aggressive leadership role in the project, to exercise considerable judgement, and to maintain a confident presence.

7.2.2 INTERNATIONAL, REGIONAL, AND LOCAL RESOURCES

The DPM strategies have three components, each of which will be addressed by contracted international organizations with expertise in the following:

c **Municipal Government**

A regional or international institution or firm will be contracted to plan and provide technical assistance and training directly to local governments in analytic studies to determine local hazard conditions and urban land use planning and controls.

o **Community Development**

A regional or international institution or firm will be contracted to plan and provide technical assistance and training directly to community-based organizations. Working with local NGOs, the firm will develop training materials (including children's educational programs) for disaster mitigation, environmental awareness, construction and land development.

o **Private Sector**

A regional or local institution, such as trade or professional associations, will be contracted to plan and provide technical assistance and training directly to municipal governments and community-based organizations. Under the direction of the Regional Advisor, this expertise will be directed to building technology, construction materials, land use standards, and building codes. Other regional or local organizations and individuals will have major roles and responsibilities during the implementation of the project.

The following regional and local resources will be utilized during the program:

o **OFDA/Washington**

OFDA/Washington is the lead U.S. federal agency for responding to disasters abroad. This office coordinates U.S. federal assistance with that of international agencies, other donor governments, and private and voluntary organizations.

For FY 1992-1996 OFDA has developed a strategy which responds to the threat disasters pose to people and development goals and programs, with special emphasis on the protection of USAID investments. Within this strategy OFDA aims to strengthen linkages with the rest of USAID agencies to ensure more complementary and efficient use of PMP resources in relation to USAID programs in various economic sectors.

Illustrative of such closer cooperation is the formal understanding reached between OFDA and USAID Office of Housing and Urban Programs in February 1990. Under this agreement the following activities are relevant to RHUDO/SA DPM activities.

- OFDA objectives in shelter mitigation are to be incorporated into RHUDO training workshops for USAID Missions, governments, non-governmental organizations and private building trades.
- RHUDO will work with USAID Missions and government institutions on a regular basis to insure that shelter/urban development strategies in host countries adequately address disaster vulnerability concerns.
- OFDA will fund suitable RHUDO initiatives in PMP related activities.

USAID's Office of Housing and Urban Programs addresses the shelter and urbanization needs inherent in fostering increased development in the poorer countries of the world. Implementing this strategy will both benefit USAID's Office of Housing and OFDA, since closer integration will increase development efforts of both agencies in developing countries.

o OFDA-San José

The main responsibility of OFDA-San José, an extension of OFDA/Washington, is to provide technical support for OFDA projects in Latin America and the Caribbean. In terms of this RHUDO/SA initiative, OFDA-San José can serve as the liaison between RHUDO/SA and OFDA/Washington and act as a problem solving mechanism upon request in the areas related to DPM activities.

o USAID Missions

Although it is unlikely that Mission's will assign DPM responsibilities to a staff officer, it is expected that Missions will consider DPM to be a priority activity. As such, Mission's would address DPM in a proper fashion, calling upon the Regional Disaster Advisor to assist them in understanding disaster risks, mitigation efforts, and opportunities for integration of DPM activities in Mission programs.

o National Coordinator Counterparts

National Counterparts will work closely with USAID Mission Advisors on natural disaster mitigation activities. National Counterparts (in the case of Ecuador, from institutions such as the AME and other community based organizations) will have access to and call on a variety of institutions to collaborate on the project. DPM programs directed to mitigate the impacts of disasters on the Ecuadorean housing stock, lifelines, etc., are more productively served by RHUDO not only directly collaborating with AME as the counterpart coordinator, but as well collaborating

with municipalities, the private sector, and other community-based organizations such as FIAD and Fundación Natura.

o **LACUM**

Much of RHUDO/SA's training and technical assistance is conceived and carried out by the Latin American Center for Urban Management (LACUM). LACUM will play an important role in this program by working closely with the Regional Advisor to identify and develop relationships with local NGOs and local governments; to assist in the planning and implementation of workshops, seminars, and other appropriate training events; and to assist in the dissemination of publications appropriate to the target audiences of community residents and local governments. LACUM will also be the means by which the program will be introduced and promoted elsewhere in the region. The actual development and production of the publications and management of the workshops would be provided by a qualified consultant contracted and managed by the Regional Disaster Advisor working in concert with LACUM. LACUM will also be the means by which the program will be introduced and promoted elsewhere in the region. LACUM's role in the project is reflected in the chart on the following page.

7.3 PROJECT CONSISTENCY WITH USAID PLANS

This project reflects RHUDO/SA regional and national strategies, OFDA's global mission, and the Latin American and Caribbean Bureau's (LAC) objectives.

7.3.1 RHUDO/SA STRATEGY

RHUDO/SA's recently approved program (August 1991 Program Review) clearly provides the context of disaster DPM activities. Disaster mitigation and the urban environment represent one of the five interrelated areas of RHUDO/SA attention. With urban management as the unifying theme, RHUDO's goal is to define the most effective role for the public and private sector in providing for the needs of the urban poor. Building local capacity and public and private participation is important for the preparation and mitigation against the effects of disaster such as earthquakes and floods. In addition, the RHUDO/SA is developing a Democratic Initiative Project, which will promote attention to local governments by international institutions. The DPM project will interact with that project; indeed, the DPM project focus on municipal governments strongly supports the Democratic Initiative Project.

LACUM'S ROLE IN DPM ACTIVITIES

	INSTITUTIONS	THEMES/ROLES	ACTIVITIES
Municipal	International Associations Regional Association Government	<ul style="list-style-type: none"> . Disaster Preparedness and Mitigation . Urban Environmental Preservation . Urban Standard and Regulations . Incorporation in Municipal Planning 	<ul style="list-style-type: none"> . Research . Case Studies . Publications . Training . Technical Assistance
Community	International Organizations Local NGOs Community Organizations	<ul style="list-style-type: none"> . Disaster Preparedness and Mitigation . Urban Environmental Preparation . Urban Standards and Regulations . Incorporation in Community Planning 	<ul style="list-style-type: none"> . Research . Case Studies . Publications . Training . Technical Assistance
Private Sector	International Technical Assistance National Private Sector Groups Private Companies	<ul style="list-style-type: none"> . Disaster Preparedness and Mitigation . Urban Environmental Preservation . Urban Standards and Regulations . Incorporation into public service companies and private industry 	<ul style="list-style-type: none"> . Research . Case Studies . Publications . Training . Technical Assistance

7.3.2 OFDA'S MISSION

"The OFDA Program in disaster prevention, mitigation and preparedness seeks to stimulate new and innovative approaches to reducing the impacts of disasters on potential victims and economic assets in highly disaster-prone target countries throughout the world. The program's primary goal is saving lives and reducing suffering caused by a natural and man-caused hazards; a second goal is to reduce the economic and social impacts caused by disasters in developing countries."

The link between disaster mitigation efforts and "traditional" development efforts has been increasingly recognized. The same rationale for assisting municipal governments develop land planning regulations -- for infrastructure planning, for the separation of incompatible land uses, for the minimization of damage brought on by floods, for example -- suggests that mitigation measures in the face of known and expected disasters are also warranted. By focusing on local government responsibilities, community preparedness, and private sector involvement, this project effectively brings DPM activities into development approaches to urban management, to community participation, and to private sector collaboration with local governments.

7.3.3 LAC BUREAU OBJECTIVES

This project specifically supports one of the three LAC Bureau objectives and is consistent with the other two. One objective is to "respond to needs for international cooperation in addressing specific challenges to the attainment of broadly-based, sustainable economic growth ...". This project supports U.S. initiatives that benefit from USAID resources and expertise in relief from natural disasters and contributes to the formulation and implementation of U.S. Government strategies for dealing with environmental degradation.

Broadly based, sustainable growth is impeded by the consequences of natural disasters, witness the dire effects of the 1987 earthquake on Ecuador's economy. At the urban community level, the loss of lives, homes, and economic productivity as a result of a disaster deny the opportunity for sustainable growth. To the extent that DPM activities preserve a functioning community, without draining national resources for reconstruction, those activities indeed address sustainable growth issues.

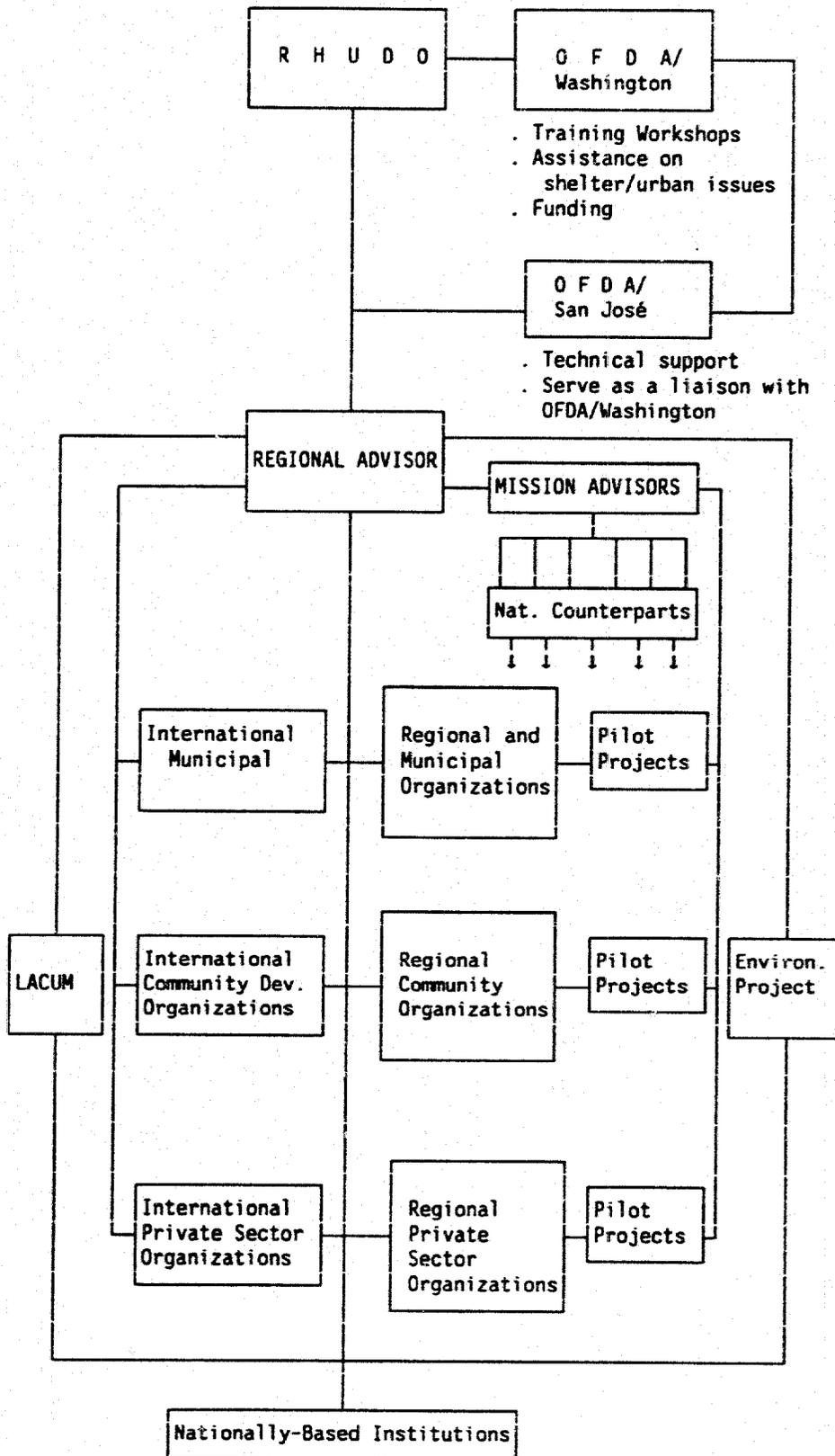
The LAC Bureau seeks to "encourage accelerated opportunities for increased participation in the economy by the historically disadvantaged." In undertaking DPM activities, this project will improve access to adequate shelter and related basic services (both built and provided with considerations to the risks of disasters) in low-income communities.

The LAC Bureau encourages the preservation and sustainable use of the natural resource base. It suggests the need for a strong public and private institutional capacity for environmental protection and natural resources management and the sustainable management of forests, watersheds, coastal zones, and other areas highly vulnerable to

deterioration. The relationship between environmental degradation and disaster mitigation has been well established; Quito's tree planting program, for example, serves to prevent erosion, in turn mitigating against rapid storm water runoff and consequent urban flooding. Last but not least, this project supports the LAC Bureau's encouragement of the "delegation to ... local authorities of power to make decisions having primarily ... local effect."

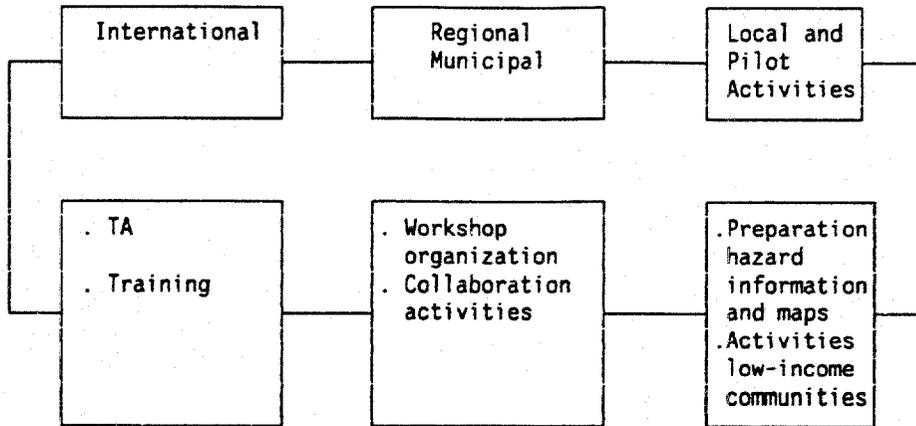
The following charts summarize important organization and management responsibilities within this project.

PROGRAM MANAGEMENT AND ORGANIZATION

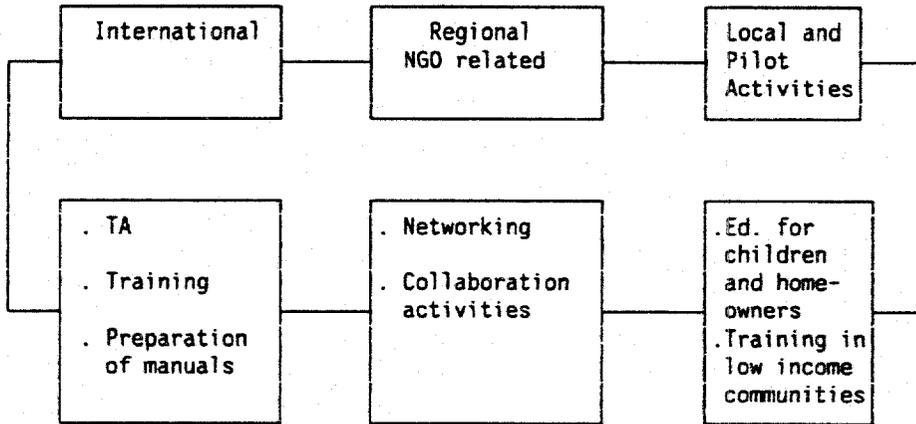


SUMMARY OF RESPONSIBILITIES AND ACTIVITIES

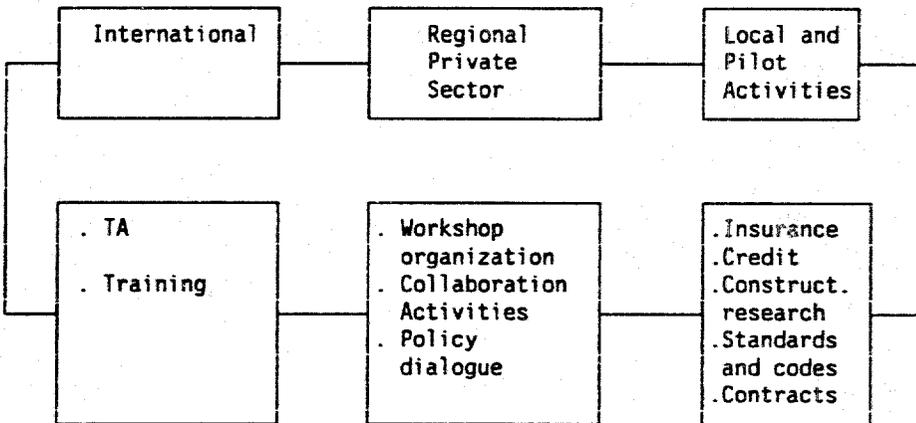
MUNICIPAL GOVERNMENT



COMMUNITY-BASED ORGANIZATIONS



PRIVATE SECTOR



MATRIX OF RESPONSIBILITIES AND ACTIVITIES

RESPONSIBLE	TECHNICAL ASSISTANCE	MANUAL PREPARATION	TRAINING PREPARATION	TRAINING DELIVERY	WORKSHOP PREPAR.	COLLABOR. ACTIVITIES	POLICY DIALOGUE	PILOT PROJECTS
International Municipal	●		●	●				●
Regional municipal			●	●	●	●	●	●
Local municipal					●		●	●
Int. NGO related	●	●	●	●	●	●		●
Reg. NGO related				●	●			●
Local NGO					●		●	●
Int. private sector	●							
Regional private sector	●		●	●	●	●	●	
Local private sector	●		●	●	●	●	●	
LACUM			●	●	●	●	●	
Regional Advisor			●		●		●	●
Other support instit.	●	●		●		●	●	●

8. ACTION PLAN

The proposed DPM project concept will first be applied in Ecuador as a pilot effort. Then the concept will be adapted for future application in other RHUDO/SA countries.

The Action Plan proposes activities in this pilot project to be planned and initiated by the Regional Advisor with support from contracted institutions, LACUM, and the RHUDO/SA itself. The first task is the recruitment, selection, and placement in Ecuador of a Regional Adviser to lead and manage the project. The Regional Advisor's action plan comprises activities to be carried out in the first six months, in the subsequent eighteen months, and in the third and final year.

8.1 SHORT-TERM ACTIVITIES (FIRST SIX MONTHS).

To initiate the Program in Ecuador, the following activities are proposed:

- Prepare a detailed work plan that reflects institutional and individual responsibilities and resource requirements on a quarterly basis. The work plan should indicate the sequence of necessary events, including the timely scheduling of national and local training events. Once approved by the RHUDO/SA, the work plan will require regular updating.
- Prepare terms of reference (tasks, qualifications, experience) for the USAID/Ecuador Disaster Advisor.
- Select an Ecuadorean National Counterpart to coordinate activities with Ecuador institutions. Since the National Counterpart will be financed by the Government of Ecuador (GOE), it will be important for the Regional Advisor to work closely with the government to assure RHUDO/SA's interests are met; if possible, the GOE should submit at least three candidates to be considered by the RHUDO/SA office.
- Conduct a one-week workshop with the Regional Adviser, National Counterparts, contracted institutions, USAID/Ecuador representative, LACUM, and OFDA representatives for the purpose of explaining and discussing the Program strategy and plans and to determine the means for the most effective participation. Also, provide for the determination of training needs in Ecuador and the agreement on the location of the pilot projects.
- Gain knowledge of the institutional structure of Ecuador in disaster preparedness and mitigation. Identification of and initial contact with the organizations, institutions, and networks through which the Program will be carried out.
- Make initial contacts with Ecuadorean institutions and communities to promote the strategies and market the project.

8.2 MEDIUM-TERM ACTIVITIES (SIX TO EIGHTEEN MONTHS).

Once the staff and institutions are operational, the Regional Advisor will undertake the following tasks:

- Establish and maintain continuing relations with the contracted organizations, GOE disaster personnel, USAID/Ecuador, OFDA in Washington, Ecuadorean NGOs and communities, and the Ecuador private sector;
- Manage, evaluate, provide direction, and otherwise assist each of the project components undertaken by the contracted organizations and LACUM; technical assistance must be designed according to specific objectives in the context of the project, the intended recipient institution, the methodology, the expected results, and the appropriate contractor institution.
- Manage the design and implementation, in coordination with LACUM, of the DPM training activities aimed at Ecuadorean public and private officials and community leaders and residents; training events must be designed according to specific objectives in the context of this project, the intended audience and material to be conveyed, the size, duration, and location of the event, the training material, and the training faculty.
- Analyze the institutional structure of each country in terms of disaster preparedness and assistance; identify and contact the organizations, institutions, and networks to carry out the Program; conduct workshops for the purpose of explaining the methodology, and determine the most effective means of institutional participation; determine the training needs of each country; and identify a pilot project in each country.
- Provide RHUDO/SA management with analyses of the project's policy and operational issues, its applicability in other locations, and the extent to which DPM planning can be integrated into other USAID sectors beyond that of urban and shelter policy objectives.
- Solicit, guide, and manage the preparation by contracted organizations of regular reports of project activities and expenditures.
- Design and manage a mid-term evaluation.
- Broaden the project to include other countries.

8.3 LONG-TERM ACTIVITIES (THIRD YEAR).

The third year activities will focus on establishing institutional relationships in other countries, in order to plan and carry out similar activities as those implemented in Ecuador:

- Reformulate the strategies and activities based on the evaluation results.
- Select a National Counterpart in each of the other participating countries.
- Contact individual governments for the promotion of the strategies and marketing of the project.
- Conduct a one-week program with the Regional Adviser, contracted organizations, National Counterparts, LACUM, OFDA in participating countries for the purpose of explaining and discussing the DPM project strategies and activities.
- Design and manage the final project evaluation.
- Prepare a qualitative and quantitative final report that reflects the project's progress toward achieving its goal and objectives, and recommendations for use and application in future projects.

9. EVALUATION PLAN

9.1 EVALUATION APPROACH

Project activities will be evaluated mid-way through implementation. The evaluation will look for changes in disaster preparedness and mitigation policies and programs experienced by institutions, organizations and networks participating in the program. The evaluation will analyze policy changes and broadened DPM activities of municipal governments and private sector institutions, and the impact of those changes on low-income communities.

Training materials will be analyzed for their acceptance by communities, the breadth of their coverage, and their use and application in the communities.

In the pilot projects, the evaluation will not only look at the measurable objectives, but also evaluate the non-tangible goals which are of no less importance: change of attitude of the community toward disaster mitigation and preparedness, the environment and its resources, and knowledge of disaster risks and vulnerabilities.

If, during the program implementation, a natural disaster occurs and affects the target communities, studies will be undertaken to provide detailed documentation of the impact of the program on the communities, organizations, institutions and networks, as well as upon USAID and RHUDO/SA themselves.

9.2 PROGRESS INDICATORS

It is expected that this program will result in the preservation of low-cost housing stock after a disaster, in lives saved, in reduced human suffering, and in the protection of the local economy. Localized results will be evident in the event a serious natural disaster strikes the targeted communities. Although those results cannot be measured against the consequences of a similar natural disaster in a similar community, there are a number of events and changes that will indicate successful program implementation. Some indicators can be readily measures as activities take place; others however require an investment in resources to be able to set

up an information system and subsequently collect the necessary data. Among the readily judged indicators are the following:

- The adoption by four Ecuadorean municipal governments of ordinances, codes, and land use regulations that reflect vulnerability and/or risk studies and natural hazard awareness, as well as minimal standards for the informal sector.
- The preparation of documentary material about natural hazards and hazard assessment maps in at least two communities.

- The contribution by the construction industry and the building professions in the preparation of municipal codes and standards.
- The development and publication of model legislation, regulations, contracts, and procedures to permit expeditious involvement of the construction industry; the formal approval in at least one country of such laws and procedures.
- The support to this project by at least two nationally-based international institutions.
- The preparation of sets of guidelines that promote design concepts, materials, techniques, and standards for disaster-resistant housing.
- A public information campaign initiated by the national media.
- The initiation of meetings and information exchanges with the insurance industry and finance system.
- Increased LACUM attention to DPM by its assistance to the Regional Disaster Advisor and contractors responsible for the design and implementation of workshops by providing access to LACUM's Institutional Network of NGOs to identify participants for disaster/environmental activities and other LACUM activities.
- The preparation of DPM materials by the participating NGOs.

The establishment of an information system necessary to track other important data requires additional DPM project effort. Indicators for which such a system is required include the following:

- The exposure to the basic concept of public/private collaboration and the model laws and procedures of at least 1,000 private builders and national and local government officials from throughout the region.
- The number of DPM workshops, or other training activities, carried out at the Junta and Parochial level.
- The inclusion of ten CEMOPLAF clinics in the country's preparedness network.
- The training in each participating city of the mayor, two administrative staff, and two planning personnel in disaster policy, municipal administration, and mitigation measures applied to planning.
- The initiation of workshops and mechanisms in each participating city to facilitate and utilize private sector and community resources in DPM activities.
- The training of at least 1000 children in DPM awareness.

- The training of at least 2000 homeowners in housing construction mitigation measures.
- The number of housing units built or reinforced to disaster resistant standards.
- The number of implemented environmental conservation projects with a DPM linkage (e.g., tree planting projects).
- The development and use of incentives by municipalities to encourage disaster mitigation measures in private sector projects and informal sector construction.

9.3 MEASUREMENT METHODOLOGIES

There are a number of possible ways to measure the project's achievements. The applicability of each particular technique will, of course, depend on the nature of the activity implemented. The evaluation will analyze progress based on interviews with project management and communities, on measurements of progress, and a review of training (courses, workshops, conferences, meetings, etc.) and technical assistance.

Mitigation improvements will be measured by:

- before-and-after studies
- visual observation
- urban forestry techniques and erosion projects

Tangible benefits will be measured by:

- visual observation
- opinion surveys
- counts (units with improved materials or construction)

Increased awareness and understanding will be measured by:

- surveys
- observation of participatory activities

Sustainability will be measured by:

- assessment of community capabilities and motivation
- evaluation of progress made during life of project
- analysis of constraints

10. PROJECT COSTS AND RESOURCES

The project will cost \$1.655 million over its three year implementation.

A project budget has been built from estimates for proposed activities for each of the three project components -- municipal government, community-based organization, and the private sector. Estimated budgets for those three components are shown on Tables A, B, and C that follow, and are derived from the following assumptions:

- The project will carry out most of its activities in the second and third year.
- Two to five day training events such as seminars and workshops, held in Ecuador, cost about \$10,000 to \$15,000;
- The development, publication, and dissemination of new technical material costs about \$10,000 to \$20,000.
- Technical assistance provided by international institutions costs about \$5,000 per week.

A. MUNICIPAL GOVERNMENT ACTIVITIES (thousands of dollars)

Activities	Year One	Year Two	Year Three	Total
Technical assistance for city master plans	20	30	30	80
Natural hazard information and vulnerability maps	10	30	30	70
Training for mayors	20	20	20	60
Training for city administrative staff	20	30	30	80
Training for city planning personnel	20	30	30	80
Training to promote private sector and community participation, and the media	20	40	40	100
Other	5	10	10	25
Total	115	190	190	495

B. COMMUNITY-BASED ORGANIZATION ACTIVITIES
(thousands of dollars)

Activities	Year One	Year Two	Year Three	Total
Education manual and training for children	10	20	20	50
Education manual and training for homeowners	10	30	30	70
Technical manual and training to communities	10	30	30	70
Technical guidelines and dissemination to housing cooperatives	5	20	10	35
Training (workshops, etc.) on DPM to informal sector and NGOs	10	30	30	70
Training development and provision to CEMOPLAF	10	20	20	50
Other	5	5	10	20
Total	60	155	150	365

C. PRIVATE SECTOR ACTIVITIES
(thousands of dollars)

Activities	Year One	Year Two	Year Three	Total
Building professions' assistance for municipal regulations	5	15	15	35
Procedures and model contracts for relief and reconstruction services	5	10	0	15
Research on disaster-resistant construction technology and building materials	5	20	20	45
Preparation of flood hazard maps and insurance rate maps	5	20	20	45
Training to the building professions for mitigation techniques	5	10	10	25
Policy dialogue and program development with the insurance industry	5	10	10	25
Policy dialogue and program development with the financial sector	10	20	20	50
Other	5	5	10	20
Total	50	110	105	260

Besides the activities of the three project components, the costs of the Regional Advisor and project evaluations and impact information system have been added. Table D reflects total estimated project costs -- the three components, the Regional Advisor, the evaluations, and the information system, and is based on the following assumptions:

- The Regional Advisor is a full time position filled by an expatriate entitled to overseas allowances.
- The mid-term and final evaluations will be carried out by a U.S.-based USAID contractor.

**D. ESTIMATED TOTAL PROJECT BUDGET
ALL ACTIVITIES
(thousands of dollars)**

	Year One	Year Two	Year Three	Total
Municipal Government Activities	115	190	190	495
Community-Based Organization Activities	60	155	150	365
Private Sector Activities	50	110	105	260
Regional Advisor	125	125	125	375
Mid-term and Final Evaluation	0	50	50	100
Impact Information System	20	20	20	20
Total	370	650	650	1,655

The majority of the project will be financed by OFDA (\$1.520 million), but national governments and RHUDO itself will provide in-kind staff services.

E. ESTIMATED PROJECT FINANCING**(thousands of dollars)**

SOURCE:IMPLEMENTOR	Year One	Year Two	Year Three	Total
OFDA:Regional Advisor utilizing international community development and private sector institutions, regional municipal expertise, and local non-government organizations, and professional and trade associations	345	595	585	1,520
RHUDO/SA: LACUM	5	10	10	25
Governments: National Counterparts, municipality participation	20	45	45	110
TOTAL	370	650	640	1,655

ANNEX 1: Description of LACUM

**THE LATIN AMERICAN CENTER
FOR URBAN MANAGEMENT
OF THE REGIONAL HOUSING AND
URBAN DEVELOPMENT OFFICE
FOR SOUTH AMERICA (RHUDO/SA-
LACUM)**

BACKGROUND

The Latin American Center for Urban Management (LACUM) is a special division of AID's Regional Housing and Urban Development Office for South America (RHUDO/SA). It serves as the vehicle through which RHUDO/SA maintains a continuing dialogue throughout the region to promote AID shelter and urban policy objectives and provides support to bilateral AID shelter and urban assistance programs.

LACUM activities serve as a multi-faceted and important tool to support strategic objectives of the work of the RHUDO. These activities are seen as: (a) a policy tool to advance AID's agenda of housing, urban development, and municipal development; (b) a development tool in moving towards the articulation of an AID program and a project activity; and (c) an implementation tool to support the execution of a program or project, including the strengthening of regional and host country institutions.

LACUM's main goals are: (1) to advance the AID's shelter and urban agenda in South America;

(2) to support the design and implementation of shelter and urban development programs in the region; (3) to serve as a mechanism to conduct a regional policy dialogue about shelter and urban development topics of interest to AID; and (4) to support RHUDO/SA non-project assistance activities.

RHUDO/SA has developed an overall training strategy whose individual components are determined by the specific parameters and support needs of its current programs and national policy agenda. To implement the training strategy, the Latin American Center for Urban Management (LACUM) was created.

Then the Latin American Training Center began to operate on a regular basis in late 1983, as a specialized division of the Regional Housing and Urban Development Office for South America (RHUDO/SA). The Center also provides support to bilateral AID shelter and urban assistance programs.

**LACUM REGIONAL AND BILATERAL
ACTIVITIES**

LACUM activities are: policy seminars, conferences, workshops, research, and case study development, technical skills training, participant scholarships (largely for U.S. based training), and publications.

Since 1982, the LACUM has sponsored or co-sponsored 85 training activities with over 2,400 participants from 23 countries. The Center has also sponsored participants and speakers to seminars organized by other Institutions in the Region. The LACUM has organized regional seminars and short-term in-country training, and has collaborated with the Andean Peace Scholarship Program (APSP) in its U.S. based training programs.

In addition, the LACUM publishes a newsletter with a circulation of 2,500 and publications of regional interest related to major themes in housing, urban development and municipal development. The latter are produced as part of LACUM's training activities as resource documents.

**WHY LATIN AMERICAN CENTER FOR
URBAN MANAGEMENT**

In April 1991, the Latin American Training Center (LAC) became the Latin American Center for Urban Management (LACUM) because it is believed that this name reflects more accurately the orientation of the center's policy dialogue on urban management activities.

Urban management includes a set of urban activities involving local government, environment, housing, community development, urban development, women's

participation, micro enterprise, informal sector activities, and all others which are part of the urban context in Latin America.

During the last few years, LACUM management has concentrated its efforts on activities which it is felt will have greater pay-offs in the medium and long term future. This includes maintaining close personal contacts with a large number of key people in the region who are involved in on-going dialogue with RHUDO/SA.

Cooperative Agreements together with invitations received from other institutions which have requested RHUDO's participation in their activities has led to a significant increase in the number of activities being carried out by the LACUM. In just one year, the number of activities has more than doubled.

In February 1989, the LACUM organized an initial working meeting in Quito, which has led to the creation of a Regional Network of Housing and Urban Development Institutions. The Network is made up of major regional organizations representing housing finance, construction, local government, housing cooperatives, credit unions, builders, think-tanks and others throughout Latin America and the Caribbean. Also the Network includes U.S. trade organizations.

Consistent with the belief that many of RHUDO/SA objectives can be achieved by enlisting the energies of organizations and individuals in the region on developing collaborative efforts to pursue a common policy agenda, the creation and strengthening of the Institutional Network has incorporated new allies to our activities in the region.

With the network initiative, RHUDO/SA wants to broaden the range and type of contacts to include local authorities, informal sector leaders, private entrepreneurs in the construction and building materials industries and others. RHUDO/SA believes that increased, systematic cross-sectorial contacts will enrich the dialogue on crucial policy issues and bring about change from the top.

Our Address

LATIN AMERICAN CENTER
FOR URBAN MANAGEMENT

Av. Colombia 1573, 5th. Floor
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Phones: 593-2-544-365
593-2-521-100

Fax: 593-2-561-228

LATIN AMERICAN CENTER FOR URBAN MANAGEMENT



Regional Housing and
Urban Development Office
for South America

United States Agency for
International Development

ANNEX 2: List of Selected Non-Government Organizations in Ecuador

ENTIDADES DEDICADAS AL DESARROLLO COMUNITARIO EN QUITO

Se encuentran clasificadas en las áreas de salud, educación e infancia y las más importantes son las siguientes:

SALUD

1. Asociación Cristiana de Jóvenes (ACJ o YMCA), Carrión 1155 y 10 de Agosto, Casilla 117, Telf: 566-082
Representante: Raúl Vásquez, Presidente
Objetivos: Apoyo a organizaciones populares, sector pobre y que no haya lucha de clases
Mantiene convenios con la UNESCO
2. Ayuda en Acción, 9 de Octubre No. 518 y Ramón Roca, Casilla No. 769 A, Telf: 547-682 y 529-934
Representante: Fernando Paéz, Director Ejecutivo
Objetivos: Mejorar niveles en comunidades de Cayambe, Cuenca, San Antonio, San Jacinto y Sucúa
Desarrollan su acción en salud, nutrición, educación, capacitación, producción agropecuaria y comercialización
Mantiene convenios con España e Inglaterra
3. Centro Andino de Acción Popular, (CAAP), Diego M. de Utreras No. 733 y Selva Alegre, Apartado 173-B
Representante: Francisco Rhon Dávila, Presidente
Objetivos: Desarrollar programas en las áreas de Cayambe, Cotacachi, Cotopaxi y Otavalo. Elaborar estudios y asesoría técnica, educación para la salud.
Convenios con el BID Y EL SEBEMO (Irlanda)
4. Care Internacional, Berlín 180 (entre Eloy Alfaro y 9 de Octubre), Apartado 2097, Telf: 236-734, 563-935
Representante: Dr. Raúl Cadena González
Objetivos: Apoyar naciones en desarrollo de Africa, Asia, América Latina y el Caribe.
Capacitación comunitaria, asesoría, coordinación y financiación, realizar microempresas productivas, salud primaria, conservación de suelos, huertos familiares, agua potable y letrización.
Convenios internacionales, cooperación externa, un porcentaje de aporte gubernamental por parte de algunos países.
5. Centro Ecuatoriano para la promoción y Acción de la Mujer (CEPAM), Los Ríos No. 2238 y Gándara, Casilla 182-C, Sucursal 15, Telf: 230-844
Representante: Miryam Garces de Porras, Coordinadora Ejecutiva
Objetivos: desarrollo movimiento femenino, participación activa y de la conciencia de mujeres, mecanismos de solidaridad entre las mujeres, nivel local, nacional e internacional.
Opta por trabajar con mujeres de sectores populares en salud organizativa, relaciones familiares, desarrollo infantil y técnica, asesoría jurídica, hospedería, centro de documentación e información.

Organización sin fines de lucro y privada, adquirió la Casa de la Mujer con donación del gobierno sueco y realiza proyectos autofinanciados.

6. Centro del Muchacho Trabajador, Jose Nogales s/n (Cotacollao), Telf: 539-081, 539-199
Representante: Padre Juan Halligan
Objetivos: incentivar a familias pobres su autogestión y superación.
Formación personal, familia, religión, instrucción, economía, trabajo, recreo, salud y vivienda.
Donaciones, 10% venta de productos y aportes de la Fundación KELLOS.
7. Centro de Estudios y Asesoría en Salud (CEAS), Roca 549, Dpto., 502.
Telf: 562-674.
Representante: Dr. Jaime Breilh
Objetivos: áreas de investigación de campo, asesoría, docencia, publicaciones, capacitación y difusión.
Se financia al efectuar proyectos de investigación, servicios y publicaciones.
8. Conferencia Episcopal Ecuatoriana, Av. América 1805 y La Gasca, Casilla 1801, Telf: 553-567, 238-221
Representante: Rodrigo Maldonado, Director Nacional Pastoral de Salud
Objetivos: capacitación, investigación, educación y asesoría
Fondos de la iglesia y algún apoyo de UNICEF
9. Club Rotario Quito, Portoviejo No. 442 y Versalles, Telf: 524-556
Representante: Dr. Fausto Dueñas, Presidente
Objetivos: lucha contra la polio y financiamiento para combatir la malaria, educación con becas, capacitación
Donaciones voluntarias y rifas.
10. Cruz Roja Ecuatoriana, Av. Colombia y Elizalde, Telf: 210-561
Representante: Dr. Hugo Merino
Objetivos: Servicios Médicos y de bienestar social
Donaciones
11. Cuerpo de Paz, Av. 6 de Diciembre No. 2269 y Colón, Casilla 635-A,
Telf: 561-224, 561-225
Representante: Peter N. Stevens
Objetivos: Educación preventiva para la salud, educación no formal y prácticas de extensión, sistemas de agua, sanidad ambiental, manejo de agua, letrinas y huertos familiares.
Aporte gubernamental de Estados Unidos y Cooperación externa.
12. Fondo Ecuatoriano Populorum Progressio (FEPP), Mallorca 427 y Coruña.
Casilla 5202, Telf: 550-705, 529-372
Representante: José Tonello
Objetivos: Desarrollo de campesinos de Cuenca, Esmeraldas, Guaranda, Lago Agrio y Riobamba; construcciones comunales, agua potable y riego; grupos de eclesiásticos y seglares.
Fondos de Instituciones Amigas.
13. MAP Internacional, Calama 265 y Reina Victoria, Casilla 8184,
Telf: 569-942
Representante: Dr. Christian Aponte

Oficina Regional para América Latina: Av. América 4569 y Mañosca,
Casilla 8184, Telf: 456-454

Representante: Gregory Rake

Objetivos: salud integral de los más empobrecidos, apoyar y facilitar un taller sobre desarrollo comunitario, entrenamiento de líderes comunitarios, programa de agua y saneamiento ambiental en la zona urbana de Solanda y rural, servicio de consultoría.

Es una corporación cristiana sin fines de lucro cuya base esta en Estados Unidos.

14. Plan Internacional, Hugo Moncayo y Gregorio Munga Esquina, Casilla 6374-CCI, Telf: 441-496
Representante: Andy Rubi
Objetivos: asistencia en materia de desarrollo a niños necesitados, sus familias y sus comunidades en 25 países por intermedio de 74 oficinas locales. Educación para la salud, medicina preventiva, programas de agua potable.
Donaciones de Alemania, Australia, Bélgica, Canadá, Japón, Holanda, Reino Unido y Estados Unidos. Convenio internacionales con UNICEF, promover adopción.
15. Visión Mundial Internacional del Ecuador, Ulloa 3077 y Abelardo Moncayo, Telf: 441-519
Representante: José Guzmán
Objetivos: ayuda a gente pobre, a personas que sufren como consecuencia de guerras o desastres naturales, mejora viviendas y capacitación, evangelización.
Es una organización cristiana humanitaria no gubernamental. Se financia con donaciones, trabaja en cooperación de UNICEF, OMS y Help the Children Fund.
16. Fundación Eugenio Espejo (FEE), Juan León Mera 433 y Robles, Telf: 542-358, 542-495
Representante: Dr. Ramiro Echeverría
Objetivos: fomentar, financiar y auspiciar programas de educación e investigación sobre la realidad ecuatoriana, comunicación popular.
17. Fundación Nuestros Jóvenes (FNJ), Inglaterra 566 y Vancouver, Casilla 1600, Telf: 567-017, 567-695
Representante: Silvia Barragan de Laufer
Objetivos: educación preventiva, difusión, asesoría y tratamiento para personas con problemas de drogas.
Fondos de Cooperación Externa, donaciones y venta de productos hechos por FNJ. Convenio con BID, AID, Comunidad Económica Europea.
18. Fundación Brethen & Unidas (F.B.U.), Av. América 2137 y Sosaya, Casilla 455, Telf: 541-235, 541-303
Representante: Lic. Wagner Molina
Objetivos: elevar las condiciones de comunidades campesinas más deprimidas, educadores populares de salud en Quininde-Esmeraldas, desarrollo agrícola en Imbabura, Tabacundo.
Donaciones de organizaciones evangélicas protestantes.

19. **Fundación para la ayuda a los enfermos del corazón (Fundación Corazón)**
Hospital Metropolitano, Consultorio 33, Av. Mariana de Jesús
Telf: 436-078, 431-520
Representante: Dr. Rafael Arcos
Objetivos: prestar atención al menor cardiópata y cooperación con la prevención, servicio de cardiología y cirugía cardíaca del Hospital Municipal San José. Los pacientes reciben la ayuda y no pagan nada. Fondos propios y del programa TELEBINGO.
20. **Fundación Hermano Miguel (FHM),** Saa No. 118 y Sodiro, Ed. Daniel Cadena
Of. 608, Telf: 553-124, 545-165
Representante: María E. Paredes de Suárez, Presidenta
Objetivos: apoyar a los minusválidos
21. **Fundación Friedrich Ebert - ILDIS,** Av. Colón 1346, Edificio Torres de la Colón, Mezzanine Of. 12, Apartado 367-A, Telf: 562-103, 563-604
Representante: Dr. Reinhart Wettmann
Objetivos: Desarrollo de países subdesarrollados por medio de investigaciones y consultorías.
Aportes gubernamental de Alemania e ingresos propios.
22. **HCJB, Hoy Cristo Jesús Bendice,** Hospital Vozandes de Quito, Villalengua 267, Casilla 695, Telf: 241-540
Representante: Dr. Swanson - Director Médico
Dr. Gary Gardeen - Administrador
Objetivos: Hospital en áreas cirugía, pediatría, ginecología, obstetricia y optalmología. Hospital en Shell-Pastaza. Educación para salud en comunidad rural y ayuda profesional personal del campo.
Tiene la base en Estados Unidos y mantiene convenios con USAID, Naciones Unidas y MAP Internacional, Compassion International.

EDUCACIÓN

1. **Centro de Educación Popular (CEDEP),** La Isla 416 y Cuba, Apartado Postal 8013, Telf: 550-498, 237-622
Representante: Eco. Diego Landázuri, Director
Objetivos: dar instrumentos de apoyo para fortalecer el desarrollo del movimiento popular. Asistencia técnica, investigación académica, acción. Educación, comunicación.
Fundación.
2. **Centro de Investigaciones CIUDAD,** La Gasca 326 y Carvajal, Apartado Postal 8311, Telf: 230-192, 549-221
Representante: Arq. Jorge García, Director
Objetivos: promover, desarrollar, colaborar en investigación, capacitación, asesoría técnica, difusión, documentación sobre realidad ecuatoriana, en lo urbano, lo regional, la problemática arquitectónica; la comunicación sector informal, poder local, movimientos sociales; la educación popular, la política y la economía.
Biblioteca: 4.000 libros, 10.000 documentos, 50 revistas, 50 boletines.
100 mapas, 100 cassettes.
Centro de investigación.

3. Centro de Estudios y Difusión Social (CEDIS), Alejandro de Valdez 252 y La Gasca, Apartado Postal 1708 - 8013, Telf: 234-152
Representante: Ecom. Cecilia Viteri
Objetivos: desarrollo y educación de organizaciones populares, videos sobre levantamiento indígena.

Publicaciones semanal "Puntos de Vista"

4. Centro de Planificación y Estudios Sociales (CEPLAES), Av. de Los Shyris 247 y Eloy Alfaro, Apartado Postal 6127 OCI, Telf: 553-146
Representante: Sr. Francisco Carrión, Director
Objetivos: investigar en ciencias sociales, ofrecer asistencia técnica y capacitación en estudios sociales y planificación, apoyar técnicamente a programas de acción con sectores populares, urbanos y rurales, publicar y difundir información en ciencias sociales.

Temática: organización popular, modelos alternativos de desarrollo, procesos agrarios, políticos, económicos, empleo rural, urbano, pesca, artesanal, mujer, movimientos sociales.

Fundación privada sin fines de lucro.

5. Corporación Ecuatoriana para el Desarrollo de la Comunicación (CEDECO), Alejandro de Valdez 252 y La Gasca, Apartado Postal 1708 -8013, Telf: 234-152
Representante: Sr. Dennis García, Director
Objetivos: apoyar a organizaciones populares en la educación popular en zonas rurales, desarrollar metodologías y técnicas de educación.
Investigación, acción, difusión, asesoría, comunicación.

Es una Corporación.

6. Centro de Investigaciones y Estudios Socio Económicos (CIESE), Pasaje Luis Martínez y 6 de Diciembre, Apartado Postal 161, Suc. 12 de Octubre, Telf: 234-924
Representante: Lic. Julio Echeverría, Director
Objetivos: investigar en ciencias sociales, capacitar a organizaciones populares, publicar y difundir resultados, publicación y difusión.
Temática: urbano, regional, política, estado, agro, educación alternativa, demografía.

Es una fundación independiente.

7. Instituto de Estudios de la Familia (IER), Centro de Investigación y Apoyo de la Mujer (CIAM), 10 de Agosto y Arenas, Ed. Vivanco, 4to. Piso, Of. n. 403, Telf: 550-801.
Representante: Lic. Dolores Padilla
Objetivos: estudiar los problemas de la familia, promocionar una forma de vida independiente, asesoría, comunicación.
Temática: movimiento femenino, familiar, historia.

Instituto independiente.

8. La Asociación Latinoamericana de Asesoramiento y Pastoral Familiar (EIRENE), Av. América 4569 y Mañosca, Casilla 85-86, Telf: 455-770
Representante: Dr. Marcos Maldonado, Coordinador
Objetivos: profesionales cristianos que trabajan por el desarrollo, fortalecimiento y defensa de la salud integral de la familia en América Latina. Entrenan y certifican facilitadores, asesores y terapeutas familiares, formación de centros de orientación, asesoramiento y terapia de la familia en distintos lugares del continente, estudiar los factores que intervienen en la conformación y desarrollo (o estancamiento y deterioro) de las familias en América Latina, publicar materiales sobre educación y la psicoterapia familiares y que orienten a la iglesia y a la comunidad en su trabajo con familias.

Es una asociación latinoamericana sin fines de lucro, compuesta por un Coordinador y la Junta Directiva.

9. Centro de Documentación e información de los movimientos sociales del Ecuador (CEDIME), Junín 574 y Jiménez, Apartado Postal 18-C, Sucursal 15, Telf: 212-211
Representante: Glora Campos, Coordinadora General
Objetivos: investigar la realidad nacional y difundir los resultados de educación popular, intercambio interinstitucional, educación bilingüe, formal y no formal.

Este Centro esta conformado igual que el anterior.

La Mayoría de estos organismos de educación están conformadas por un Directorio y Comisiones Técnicas.

No se pudo conocer formas de financiamiento en este tipo de entidades.

INFANCIA

1. Fundación Chicos de la Calle, González Suárez 598, Telf: 551-732.
Representante: Dr. Santiago Carrasco Toral
Objetivos: capacitación y formación integral del niño de la calle.
2. Acción Guambas, Don Bosco y Ríos, Colegio Don Bosco, La Tola, Apartado Postal 35, Telf: 560-489
Representante: Padre Marcos Paredes
Objetivos: mejorar condiciones de vida de los niños y niñas que trabajan en la calle combinando elementos no convencionales (la calle) y convencionales (San Patricio internado).

Mantiene dos albergues: Mi Caleta (50 niños) y El Sotano (20 niños).

Es una obra de la Iglesia, Sociedad Saleciana de San Juan Bosco.

3. Centro Juvenil San Patricio, Hacienda Yaupi, Cumbaya, Apartado Postal 2303, Telf: 355-786
Representante: Padre Antonio Amador
Objetivos: capacitación laboral y orientación vocacional, apoyo legal y reinserción legal, salud atención primaria, nutrición, albergue, alimentación, recreación, reeducación, observación, protección.

4. Fundación General Ecuatoriana (FED), Pablo Suárez 110 y Eloy Alfaro,
Telf: 230-057
Representante: Eduardo Serrano, Teresa de Canón
Objetivos: capacitación laboral, artística y artesanal de jóvenes con
retardo mental.

Organización de beneficio social.

5. Defensa de los Niños Internacional (DNI), Sección Ecuador, Pinto 521 y
Amazonas, Edif. Varig - 5to. Piso, P.O. Box 17-07-9234 - Sucursal 7,
Telf: 561-946, 529-813.
Representante: Lic. Ernesto Delgado, Presidente
Objetivos: investigación y diagnóstico sobre la realidad del niño de la
calle, abusado sexualmente, trabajador y maltrato, difusión masiva en el
área de la ciudad. Programa de Casas Refugio para niños.
6. Programa del Muchacho Trabajador, Banco Central del Ecuador, Av. 10 de
Agosto 251, Telf: 516-648
Representante: Dolores Padilla
Objetivos: mejorar las condiciones de vida de niños y jóvenes que se
encuentran en alta situación de riesgo, programas de salud.

También se incluye el organismo que se encuentra descrito en el campo de
salud: Centro del Muchacho Trabajador.

No se pudo recopilar información sobre su organización y financiamiento.

FEDERACIONES BARRIALES

1. Federación de Barrios del Sur Occidente, Ciudadela Hermano Miguel.
Representante: Hugo Chango
Se reúnen los sábados en el Barrio Jesús del Gran Poder
2. Federación de Barrios del Sur Oriente, Sector de TANASA.
Representante: Luis Llerena
Se reúnen los miércoles en el Barrio Yerba Buena 1
3. Comité Parroquial de Chillogallo, Chillogallo
4. Federación de Barrios Populares Noroccidente de Quito, Flavio Alfaro
y Martín Ocho, Lote 80, Apartado Postal 7462, Telf: 535-520
Representante: Salomón Mosquera

ANNEX 3: Children's Television Workshop: Executive Summary

Children's Television Workshop

NATURAL DISASTERS EDUCATION IN LATIN AMERICA:

A preparedness and safety campaign for children.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Following completion of an eight-month research and development phase, the Office of U.S. Foreign Disaster Assistance (OFDA) has agreed to fund Phase II of the Natural Disasters Education in Latin America project. Plans for Phase II include development and production of a multimedia campaign, utilizing television radio and print, that will familiarize children in Ecuador with ways to stay safe during and after an earthquake. Supportive of existing programs, the objective of this campaign is to help children, from the ages of 8 to 12, to prepare for earthquakes by teaching safety information and facts. Given the success of this campaign, which will be completed in fifteen months, we expect to receive further funding from OFDA for Phase III which will include design, production and implementation of similar campaigns in the remaining OFDA priority countries (Costa Rica, Guatemala, Honduras and Peru).

One of the primary goals of initial research was to establish campaign objectives. These were discussed with Latin American disaster experts at a seminar in Costa Rica, and it was agreed that the primary considerations are:

- To show children and their families ways to stay safe during and after natural disasters;

- To help them prepare for natural disasters;
- To raise their awareness of the threat, and
- To familiarize them with local emergency commissions.

All advisors agreed that the technical aspects of disaster mitigation should not be a part of the campaign. Having reached this consensus, we decided that the approach should be to deliver simple, clear, straightforward safety-messages and facts.

Research has shown that single-focussed programs are far more effective than those that cover multiple subjects; for this reason, we decided to concentrate on one hazard. We then concluded that the focus should be on earthquakes, primarily because discussions at the seminar yielded them as the overriding priority in three of the five target countries.

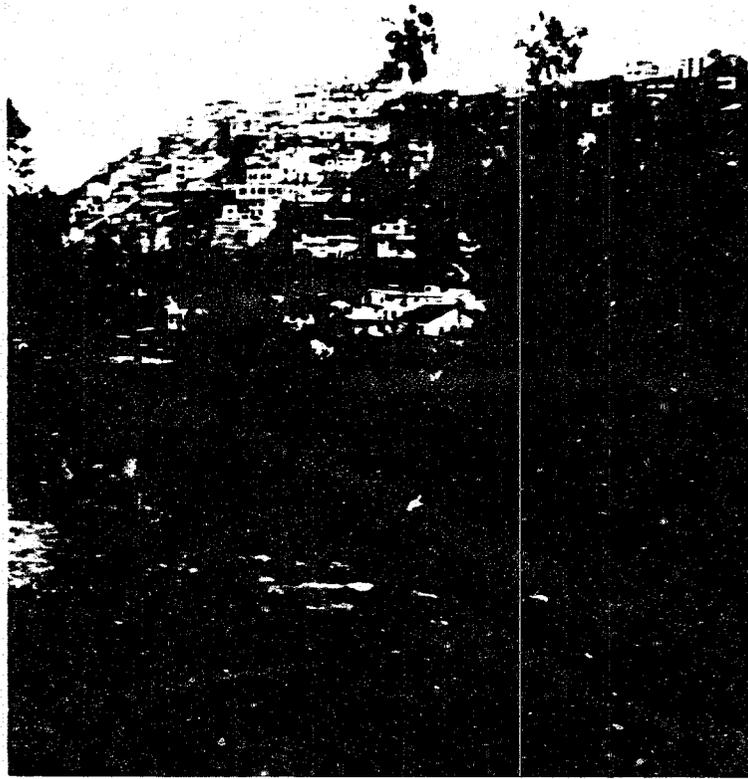
Our strategy for Phase II is to begin production, implementation and testing of television, radio and school materials in one country, Ecuador. At this time, assumptions, drawn from information gathered during the initial research and development phase, will be tested by means of workshops, a needs assessment and a media habits survey. A summative evaluation (funded by OFDA) will test whether project

objectives were achieved; it will be an integral component of the overall project from the beginning. Pending results of the evaluation, Phase III (subject to further OFDA funding) would begin in Costa Rica, Guatemala, Honduras and Peru. Throughout this project, CTW will work closely with local advisors, educators, writers and producers to ensure that campaign components address specific needs of the target countries.

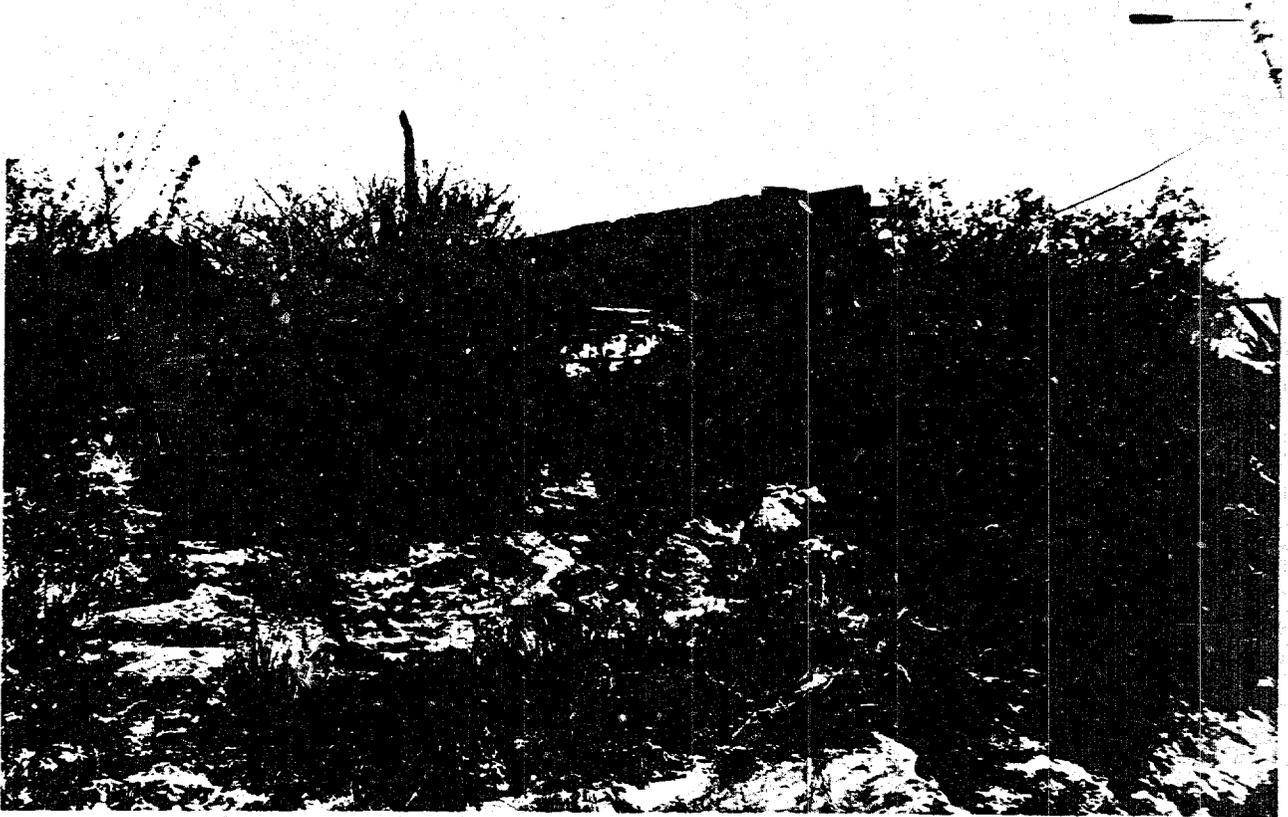
ANNEX 4: Photographs of Neighborhood Erosion Problems

PHOTO CAPTIONS

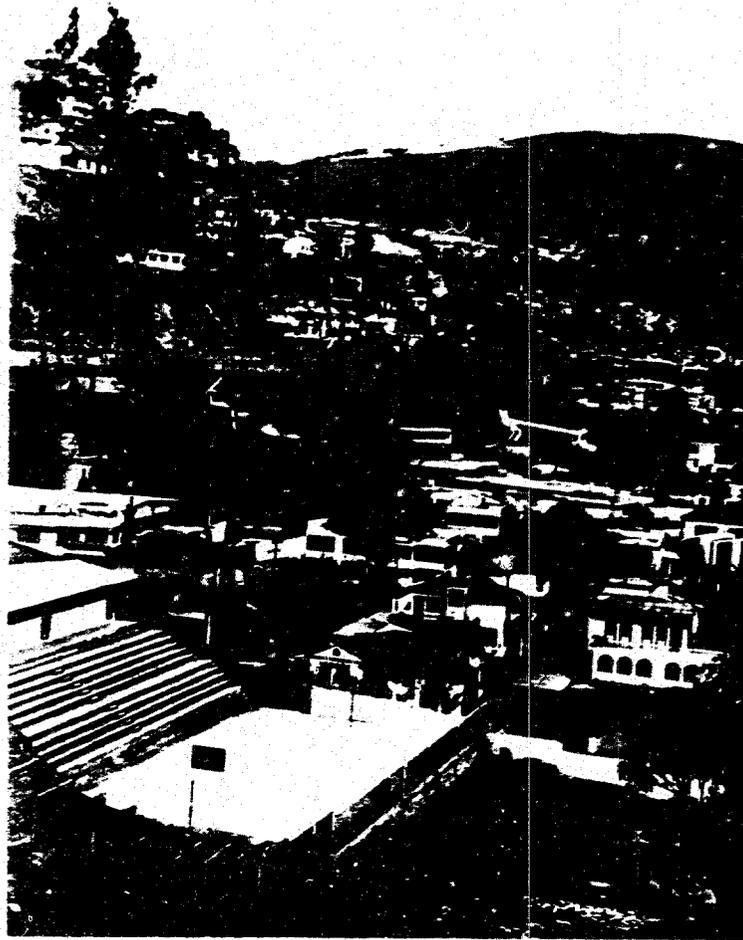
- 1 Construction on hillsides subject to erosion puts Ambato's housing at great risk.
- 2 In Quito, housing is often constructed of substandard materials and on eroded land. This is an example of a unit at high risk to earthquakes, flooding, and landslides.
- 3/4 Entire hillsides on which informal neighborhoods have arisen in Ambato are subject to the serious impacts of erosion.
- 5/6 Marginal neighborhoods subject to erosion are found adjacent to luxury buildings in Quito.



1



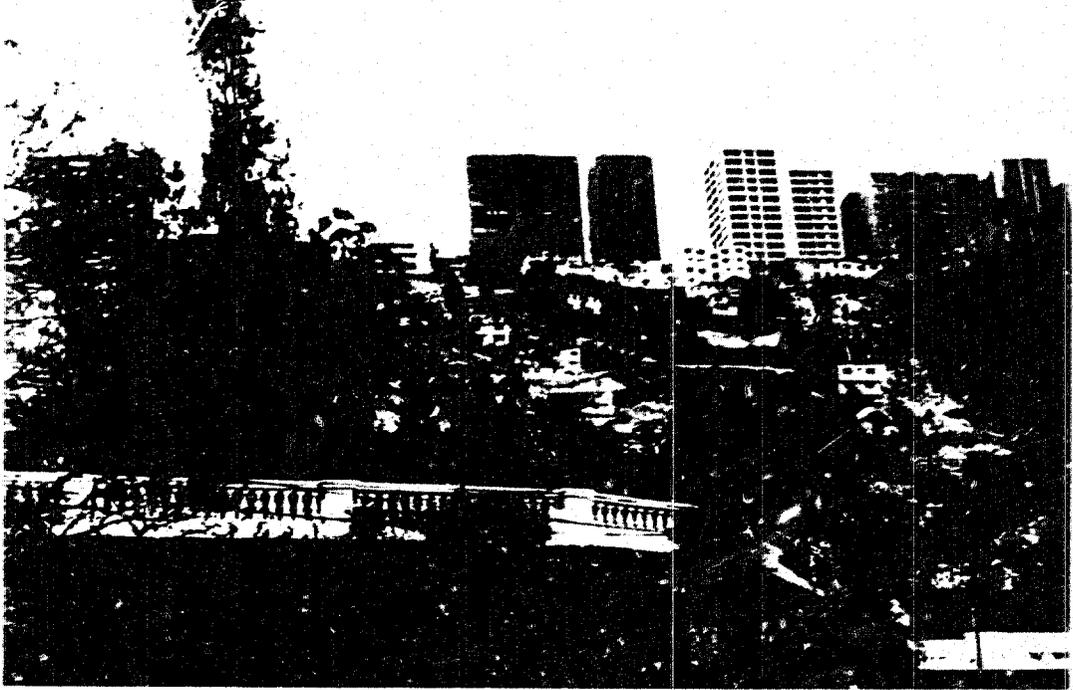
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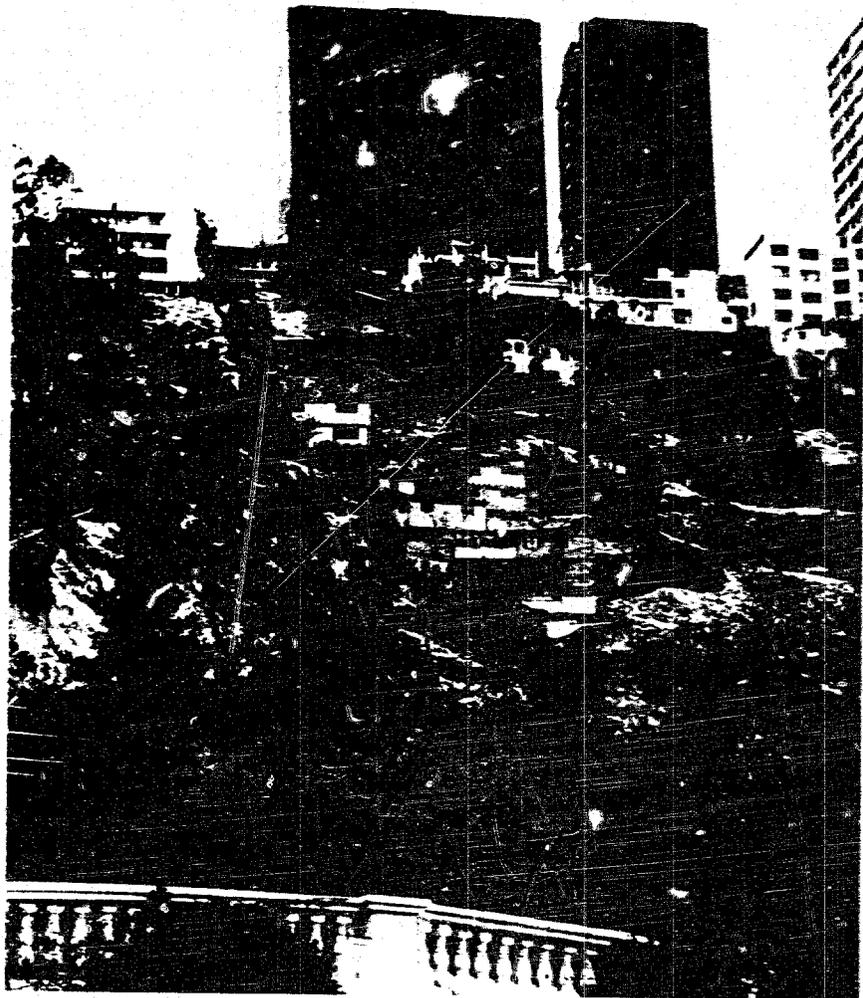
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ANNEX 6: List of Interviews

Lic. Jaime Acosta Velasco
General Manger
Banco del Pichincha
Quito

Ing. Julio Alvarez
Manager
Empresa de Alcantarillado
Quito

Ing. Homero Alvear Cruz
President
Cámara de la Construcción
Quito

Pablo Andrade
Fondo de Interés Social
Quito

María del Carmen Arangua
Banco Ecuatoriano de Desarrollo Económico
Quito

Arq. Fabian Arias F,
Director of Planning Department
Municipality of Ambato

Daniel Arteaga
Red Cross
Quito

Sra. Mercedes de Bajaña
Deputy Manager
Amazonas de Seguros
Quito

Don Hernando Barsallo
Comité Pro Mejoras
Quito

Ing. Mario Semiglia Cabrera
Vice President
Colegio de Ingenieros Civiles
Guayaquil

Ing. José Chacón Toral
Director
Cámara de la Construcción
Quito

Yolanda Dubois
Program Officer
United Nations Development Programme
Quito

Lic. Angel Escobar Paredes
Presidente of the
Municipality of Otavalo

Ing. Rafael Estrada Velásquez
President
Colegio de Ingenieros Civiles
Guayaquil

Arq. Guido Flores
Secretary General
FUNHABIT
Quito

Ing. Hermel Flores Maldonado
President of Continuing Education Committee
Colegio de Ingenieros Civiles
Pichincha

Crnel. Federico G. Hernández
Acting Director
National Civil Defense
Quito

Arq. José Jaramillo
CONADE
Quito

Father Javier
Director of
Casa Campesina de Cayambe

Marcos Jiménez
Concejal
Riobamba

Don Jorge
Comité Pro Mejoras
Quito

Mauricio León
Red Cross
Quito

Lic. José Mancero Logroño
Mayor of Riobamba

Arq. Segundo Martínez Aranda
President
Colegio de Arquitectos
Guayaquil

Arq. Rosanna Martínez
Director of Planning Department
Latacunga

Arq. Patricio Mena Durini
President
Banco Ecuatoriano de la Vivienda
Junta Nacional de la Vivienda
Quito

Ricardo Mena Speck
Assistant Director
Partners of the Americas
Quito

Lic. Carlos E. Morán T.
Director of Technical Assistance
FEACOAC
Quito

Arq. Rubén Moreira V.
President, Colegio de Arquitectos
Quayaquil

Arq. Luis Rosendo Moreno
Director of the Planning Department
Reiobamba

Ing. Fernando Moya Espín
Fundación Investigación-Acción
para el Desarrollo (FIAD)
Quito

Dr. Tomás Nieto
Banco Ecuatoriano de la Vivienda
Quito

Dr. Diego Peña
Director AME
Quito

Arq. Guillermo Pérez Díaz
Director of the Planning Department
Municipality of Quito

Ing. Jorge Poveda
Technical Officer
Empresa de Alcantarillado
Quito

Father Juan Pozo
Cayambe

Luciano M. Ramos
President
Partners of the Americas
Ambato

Fabricio Recalde
Red Cross
Quito

Ing. Carlos Repetto Carrillo
Board Member
Cámara de la Construcción
Guayaquil

Ruth Elena Ruíz
Director NATURA
Quito

Ing. Rodrigo Salvador
Technical Director
Empresa de Agua Potable
Quito

Ing. Edgar Santos
Technical Director
Empresa Eléctrica
Quito

Dr. Jaime Torres
General Secretariat
UILA
Quito

Ing. Hernán Uscocovich Guerrero
Secretary
Colegio de Ingenieros Civiles
Guayaquil

Lic. Teresa de Vargas
Director CEMOPLAF
Quito

Lic. Segundo Velásquez
Commisary of Cayambe
member of Frente Civico
and the Civil Defense
Cayambe