



## **The Port Resiliency Program (PReP)**

*Promoting a Secured Supply Chain for the Americas*

### **AmericasRelief Team**

An initiative of Outreach Aid to the Americas, Inc. (OAA)

P.O. Box 546135 Miami, Florida 33154

Tel. 305.884.0441 Fax 305.260.4214

[www.americasrelief.org](http://www.americasrelief.org)

[Info@americasrelief.org](mailto:Info@americasrelief.org)

## **An Initiative for Developing a Resilient Network of Airports and Seaports throughout Latin America and the Caribbean**

### **Technical Narrative**

#### Overview

When airports and seaports are damaged in a disaster, the local community, indeed the whole region, faces a ripple effect of multiple hardships. The very crisis that damages the port impedes efforts to provide aid. Critical medical and other evacuations are delayed. Delivery of badly-needed food and supplies is stalled. Trade slows or stops, jobs are lost, businesses fail, and revenue from duties, taxes, and tariffs declines.

To ensure the highest possible degree of functionality in the event of an emergency or disaster, Latin American and Caribbean ports must focus, both internally and externally, on improving their resiliency. The Port Resiliency Program (PReP) seeks to provide technical, material, and strategic support to support ports facing complex challenges both during and after a crisis event. Ports participating in the program will be assisted in identifying their specific vulnerabilities and needs and applying best practices. PReP is a structured, functional port restoration program that standardizes and streamlines response, ensures optimal interoperability among port personnel and agencies, and promotes a timely reopening of damaged ports with rapid restoration of trade activity.

#### **Background**

Ports--both seaports and airports--are often sprawling enterprises; each is uniquely operated and regulated depending on geographic location and local governing structure. A port is a multifaceted assemblage of facilities and functions, such as terminals, delivery areas for packages or luggage, communication and information systems, security, process control coordination centers, document and goods storage areas, customs and border control, emergency response, and public and protected areas. Seaports are seldom a single entity; rather, they are usually a diverse collection of private and public maritime stakeholders, with the role of port authorities varying from port to port and country to country. Airports are usually less complex in terms of stakeholders, but still involve a wide variety of interactions among multiple parties. In short, the interdependencies among the various stakeholders,



customers, clients, and the local community are vast and complicated for both airports and seaports, requiring careful, considered planning for protection of vital interests and assets.

## The Need

Due to its unique geography, the Latin America and Caribbean region (LAC) is vulnerable to severe weather events. Several Caribbean basin countries lie directly in the path of tropical hurricanes, which occur annually from June through November; in addition, the magnitude and frequency of hydrometeorological hazards is expected to increase over the next ten years. Many LAC countries also face the added risk of seismic activity resulting in earthquakes, volcanoes, and tsunamis. Indeed, it is a foregone conclusion that over the next few decades LAC countries will continue to be hit by severe hurricanes and/or other natural disasters resulting in the temporary closure of ports.

Over the past 20 years, the Latin American and Caribbean region has sustained a devastating number of fatalities, immeasurable fragmentation of families and communities, the loss of thousands of jobs, and billions of dollars' worth of property damage due to hurricanes alone. Over a thirty-year period (1970 to 2000), the LAC suffered an estimated yearly average of 7,500 deaths due to natural disasters, with an estimated annual average cost of between \$700 million and \$3.3 billion dollars.<sup>1</sup> Much of the region is comprised of relatively small islands, with the economy dependent on international trade. Since ships and planes import and export cargo to and from the region, protecting ports helps Latin American and Caribbean countries, their businesses, and their international partners thrive in the global economy.

Inadequate disaster risk management policies and practices compound the humanitarian and economic cost of damage sustained from natural disasters. While some LAC countries currently employ disaster resilience strategies, very few, if any, are fully optimized: local and regional planning, training, drilling, and exercising of standard operating procedures (SOPs) are still evolving.

Clearly, there is a pressing need for the implementation of a fully integrated disaster resilience strategy in the LAC region involving ports, state coordinators, government agencies, NGOs, logistics firms, and other stakeholders. An accelerated port restoration plan such as a PREP can be of tremendous benefit in fostering disaster resilience in the region. Helping disaster-stricken Latin American and Caribbean countries reopen ports as quickly as possible restores the flow of aid and trade commodities in timely and effective manner so that normal economic and commercial activities can resume.

## Definition of Key Terms: *Resiliency and Disaster Risk Management*

The idea of *resiliency* embodies two concepts. First, a society, facility, or system is resilient if it resists disruption during a disaster. Second, a society, facility, or system is resilient if it can survive damage and return to an adequate level of functioning quickly after a disaster. In other words, a resilient facility can both avoid or mitigate damage and respond effectively should damage occur, reestablishing normal or near-normal levels of operations in time to minimize damage to individuals and enterprises that depend on that facility.

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<sup>1</sup> *Natural Disasters in Latin America and the Caribbean: An Overview of Risk*. Charveriat, Celine, October 2000.



Resiliency is not simply a physical attribute of a facility; rather, it is a quality that needs to be designed or retrofitted into all aspects of port operations. Human resources, the physical plant, equipment, administrative procedures, operational procedures, the legal environment, business continuity planning, and relationships with surrounding entities must be attuned to the probable future effects of a disaster and be prepared to counter and/or address those effects quickly and effectively after the fact.

#### Disaster Risk Reduction (DRR)

*The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. (U.N. International Strategy for Disaster Reduction)*

Airports and seaports are essential for the economic well-being of the islands and most mainland countries in the Latin American and Caribbean region, and they become even more important following a disaster. Major natural disasters illustrate just how vulnerable critical transportation infrastructure can be. Compromised ports can delay and complicate disaster and humanitarian response and recovery, not just of the infrastructure, but of the entire region and society served by that infrastructure.

The importance of ports in both disaster response and economic recovery was brought home by the stories emerging in the aftermath of Hurricane Katrina in 2005 and the Haitian Earthquake in 2010: damage incurred by those events was tragically compounded by disabled or poorly-functioning ports. PREP strives to apply important lessons learned from these and other disasters combined with best management practices from around the world to promote increased resiliency of airports and seaports.

Experts in the field of risk management widely agree that the most effective way to confront natural hazards is to implement strategies that emphasize preparedness and resiliency. This consensus approach, commonly called *disaster risk management*, involves

- careful assessment of the vulnerability of countries and their populations to natural disasters;
- implementation of prevention or risk reduction measures which seek to avoid disasters and, when that is not possible, to mitigate the damage they cause;
- extensive advance preparation so that quick and effective response saves lives and property following a disaster; and
- proactive efforts to ensure that, when disaster strikes, financing is available to cover the costs of rescue, recovery, and rebuilding.<sup>2</sup>

### The PREP Program

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<sup>2</sup> *Managing Natural Disasters*. Lucy Conger, September 2011.



## Approach

PReP's fundamental approach is to help airports and seaports identify and address their weaknesses and build on their existing strengths. Participants will be coached in self-evaluation of risks and current plans as well as identification of gaps in preparedness and resiliency. The program will help airports and seaports close targeted gaps through custom-tailored training, exercise, monitoring, and mentoring. A continuous improvement cycle ensures sharing of lessons learned and best management practices that evolve as more and more airports and seaports are served.

Effective port resiliency must be built at the local level. When local stakeholders work together to prepare for, respond to, recover from, and mitigate damage caused by catastrophic events, resiliency naturally emerges as a shared cultural value. In addition, a local approach ensures that the individuals who will be practicing and implementing preparedness plans understand the importance of resiliency and are fully committed to the particular strategies developed for their unique situation.

Working outwards from local ports promotes community and national resiliency, creating an integrated framework that bridges local and industry knowledge, capacity, and support with the necessary resources. Collaboration through such a framework yields practical, sustainable, stable, equitable, and cost-effective measures to reduce vulnerability.<sup>3</sup> Strategic alliances promote effective disaster response, and they work even better when sound relationships and trust have been established prior to an actual disaster. Indeed, regional cooperation and coordination are essential when facing the multifaceted issues that arise during and after an extreme event. PReP seeks to enhance sustainability and continuity by strengthening local plans and capabilities.

Participation in PReP is totally voluntary and separate from any regulatory requirements. Regulatory agencies and aid organizations may be invited to participate in training or to observe exercises, but such invitations will only be made with the consent of the airport or seaport being served.

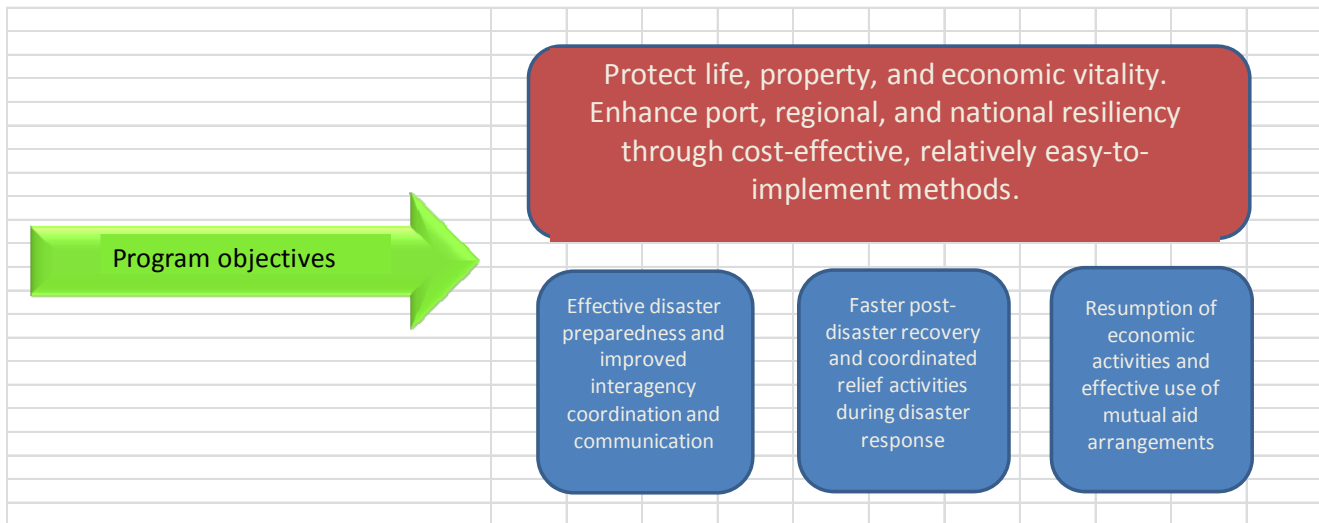
## PReP Goals, Priorities, and Objectives

The goals of the Port Resiliency Program are to

- protect life, property, and economic vitality;
- facilitate rapid import and distribution of humanitarian aid and other goods following a crisis;
- support airports and seaports in improving resiliency through cost-effective, relatively easy-to-implement methods; and
- enhance regional and national resiliency by protecting transportation infrastructure.

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<sup>3</sup> *Port Resiliency Program (PReP) Strategic Plan*. Babun, T. A., Jr., and Smith, J. F., 2013.



The priorities of the Port Resiliency Program are to

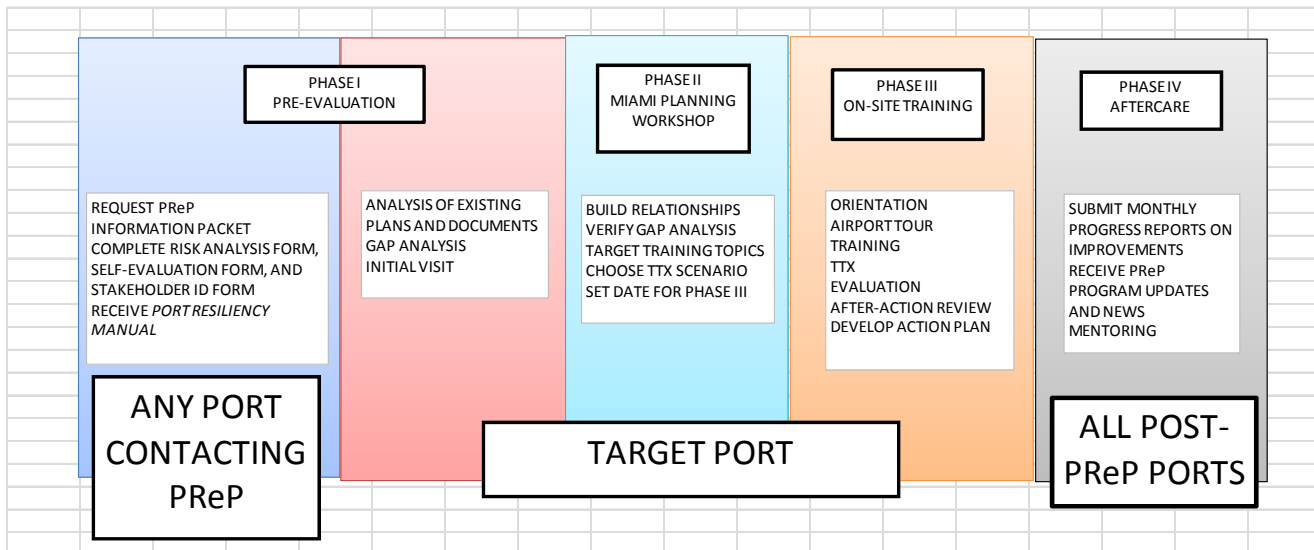
- ensure that disaster risk reduction is a port priority with a strong basis for implementation;
- identify, assess, and monitor disaster risks and improve early warning systems;
- use knowledge, innovation, and education to build a culture of safety and resiliency at all levels;
- reduce consequences from underlying risk factors; and
- strengthen disaster preparedness for effective response at all levels.

The objectives of the Port Resiliency Program are to

- support airports and seaports in improving disaster preparedness;
- speed the post-disaster recovery of airports and seaports;
- help airports and seaports coordinate resumption of commercial service with extraordinary relief activities during disaster response and recovery;
- improve interagency coordination and communication; and
- promote mutual aid among airports and airports, seaports and seaports, and airports and seaports.

## Process

Ports will be given the opportunity to request assistance through PReP. Once a port initiates contact, the following four-phase process will be implemented:



## Framework

Even though ports around the world have a wide variety of site-specific differences, fundamental preparedness, response, recovery, and mitigation principles are universally applicable. PReP blends general best practices with tailored training and assistance to fit the unique needs of each specific port. The PReP framework identifies the needs and critical issues regarding recovery of each port. The framework focuses on correcting weaknesses and/or building on strengths in order to manage risks in ways that are the most beneficial. Each port will customize the PReP framework to fit its own specific capabilities, situation, and risk profile.

Most of the challenges ports commonly face during disasters are related to loss of (1) infrastructure, (2) communication, (3) essential personnel, and (4) interagency coordination. The resilience of every port, large or small, is governed by universal concepts of Continuity of Operations (COOP), which can be applied to determine an organization's capability to withstand unexpected shocks, repair itself when necessary, and thrive when conditions are optimal. Similarly, the resilience of every port is governed by the concepts and practices of Business Continuity Planning (BCP).

Coordinating COOP and BCP maximizes resiliency. Applying this framework can support ports in becoming more adaptive and proactive, and therefore more able to adjust resources, configurations and outputs to meet changing internal and external needs and requirements. The same principles of preparedness can be applied to a multitude of regions while promoting a consistent level of resiliency.

While perfect resilience may never be realized, improved resilience is indeed achievable. The proposed PReP framework aids in the creation of coherent and robust plans and relationships that foster resilience. It establishes a systematic process whereby managers can gain insight into the capabilities of their organizations by identifying the strengths and weaknesses of current processes as they relate to risks. Once the initial risk assessment is completed, the necessary steps that support strengths and correct weaknesses can be taken to develop more effective continuity plans.

To summarize, employing a single framework for port resiliency planning does not mean that identical decisions should be made at all ports. Rather, decisions should be based on sound, commonly held



principles and technical information while incorporating the unique circumstances and needs of each individual port.

## Regional Benchmarks

The proposed framework is based upon a consistent interpretation of port preparedness according to recognized industry standards. A universal definition of resiliency maturity allows the establishment of benchmarks, which in turn allows comparison of performance across ports with similar characteristics. This use of benchmarks will lead to the creation of a learning network of ports that can identify and share knowledge and experience over time. PReP is designed to employ a proactive process, with lessons learned being communicated to all airports in the program; this practice of adaptive management will ensure a cycle of continuous improvement.

## Use of Technology

A fundamental aspect of PReP's approach is the development of a centralized repository for archiving plans, standard operating procedures, checklists, and related materials. This centralized repository will help expand knowledge, encourage innovation, and support effective collaboration among stakeholders. PReP's technologies will establish baseline port capability and maturity levels and update process improvement programs. After these critical elements are determined, participating ports will engage in exercises to troubleshoot and/or validate plans.

## Exercise

Practice is a key element of preparedness. Exercises, drills, and simulations enhance proficiency; identify gaps and weaknesses; organize and test the response capacity of all organizations involved; and increase the confidence of the port and local community in the resiliency of their port. Joint exercises provide organizations the opportunity to experience important cross-departmental contact, improving performance and promoting trust. During and after exercises, deficiencies in mission-critical recovery functions can be identified, reviewed, and corrected. Upon successful completion of the exercise process, the port will be authorized to receive material support from PReP.

## Compatibility with USG Objectives

PReP is designed to be compatible with the USAID's Office of U.S. Foreign Disaster Assistance (USAID/OFDA) programs aimed at saving lives, alleviating human suffering, and reducing the social and economic impact of disasters in Latin America and the Caribbean (LAC). These programs support disaster risk reduction (DRR) in the LAC region by enhancing local and national self-sufficiency in disaster preparedness and management via risk identification, prioritization, and reduction, as well as post-disaster recovery and short-term rehabilitation projects.

Similar to USAID/OFDA's community resiliency programs, PReP engages communities, local and national governments, international and regional organizations, and non-governmental organizations to develop effective strategies tailored to improve port resiliency and disaster response. PReP is committed to supporting capacity development; strengthening linkages between risk identification, monitoring, early warning, and early action systems; and expanding partnerships and joint programming between ports and their stakeholders.

## Stakeholders

The main stakeholders of PReP are threefold:



- 1) ports, their tenants, mutual aid partners, and communities;
- 2) academic institutions and universities; and
- 3) acting partners, organizations involved in providing the materials and curriculum, local and national governments, international and regional organizations, and non-governmental organizations.

Specific stakeholders will be identified by each port.

## Benefits to the Port and Local Community

Completing the PReP and submitting materials for review will result in several beneficial outcomes.

First, participants at the local level will realize a dramatic increase in formalized knowledge regarding continuity and preparedness. Through this program, the ports follow a maturity model for preparedness, which brings a discipline to the planning process that ensures effective and efficient operations during an emergency situation.

In addition, the ports and the stakeholders they interact with will benefit by more fully understanding their critical roles during a disaster. All stakeholders that interact with ports--that is, vendors, users, and the community at large--will benefit from PReP as they learn to recognize and share interdependencies in mission critical functions.

Furthermore, ports completing the initial review process will be granted access to a *Critical Supplies Container* (CSC). The CSC will be stocked with a customized set of essential items to support staff and their families and ensure continuity of operations. When staff are assured their own and their families' basic needs are covered, they can devote their full attention to addressing the needs of the port. The CSC resides at the port itself, and its content is identified through PReP with the goal of maximizing resiliency in the event of an emergency. The CSC ensures a more heightened level of port readiness, allowing for rapid response and recovery efforts, thereby increasing the port's availability during disasters.

## The PReP Team

Responding to an urgent call for action in the wake of recent disasters, AmericasRelief Team (ART) initiated and manages the PReP program. Florida International University (FIU), Miami International Airport (MIA), the Port of Miami, and Smith-Woolwine Associates complete the original PReP Team.

ART has the experience and expertise to bring together large and small entities in the private sector, public agencies on the ground, and public agencies in the U.S. to harness the strengths of each organization and create a synergy of effective approaches for enhancing port resiliency.

In February 2013, the training team successfully completed a pilot resiliency training program for the Las Americas Airport AERODOM in Santo Domingo in the Dominican Republic, and gathered the local emergency response stakeholders, responders, military, and government personnel in a tabletop exercise (TTX). Following the pilot study, the company that operates that airport also joined the team. The team remains open to new members as PReP grows and evolves.





The PREP Team as of March 2013 is a strong public-private partnership comprised of the following participants:

- *Private Non-Profit Organization:* AmericasRelief Team
- *Private Corporations:* FedEx Corporation; AERODOM; American Airlines; Smith-Woolwine Associates
- *Public Agencies:* Miami-Dade County (Miami International Airport; Port of Miami; Miami-Dade Fire Rescue); Florida International University
- *Observers and Advisors:* U.S. Government (Southern Command [SOUTHCOM]; Federal Aviation Administration (FAA); State Department; Department of Commerce; Caribbean Community (CARICOM)
- *Trade Associations and Organizations:* Airports Council International; Airports Council International—Latin America and Caribbean; Latin American and Caribbean Air Transport Association (ALTA)

## Program Summary

Disasters create unusual port circumstances that require non-routine responses. Both seaports and airports are vulnerable in crisis situations, as they are large, publicly accessible, and “fixed” (immovable) entities. Natural disasters that strike ports can rapidly overwhelm local response capacity. A sudden, critical need exists for the rapid influx of humanitarian aid and goods, but the very conduit(s) for delivering the goods are compromised. Ports are critically important during the response and recovery phases of natural disasters or catastrophes as they directly affect movement of supplies needed to promote public health and safety.

Ports are also a central element of national infrastructure, essential to the economic well-being of cities, towns and regions. As port trade creates jobs, the income generated is spent throughout the local economy, resulting in a multiplier effect of economic benefits. The economic viability of a region greatly depends on its ability to return ports to normal operations following a disaster. Resilient ports restore and protect local economies in the wake of a disaster.

AmericasRelief Team’s Port Resiliency Program (PREP) is designed to improve the disaster readiness of air and seaports in the Latin America and Caribbean region. It seeks to facilitate the swift revitalization of the logistics supply chain, thereby saving lives and stabilizing economies. The project applies best practices and lessons learned from recent disasters to assist regional ports in advancing continuity of operations. PREP promotes capacity building, implements resiliency assessment and planning activities, and provides post-disaster technical and commodities support. It is based on the creation, development, and dissemination of disaster mitigation best practice standard operating procedures (SOPs) and training.

The Need	The PREP Solution
Non-formalized, inadequately communicated standard operating procedures (SOPs) create a disjointed, harried response, particularly in the early phases of recovery	✓ A planned, well-communicated set of SOPs provides a valuable roadmap for essential port personnel. Procedures are formalized and the approach is unified and coordinated. Disaster response practices are coordinated with SOCs’ pre-positioned goods as well as with the efforts of all partner alliance organizations.
Port personnel are inadequately trained.	✓ Trained port personnel with a full understanding of SOPs, including how to make use of goods in SOCs, are on standby for short-



The Need	The PReP Solution
Key participating organizations (vendors, suppliers, local government, NGOs, Consuls General, etc.) lack coordination.	<p>notice dispatch when disaster strikes.</p> <p>✓ An alliance of organized, mapped member organizations coordinates and harmonizes efforts, preventing confusion and redundancy.</p>

With full implementation, PReP will develop and disseminate best practices in disaster mitigation for speedy restoration of ports following major crisis events. PReP is designed with a multi-agency articulation to create a standardized, viable set of policies and procedures for port reconstruction that will be formalized and communicated to essential port personnel via intensive and realistic training, drills, and practice. This heightened proactive stance will establish an effective set of protocols for regional response for port restoration after a disaster to ensure that ports are fully operable as quickly as possible, maximizing the timely delivery of critical aid to local communities, and minimizing economic hardship.

For more information, please contact  
 Dr. Teo A. Babun  
 Executive Director  
 AmericasRelief Team  
[teob@americasrelief.org](mailto:teob@americasrelief.org)  
 (305) 884-0441

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 Management Plan/Steps  
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