

Preparation and Response in Case of Natural Disasters: Cuban Programs and Experience

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ABSTRACT

Inadequate preparation for natural disasters is frequently particularly devastating in lower income countries. The Cuba's location has a diversity of potential natural disasters, including hurricanes, non-tropical depressions, tropical storms, tropical cyclones, and severe local storms, all with intense rains and winds, earthquakes and droughts. Cuban preparation, at all levels, is geared to these predominant threats. Planning for natural disasters is integral to the political and economic life of Cuba, nationally and locally. On several occasions, United Nations (UN) officials have pointed to Cuba as a model for developing countries preparing for hurricanes and other natural disasters. A global policy for managing the risks of natural disasters could improve continuity of assistance for development and reduce the necessity of humanitarian aid. Planning in advance of disasters is a feasible way of helping people, by reducing expenses of emergencies, recuperation, and reconstruction. As climate changes accelerate, many researchers fear a period of irreversible and uncontrollable change. While the atmosphere continues to warm, it generates more intense rains, more frequent heat waves, and more ferocious storms. Thus, achieving better protection of developing countries from an increasing onslaught of natural disasters will only grow in importance. Even though Cuba's contribution to know-how has been recognized by United Nations' officials, progress toward more adequate preparation worldwide has been slow. To support other countries beyond conveying the lessons, Cuba now offers specially trained personnel to cooperate immediately with any country suffering a natural disaster.

Journal of Public Health Policy (2006) 27, 13–21.
doi:10.1057/palgrave.jphp.3200056

Keywords: response, natural disasters, Cuba

INTRODUCTION

As I write, I am impressed by how daily news reports reinforce my impression of the increasing frequency and intensity of natural disasters. Nature has wreaked considerable havoc in just 3 days.

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Earthquakes ravaged Pakistan, Afghanistan, and India, injuring more than one million and killing thousands. In Guatemala, another buried upwards of 1,400 victims. As hurricane Stan assaulted Central America, causing thousands of deaths and huge damage to the environment and economies, major floods inundated parts of China.

The global occurrence of disasters has been highlighted by recent events – the highly televised evacuations of cities like New Orleans in the United States in the face of hurricane Katrina this year, and at the end of 2004, the tsunami. In the last four decades, we have witnessed increases in incidence, magnitude, and consequences of natural disasters. In the last 10 years, 500,000 people worldwide have died from these events and the damage can be counted in losses of \$750 billion (1).

Lack of preparation is common, even in rich countries, although preparedness is the only way to save lives and preserve natural resources. As the Associated Press reported through many newspapers on September 27, 2005: “Eight months before the devastation of hurricanes Katrina and Rita, an internal Homeland Security Department review warned that the nation was woefully unprepared for a medical disaster and lacked a coherent plan for taking charge of mass casualties (2).” The story discussed a January 3, 2005 internal report of the United States government written by a St. Louis transplant surgeon explaining that “The nation’s medical leadership works in isolation, its medical response capability is fragmented and ill-prepared to deal with a mass casualty event...” In 2004, government medical teams “had difficulty coordinating and delivering help” to victims of hurricanes in Florida (3).

Inadequate preparation is frequently particularly devastating in lower-income countries. The poor often live in settings prone to floods – in Africa, Asia or in the Caribbean. Even so it is possible for developing countries to be well prepared to protect their people, environments, and economies. When hurricane Jeanne assaulted Haiti in 2004, more than 3,000 died (4). In Cuba, where the same storm came ashore even more powerfully, no one died. Haiti was not prepared, Cuba was. It is contrasts like this one to which officials from the United Nations have drawn attention in lauding Cuba’s approach. They note that Cuban experience since the 1960s can help more countries prepare.

So too can a new alliance for sharing information. The Global Earth Observation System of Systems (GEOSS) will create a platform for countries to share data and studies of the land and oceans (5). For developing countries, GEOSS should increase access to information obtained from sophisticated and more costly sources previously controlled and retained by richer nations (e.g. satellites, buoys, seismometers). Cuba wishes to speed and spread the benefits of its national experience with disaster preparation and of the new technological advances inherent in GEOSS, to where they are most needed. The advantages of preparation for protecting human life will only increase as the frequency and magnitude of natural disasters grow, exacerbated by climate change.

CUBAN EXPERIENCE AND METHODS

In October 1963, cyclone Flora assaulted Cuba. Until after Flora, which caused 1200 deaths, damaged thousands of families, and caused extensive material losses, Cuba had mitigated effects of natural disasters with only occasional rescue missions by the Red Cross, firefighters, or police. There had been no planning to reduce the risks to people or property. After Flora, however, Cuba dramatically improved its capacity for protection, emergency response, and recovery from natural disasters by creating a national Civil Defense System in 1966. To avoid loss of life and to assure rapid recovery, the system organizes support and coordinates provincial systems throughout the country. President Castro has presided over the system from the start, a sign of the priority accorded to disaster preparedness. In 1976, a second national law improved upon the Civil Defense System's original design. Today, Cuba is better prepared to protect its people and resources than most countries in the world, as United Nations officials attest. Further, wherever needed to assist other nations in the face of catastrophe, Cubans are willing and able to share their expertise. They can help improve preparedness, disaster response, and longer-term recovery – and offer services of a well-trained, sizeable, and mobile emergency response team.

Inherent in Cuba's location are a diversity of potential natural disasters, including hurricanes, non-tropical depressions, tropical storms, tropical cyclones, and severe local storms, all with intense rains and winds (Rigorous studies reveal that major flooding, coastal

and fluvial, follows three quarters of these events) (6); earthquakes; and droughts. Thus Cuban preparation, at all levels, is geared to these predominant threats, but also to preventing unnecessary damage from sanitary crises, fires, chemical spills, explosions, and any other imaginable disasters. Throughout the 40 years since hurricane Flora prompted Cuba to build its Civil Defense System, the objective has been constant: protection of our population, our resources, and our national economy.

Planning for natural disasters is integral to the political and economic life of Cuba, nationally and locally. Cuba's Revolutionary Army manages the Civil Defense System. The Institute of Meteorology and the Ministry of Interior, play key roles. Ministries responsible for foreign relations, information sciences, communications, and military affairs all take part.

Cuban Civil Defense relies on a high degree of organization and technical expertise, as well as regular education and engagement of the public in protection, emergency response, and recovery. All Cubans are well informed about what to expect from government once our system predicts the onset of a particular natural disaster. They are also familiar with the full cycle of activities from reducing risks, to planning logistics for emergencies and responses, preparing communication networks, providing early warning, and regularly reinforcing training. Everyone in Cuba participates, even before disaster strikes, and each has a clear mission. Local authorities know who needs special care and how to locate and attend to the most vulnerable.

Because cyclones are seasonal, occurring from June to November, they are predictable. Every year, in advance of June first, all Cubans, civilians as well as the Revolutionary Army, participate in a two-day national exercise called "Meteoro". Specialists and leaders from all relevant ministries work together on the first day. They review logistical arrangements for deficiencies in planning and adequacy of resources. They engage in further studies of risks and vulnerabilities by region, based on the natural disasters likely to occur in each. Then, on the next day, they mobilize provincial and community organizations in simulations appropriate to each locality. These exercises anticipate a variety of potential disasters and engage members of all communities in preparatory tasks to protect health and hygiene in workplaces, schools, and elsewhere. Gains in Cuba's preparedness result from these yearly exercises as well as from experience gleaned from actual disasters.

Each type of natural disaster calls for slightly different preparation. As Cuba has studied where, when, and what to anticipate, we prepare accordingly. For example, for *tropical cyclones*, the principle destructive forces include wind, rain, flooding, tides and landslides. Together these can cause loss of life, contaminate water and food, damage structures, interrupt communications and electricity, and harm livestock and crops crucial for feeding both humans and animals. When a cyclone is predicted, government first transmits *warnings*, then *alerts* as danger grows imminent, followed by *emergency alarms*, and finally *guidance* to inform recovery. We educate people with precautions about what to avoid, as well as actions to take during each phase of preparation, emergency response, and recuperation.

Activities we pursue include

- preparing to offer special attention to all those who are vulnerable: children, pregnant women, the elderly, those who are ill or whose activities or comprehension are limited in any way that might exacerbate the risk of harm during disasters,
- assuring communication among neighbors for emergency and weather updates when electricity may fail and not all possess radios or batteries to power them,
- preparing drinking water reserves and emergency lighting,
- reinforcing doors and windows,
- securing lids on storage tanks,
- securing objects that can become dangerous projectiles if lifted by winds,
- reinforcing roofs to protect from wind and rain,
- staying alert to weather updates and government advisories, above all when evacuation may be needed,
- cleaning debris from living and working environments, construction sites, and public spaces, including anything that may block drains or sewers or allow disease vectors to proliferate,
- pruning of trees, particularly those affecting electric and communication cables or the safety of buildings, and
- repairing buildings in danger of collapse.

During disasters we also have a list of what to avoid: crossing flooded rivers, lakes or other bodies of water, including animals'

watering holes; crossing bridges, water covered roads; wandering or fishing in flooded zones or near dams; and touching fallen cables.

We prepare for more. We have comprehensive approaches for hurricanes, earthquakes, hydrocarbon and other chemical spills, toxic gas releases, radiological accidents, big explosions or catastrophic transport incidents. For earthquakes, Cuba prepares by mapping and characterizing faults and reduces risk by avoiding new construction near major fault lines and by designing earthquake-resistant structures elsewhere. Managing during emergencies is more complex as it depends not only on careful preparation, but also on execution of plans with agility and calm, giving priority to such indispensable services as sanitation and emergency medical attention.

UNITED NATIONS OFFICIALS POINT TO CUBA AS A MODEL

On several occasions, United Nations (UN) officials have pointed to Cuba as a model for developing countries preparing for hurricanes and other natural disasters. In 2004, Salvano Briceño, Director of the International Strategy for Disaster Reduction of the United Nations (UN/ISDR) lauded the Cuban way. He based his praise on statistics about Hurricane George in 1998 that claimed 600 lives in other nations in the Caribbean and only four in Cuba; and hurricane Charley in August 2004 that killed 30 in Florida, but just four in Cuba. Briceño noted that differences in preventive measures and capacity for emergency response, a constant flow of information to the public, plus training with simulation account for differences in results. Briceño highlighted the roles of Cuba's Civil Defense System and the Institute of Meteorology as "pillars" of this system – a system that pursues precision and continuous improvement in its preparation. The system reflects a political will and determination that vulnerability of Cubans can be effectively reduced using low cost measures (7).

Another UN official, Jan Egeland, Under-Secretary-General, Emergency Relief Coordinator, called Cuba "number one" in terms of social organization, in having people respond responsibly when there is an alert for hurricane in the region. Egeland said Florida "is maybe number two... Florida can probably learn from Cuba..." (8).

INTERNATIONAL POLICIES AND POLITICS

A global policy for managing the risks of natural disasters could improve continuity of assistance for development and reduce the necessity of humanitarian aid. Planning in advance of disasters is a feasible way of helping people, by reducing expenses of emergencies, recuperation, and reconstruction. Management of risk is a concept that can be integrated into many policies. For example, risk management can be included in education programs, to teach students what to do in an earthquake or hurricane and in engineering studies, to include evaluation of natural risks.

A project of infrastructure assistance for development could propose regulations for construction – planning, design, materials, and construction – for making new buildings resistant to natural disasters. It costs little to require contractors to comply with construction regulations when, for example, planning a new hospital. However, a terrible loss results if the hospital is destroyed in a particularly ferocious hurricane because the construction materials were inadequate.

As climate changes accelerate, many researchers fear a period of irreversible and uncontrollable change. While the atmosphere continues to be warm, it generates more intense rains, more frequent heat waves, and more ferocious storms. Thus, achieving better protection of developing countries from an increasing onslaught of natural disasters will only grow in importance. Achieving global climate stabilization would require reduction of consumption of coal and petroleum by as much as 70% (9,10). This debate is difficult to pursue internationally as it threatens survival of some large, commercial enterprises.

Even though Cuba's contribution to know-how has been recognized by UN officials, progress toward more adequate preparation, worldwide, has been slow. To support other countries beyond conveying the lessons, Cuba now offers specially trained personnel to cooperate immediately with any country suffering a natural disaster. Cuba provided help in recovery after hurricane Mitch devastated several countries in Central America in 1998, and in other parts of the world. Recently Cuban government offered aid to the US after hurricane Katrina – 1,586 experienced doctors plus medications to alleviate suffering of victims. No response from Washington DC was forthcoming.

At a graduation for doctors and health professionals, on September 19, 2005, President Castro announced the creation of a special volunteer brigade named “Contingent Henry Reeve,” in memory of an exceptional young North American combatant who died in 1876 fighting for Cuban independence. With the world facing an evident risk of greater tragedy from natural disasters, the special volunteer force would be composed of medical graduates, starting with 200 each from the classes that graduated in 2004 and 2005. Then 600 volunteers would be recruited from the class of 2006, and 800 from 2007, allowing Cuba to offer more and better assistance to other countries.

Dr. Mas offers additional recommended reading and two websites for those who wish more detailed guidance, especially for those who read Spanish:

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