

PREFACE

Central America is one of the regions most vulnerable to the threat of natural disasters because of its geographic location. Situated in the circum-Pacific “Rim of Fire,” it is narrow, bordered by the Pacific Ocean on the west and the Atlantic on the east. It is a diverse habitat that includes high mountain ranges and volcanoes, valleys, and coastal and alluvial plains. The region’s geography predisposes it to a large number of atmospheric, hydrologic, and geological threats. Furthermore, the presence of two major tectonic plates--Coco and the Caribbean--and the numerous local and regional fault lines that crisscross the region, constantly releasing energy through subduction, subject it to frequent seismic and volcanic episodes.

There is an extreme diversity of weather patterns, with different rainy and dry seasons caused by the double oceanic effect, the intermittent El Niño phenomenon, and the constant change in the location of the intertropical convergence line. These, combined with high mountain ranges, numerous river basins and broad plains, render Central America the perfect setting for repeated floods, landslides, and droughts. In addition, the fact that many of the Central American countries are in the Caribbean Basin exposes them to a constant threat of hurricanes and tropical storms that originate there or in the Atlantic when they are pummeled each year between June and November.

Other factors to be considered are the manmade phenomena that have been brought on by development, bad management of environmental risk, an absence of criteria and codes for the building of regional transportation infrastructure, and others. All these threats constantly affect the regional infrastructure of the transportation sector, particularly roads, and because of its vital role in production and sustainable development, arduous efforts have been made to reduce its vulnerability.

The USDE, formerly called the Department of Regional Development and Environment (DRDE), was created in June 1963 to provide technical assistance to the member states of the OAS, which became the main inter-American forum for the development of regional policies on sustainable development and the environment.

Since 1983 the USDE has assisted countries and sectors in reducing the vulnerability of the Central American population and socioeconomic infrastructure to natural disasters. And since 1992, in cooperation with the Center for the Coordination of Natural Disaster Prevention in Central America (CEPREDENAC), the USDE has promoted the development and implementation of programs to reduce vulnerability in the productive and social sectors.

In the case of the transportation sector, two sets of activities currently exist. The first consists of activities that the USDE has been organizing in conjunction with various Central American institutions, as described below:

- The OAS, through the USDE, has supported the development of the Central America Regional Disaster Reduction Plan coordinated by CEPREDENAC. Specifically, it has given financial and technical support to “institutional” strategies in the areas of energy, education, telecommunications and transportation, agriculture and housing. Currently, USDE is supporting the Regional Plan’s development of its Basic Plan.
- In 1994, the USDE organized the Inter-American Seminar on Transportation Infrastructure as a Factor in Integration, which stated that “the Region must have a transportation system with high standards of efficiency that meets the levels of competitiveness required worldwide.” It was also decided that investment in transportation infrastructure must be based on the needs of trade and integration. The seminar covered topics such as the integration of the transportation system, the transportation services sector, the development and financing of the transportation infrastructure, and the evaluation of the impact of environment and natural disasters on the development of the transportation infrastructure.¹
- In 1995, with the support of the European Community Humanitarian Office (ECHO) and the Pan American Institute of Highways (PIH), the OAS implemented the Project for the Reduction of the Highway Transportation System to Natural Disasters, which has as an objective the development of a methodology compatible with other road-planning instruments for the preparation of vulnerability profiles, to train representatives of the sector in vulnerability analysis and mitigation techniques through the collaborating centers in the Pan American Institute of Highways (PIH) network, to include courses on vulnerability reduction in the PIH’s annual program, and to strengthen the sector’s ability to work with national disaster management agencies and emergency preparedness and response.
- As part of this project, the USDE, in cooperation with the PIH, focused on reducing highway vulnerability to disasters by incorporating mitigation techniques in to road construction, reconstruction, maintenance, and repair programs through the development and distribution of the PerfilMap program. This consists of a computer program based on geographic information systems (GIS) that enables information on natural hazards to be superimposed on the road infrastructure, generating vulnerability profiles. Currently, PerfilMap libraries are being updated for future use in the creation of vulnerability profiles. The OAS supported workshops in the use of this program.
- In 1998, through the Executive Secretariat for Integral Development, and with the technical assistance of the USDE an agreement was drafted with the National University of Cuyo in Argentina to develop the Natural Disasters

¹ Seminario Interamericano de Infraestructura de Transporte como Factor de Integración. Washington, DC, Organización de los Estados Americanos, 1995.

Vulnerability Reduction Project in the MERCOSUR Transportation System. The Center of Territorial Strategies for MERCOSUR (CETEM), which is part of the Geography Department of the Faculty of Philosophy and Letters of the University, is the organization responsible for its implementation. Its objective was to make the commercial road system of MERCOSUR (Argentina, Brazil, Paraguay, and Uruguay) more efficient by reducing its vulnerability to natural disasters, thus making roads a contributor to sustainable development. This was a two-phase project; the first took place in 1998, and the second is still in process. This project also had the participation of the Empresa Brasileira de Planeamiento de Transporte (GEIPOT) and the National Bureau of Roads of Paraguay (DNV).

- Similarly, the USDE has been participating in the follow-up of actions related to the Plan of Action of Santa Cruz, which are aimed at incorporating the environment into integrated development. In 1998, with the cooperation of other international organizations, it held a series of regional workshops on sustainable cities and trade corridors: Natural Disaster Vulnerability Reduction and Mandates and Future Actions in Central America, the Andean Region, and the Southern Cone. The Central American workshop took place in San José, Costa Rica, with the collaboration of SIECA, the United Nations International Decade for Natural Disaster Reduction (IDNDR), and the Pan American Health Organization (PAHO) in October 1998, immediately preceding Hurricane Mitch.

- In July 1999 the United States Permanent Mission to the OAS approved the Program for Training and Research of the Trade Corridor Development (PROCORREDOR), which has two main components: research on methodologies for the development of trade corridors and training in activities related to the review and refinement of methodologies and techniques of analysis.

The impact of Hurricane Mitch during the last week of October 1998, which affected all of Central America, has made it necessary that all efforts in the area be directed towards economic reconstruction and revival and giving impetus to the reduction of vulnerability to natural disasters. The most important activities are the following:

- To support the Secretariat for Central American Economic Integration (SIECA), in its capacity as a technical secretariat of the Sectoral Council of Ministers of Transport of Central America (COMITRAN) in dealing with the effects of natural disasters on the transportation infrastructure, the USDE began to work with SIECA and COMITRAN, in coordination with CEPREDENAC, on technical assistance directed toward analyzing the vulnerability of the Central American Highway and proposed regional transportation corridors to natural hazards.

- On October 18 and 19, 1999, the presidents of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, and the First Vice President of Panama, met in Guatemala City, Guatemala, with the Vice President of the Dominican Republic and the Vice Prime Minister of Belize as observers. From this meeting emerged the Declaration of Guatemala II, in which CEPREDENAC was assigned to coordinate the Five-Year Central American Project for the Reduction of Disaster Vulnerability and Impact 2000-2004. During this time the presidents will concentrate their efforts on the transformation and the search for sustainable development, in which they hope for assistance from the international community.
- In the same Agreement it was decided: "To adopt the Strategic Framework for the Reduction of Vulnerability and Disasters in Central America, which is part of the process of transformation and sustainable development in the region for the next millennium and includes the basic guidelines for preventive measures and mitigation of damage, together with actions concerning preparedness and emergency management, with special attention to the most vulnerable groups and sectors of society, especially the poor and the marginalized with a focus on gender."²
- Owing to drastic political and economic changes in Central America, the Central American Transportation Study (ECAT) carried out between 1974 and 1976, was unable to meet its projections for economic development.³ As a result, it became necessary to conduct a new study, which would cover the events of the past 20 years, the current economic, infrastructure and transportation situation and the various policies in effect in the region. As a result of the 17th COMITRAN meeting held in April 1997, it was decided to update ECAT and designated SIECA as the agency in charge. This project will lay groundwork for the proposal of a 2001-2010 Master Plan for Regional Transportation Development that will make the Central American transportation sector integrated, efficient and competitive.
- Currently, SIECA and the U.S. Agency for International Development (USAID) are preparing a study on norms and criteria for highway design, construction and maintenance in the region. The region has also drafted two projects for the Third Meeting of the Consultative Group on Central American Reconstruction and Transformation, which will take place in Madrid, Spain in 2001, with a view to obtaining international assistance. These projects are The Central American Logistical Corridor and The Transportation Sector in the Regional Disaster Reduction Plan.

² "Plan Regional de Reducción de Desastres: Plan Básico," Sistema de la Integración Centroamericana, Centro de Coordinación para la Prevención de los Desastres Naturales en América Central, 2000.

³ "Estudio Centroamericano de Transporte," Secretaría de Integración Económica Centroamericana Draft Final Report, Part 2, Summary, BCEOM, 2000.

- The transportation ministers of the Americas met in New Orleans on December 16, 1998, to consolidate their commitment to the creation of an integrated transportation structure in the Western Hemisphere that will serve to increase economic and social development, trade, tourism, and cooperation among the nations of the region and the equitable distribution of and participation in the benefits of the system among the member states during the 21st century. The ministers agreed that this call for action and decided to revitalize the Western Hemisphere Transportation Initiative (WHTI), launched at the Meeting of Western Hemisphere Transportation Ministers in 1996, so as to create an integrated transportation system for the 21st century and support the initiatives agreed upon at the Summit of the Americas in Bolivia, and those related to the Free Trade Area of the Americas (FTAA). One of the suggested plans of action emerging from the New Orleans meeting was the Disaster Response Plan, in which the ministers stated:

We understand that the destruction of the essential transportation infrastructure caused by weather phenomena or other natural causes, disables rescue efforts after such disasters and that the reconstruction of such infrastructure is crucial for the economic recovery of the nations affected. Therefore, we agree to develop a Western Hemisphere Transportation Disaster Response Plan that will be aimed at responding more effectively to weather and other disasters at a regional and subregional level.

The USDE has provided support to WHTI during its various different stages of development.

- Recently the National Laboratory for Materials and Methods of the University of Costa Rica (LANAMME) has joined the PROCORREDOR consortium created by the USDE to strengthen research and training in the field of trade-corridor development, particularly environmental management of transportation corridors. The USDOT participated in the first PROCORREDOR research workshop and commented on the need of studies on the vulnerability of multi-modal transportation.

The impact of Hurricane Mitch has made even more evident the need for specific studies on the region's road transportation system and the need for strengthening emergency response as a team effort in coordination with CEPREDENAC and the national civil defense and transportation mechanisms.

In response to this need and because of its active role in vulnerability reduction, the USDE with financing from USDOT OET was asked to coordinate the drafting of the present document on the Central America Pan American Highway and its complementary corridor vulnerability study and to identify the necessary mitigation work.

