

Cuba's Disaster Management Model: Should It Be Emulated?

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The article offers a criticism of the point of view that disaster programs in Cuba should be emulated by other countries. It shows the relationship that exists between disaster vulnerability and resilience, to shed light on the promises as well as the problems of using Cuba as a model to emulate in social development. Cuba has an excellent record when it comes to disaster preparedness and response involving warning and evacuation, in which governmental control of the population is used very effectively to minimize the potential morbidity and mortality of hurricanes and tropical storms. It nevertheless has a very poor record in dealing with disaster reconstruction, recovery, and mitigation as well as with solving slow onset chronic problems and vulnerabilities of the population.

Preliminaries

The goal of this paper is to use the experiences of Cuba with disasters to illustrate the complex relationship that exists between disaster vulnerability and resilience and to shed further light on the promises as well as the problems of using Cuba as a model to emulate in social development. Using the established approach in disaster studies structured around the stages of disaster preparedness, response, reconstruction, recovery, and mitigation (Tierney, Lindell, and Perry 2001), Cuba has an excellent record when it comes to certain features of disaster preparedness and response involving warning and evacuation, in which governmental control of the population is used very effectively to minimize the potential morbidity and mortality of hurricanes and tropical storms. Cuba has a poor record, however, in disaster reconstruction, recovery, and mitigation.

A Model to Emulate

In 2004, the United Nations declared Cuba “A Model in Hurricane Risk Management” (UN 2004). Yet, is it true that Cuba’s disaster-related system is worthy of emulation by the rest of the developing world? Among a number of other scholars, Wisner (2001a; 2001b) thinks so. He writes: “Cuba has lessons for the rest of us.” But what are the lessons? He points out its enviable record in evacuating populations at risk of hazards, a matter discussed elsewhere in this article. Unfortunately he does not mention the social organizational features that make it possible. Further, the important emphases on political democracy, individual freedoms, devolution of political power to the community, commitment to social equality and justice, and the link that he makes between poverty and disaster vulnerability in his justly celebrated book *At Risk* (Blaikie et al. 1994) as well as in other of his writings cannot be reconciled with the severe poverty and attending difficulties of the people in the island; nor can it be reconciled with the long political dictatorship of Mr. Castro.

Advancing Mr. Wisner’s arguments, Martha Thompson and Izaskun Gaviria, from Oxfam America (2004), write about “the lessons in risk reduction from Cuba,” claiming that Cuba’s development model reduces risk and vulnerability because of its emphasis on universal access to services, policies to reduce social and economic disparities, investment in human development, government investment in infrastructure, and social and economic organization (p. 16). In an otherwise well documented book, they write that the most important part of disaster mitigation in Cuba is “the political commitment on the part of the government to safeguard human lives” (p. 22), which is said to create trust between the government and the people during times of emergencies (27). These claims contradict other facts about the situation in Cuba and are made without an attempt to address these different perspectives, so that they act as rhetorical statements that do not help elucidate the state of disaster mitigation in the island.

Thompson and Gaviria praise the legal framework in which the National Civil Defense, part of Cuba’s military establishment, is a key organization, without recognizing the grave practical limitations of civil defense national disaster programs that eventually were

recognized in the United States, Australia, and other parts of the world and resulted in their replacement in many of these countries by civil emergency management systems such as the Federal Emergency Management Agency in the United States (Haddow and Bullock 2004; Drabek 2003). They declare that in Cuba there is universal access to government services without commenting on the continued racism, the tremendous disparities in wealth that exist, and the impact of the hard currency economy on social stratification in the country. Their claim that the Cuban model of disaster prevention is exportable ignores the fact that Cuba's very important but limited successes in protecting its citizenry from the immediate impact of certain types of sudden disasters occurs in the context of an authoritarian political system that on other grounds aggravates the vulnerability of its population (San Martin 2004) and that has been rejected by all of the other nations in Latin America at the present time. They do not recognize that Cuba's policies, like those in the US and other countries, are a mixed bag of social practices and cultural complexes that both increase vulnerability and resilience of the population to disasters.

The Social Organizational Bases of Cuba's Disaster Programs

The Cuban government has a very effective system of social controls (Aguirre 2002) that it uses to organize the behavior of masses of people in various efforts, which include, among others, conventionalized political rallies and other forms of collective behavior, the structuring of mass migration, the activities of education and other institutions, and improving the health of the population through mass vaccination and other campaigns. Such a system of social organization and control is also very effective in providing certain types of disaster preparedness and response services to the population. Cuba's disaster preparedness is centered on highly professionalized and effective meteorological services and warning systems (Sims and Vogelmann 2002, pp. 395-398; Wisner et al. 2005, p. 1), and on educational efforts that alert people of impending tropical storms and hurricanes and that tells them what to expect and what they should do in the short term to prepare for the impact of these hazards¹. Cuba's national system of civil protection

is part of the military and works with the Committees of the Defense of the Revolution and other mass organizations. The Estado Mayor Nacional de la Defensa Civil de Cuba (EMNDC) was created during the mid 1960s, and it has been very effective in reducing the loss of life caused by hurricanes and floods (Alonso 1989; Alonso, Sánchez Celada and Batista Silva 2000; Batista Silva and Sánchez Celada, 1999; Pearce 2002). Furthermore, this agency is part of the social organization of the Cuban state, particularly its well-tested integrated system of mass organizations and armed force personnel, state-run mass media, and government ministries and agencies, which maximizes the likelihood of the effective handling of the immediate response period during disasters and major crises.

The customary structuring of the lives of people through the activities of the Committees for the Defense of the Revolution, the Federation of Cuban Women, the Confederation of Cuban Workers, and other mass organizations of the state provide ready access for official disaster programs to the neighborhood, schools, places of work, and other dimensions of social life. This structuring at times of impending disasters facilitates the transmission of information to threatened populations and of the warnings and other protective instructions that are given by the authorities, as well as the enforcement of evacuation advisories. Evacuations are used very effectively in Cuba to move people from areas expected to be, or exposed to, high winds, flooding, and sea surges. Seldom have they involved forced movement of people, even though in Cuba the authorities have the right to compel evacuations, which is not the case in the United States and other countries. The outcome is an enviable record of minimizing the morbidity and mortality of these hazards.

Certain types of post-disaster response tasks such as the clearing of fallen trees obstructing roads, and the removal of other debris, are usually accomplished very promptly, as is the restoration of lifeline services of electricity, water, and other essentials to the population. These tasks involve the activation of people who are pressed into service or who volunteer, and the repositioning of resources that are usually already available to the various bureaucracies of the state. Reconstruction efforts are usually quite efficient in the case of hospitals, schools, electric generating plants, and other critical

facilities. Housing reconstruction however, is very deficient, and despite claims to the contrary, is not carried out in any systematic way (Kapur and Smith 2002). Recently, during the international conference of sustainable cities in Havana, for the first time the Cuban government revealed the extent of the problem: there is a deficit of more than half a million houses, which would cost the government approximately \$4000 million dollars to build (Ravsberg 2005). In fact, despite promises to the contrary, the government has shown a long term and chronic inability to satisfy the demand for housing of the population and cannot respond in a programmatic and satisfactory way to the destruction of the housing stock that at times is brought about by hurricanes and other storms. Thus, the majority of disaster victims whose houses are destroyed or seriously damaged are left to their own devices and sporadic assistance from international humanitarian programs as well as the few non-governmental organizations operating in Cuba (see below).

In contrast to preparedness and response efforts, other aspects of disaster programs are underdeveloped. Thus, there are no programs—with the possible exception of the project funded by the United Nations Development Program to protect, restore, and enhance Havana's central district (La Habana Vieja) (Scarpaci 2000)—to carry out long-term community recovery which would involve the affected residents in the planning for and participation in the process of decision making and conflict resolution attending the long term re-building of their communities and regions to make them safer and more sustainable (Natural Hazards Research, no date). Nor are there disaster programs that mitigate the effects of hazards. Thus, there is the near absence in the record of comprehensive and inclusive land use planning, zoning, and building codes as mechanisms for the mitigation of the effects of disasters (compare with Mileti 1999, chapter 6; Twigg 2004). A good case in point comes from Trinidad (Scarpaci 2002), in the south coast of central Cuba, in which the local architect attempted without success to curtail the access of buses and tourists to the historic center of the old city on the grounds that the old buildings were being negatively impacted by the vibration of the heavy vehicles, and that the infrastructure of the city could not handle such a large influx of people. Such concerns were disregarded, and the government, in its rush to encourage tourism

now plans to build more hotels in the area to cater for the visitors. The absence of these preventive efforts is particularly important in the case of the risk of hurricane, which is not evenly distributed throughout Cuba; certain regions and cities are more likely to be impacted by these hazards than others (Portela 2005). Some of the most at risk are the cities of Havana, Nuevitas, Baracoa, Manzanillo, Cienfuegos, and Isle of Youth (Alvarez 2003). Yet, there are no mitigation programs in these areas to diminish their vulnerability and increase their resilience, nor are there recovery programs that follow sound principles in urban and regional planning to make these places more sustainable. Despite well established historical precedent of earthquakes, there is also a near absence of programs such as building codes to mitigate the effects of earthquakes in the Province of Oriente and its large cities—Santiago de Cuba, Holguin, and Manzanillo. As in other parts of the world, in Cuba faulty urban planning and construction as well as inappropriate land use patterns aggravate floods (for an extensive treatment of flooding in Cuba see Batista Silva and Sanchez Celada 1999). The present day boom in hotel construction in Varadero Beach and elsewhere in Cuba often shows the lack of sound land use practices, with buildings placed too close to the shore interrupting natural coastal processes and creating erosion.

Until recently there has been a lack of official recognition that the vulnerability of Cuba's population to chronic, slow-developing hazardous conditions such as the effects of environmental degradation on health is much higher than to sudden hazardous events and catastrophes (Portela and Aguirre 2000; Ramos 1997). Paradoxically, Cuba's highly regimented, militarized and politicized social organization has been very effective in reducing the direct human costs of hurricanes, floods and sea surges, the three most frequent types of sudden hazardous events in the island, even as it has created a chronic economic crisis and a number of environmental crises.

Even though Cuba has an admirable tradition of public health and progressive medical services, in the post 1989 period, environmental and sanitation conditions have undergone some of the most significant degradation. For instance, as recently as 1989, 93 percent of the water that Cubans drank underwent chlorinating treatment, but by 1994 that had fallen to 40 percent. As a result, waterborne diseases such

as acute diarrhea and viral hepatitis A became much more common: between 1989 and 1992, the rate of growth of these diseases was 8 and 241 percent, respectively (Ministerio de Salud Publica 1996). More than 1,000 rural communities in Cuba have improved their sanitary conditions over the past 15 years thanks to a UNICEF-funded program that builds local aqueducts to provide access to clean potable water and sewer systems. At the beginning of 1997, some 1,034 communities with an estimated 460,000 residents remained without access to fresh water (*Cubanews* April 1997)². A major contributing factor of the poor conditions surrounding health and hygiene is the decaying sewage system. In the cities, central sanitary sewage systems and septic tanks are the rule, with latrines frequently used in the countryside. In the most isolated rural areas, however, unsanitary practices still prevail. Near 2,800 rural settlements are not covered by these services; it is estimated that close to 300,000 urban dwellers and 890,000 rural dwellers lack an appropriate sanitation system. In Havana, 64 percent of its 2.2 million inhabitants live in residences connected to the central sanitary sewer system. The system was built between 1908 and 1913 and has a maximum capacity for 600,000 people instead of the 1.4 million it currently serves. This results in frequent ruptures of the aging underground network, with increases in the risk of epidemic outbreaks. Particularly affected are Old Havana, Central Havana, Cerro and some Plaza municipalities. As a result of the overload, much of Havana's untreated sewage ends up in the sea alongside the Malecon or in the Playa del Chivo beach, a foul precinct barely half a mile east of the entrance to the channel leading into the Port of Havana. Some 116,000 septic tanks are scattered in Havana's peripheral municipalities and neighborhoods. An estimated 60 percent were dug anywhere from half a century to 60 years ago, so that their use should have ceased long ago. Some 28,000 septic tanks need to be cleaned every year, but a full septic tank often stays in overflow status for months before the state-run cleaning company gets around to servicing it (*Cubanews* April 1997).

What Really Exists?

What Cuba has is a type of integrated warning system (Nigg 1995) that has a very effective meteorological agency involved in

the gathering and analysis of scientific information production, and forecasts about relevant severe weather hazards. It also has a very effective civil defense agency that acts in accordance with the army and the mass organizations of the state to distribute the warnings to relevant end user groups through the government-owned mass media, and organizes the mass evacuations and temporary sheltering of people. Cuba's warning system, useful as it is, is only one of a number of alternative versions of effective integrated warning systems. It works in Cuba because of the distinct features of the society previously alluded to; it would not work in other societies where these features are absent. It is based on an extraordinary degree of control of the population by these state agencies, as shown by a passing remark of a high official of the Cuban government in charge of disaster response who indicated that whenever a hurricane threatened the country, "[t]he Civil Defense authority becomes the supreme authority in the province and all other institutions are subordinated to their direction" (*Focus* 2002). This sort of military control by the Civil Defense System, effective as it is in Cuba, does not usually take place in more pluralist societies. Other versions of integrated warning systems exist elsewhere, with their own strengths and limitations. Thus, it is not that Cuba's system has universal applicability. Instead, what would be needed is the examination of the conceptual features of the ideal type of such a system, to apply them to various national settings while taking into consideration the specific historical, social, and cultural characteristics of the societies in question. There is more to disaster mitigation than an effective warning and evacuation system, and in these other areas Cuba's record is quite poor.

Cuba's Broader Disaster-Related Practices

Traditionally, there is agreement that three of the most serious political problems blocking effective use of foreign aid are: 1. The unwillingness of affected governments to acknowledge that disasters have occurred or recognize their full magnitude, 2. Governments' decisions regarding the distribution of disaster relief, which often is impacted by considerations other than the plight of disaster victims, and 3. Withholding of aid to categories of victims and corruption

in disaster relief operations (UNA-USA Policy Studies Panel on International Disaster Relief report, 1977). Instead of unwillingness to recognize disasters, nowadays the tendency of some governments is to use disaster events as triggers to access foreign aid that once obtained is often diverted from the original intention of donor countries and organizations. Most governments nowadays have emergency management institutions to handle foreign aid, but on average the effectiveness of such institutions is quite limited. Mulwanda's (1993) description of Zambia's lack of a national emergency and housing program and policy seems to correspond to the situation of most countries in Latin America; their reality is one of "disjointed incrementalism" in which "the countries are constantly involved in reacting to crisis situations with disjointed programmes whose methods and results are forgotten until the next crisis (p. 75)." Corruption continues, in part due to the absence of accountability (see for example Christie and Hanlon 2001, pp. 73-80; Tulchin and Espach 2000).

The history of relations of the Cuban government to international humanitarian organizations does not reflect these problems, for the Cubans have developed their own distinctive approach to disaster aid. Cases of corruption in disaster assistance programs have not surfaced. Contrary to many other national governments, the Cuban government has not created an agency to handle all forms of foreign humanitarian assistance. Instead, it links donors to specific national government agencies in terms of the area of need that the donor organization, agency or government is interested in sponsoring. The favorite donor actors from its perspective are city and regional governments from countries with a strong federal political tradition like Spain, Canada, and Argentina that agree to assist Cuba on specific projects; departments or programs of the United Nations (e.g., U.N. Development Program; U.S. Funds for UNICEF); international organizations (e.g., Oxfam America; The International Federation of the Red Cross and Red Crescent Societies; World Food Program; CARE; Catholic Relief Service; Physicians for Peace; American Friends Service Committee; Church World Services; Global Links; Stop Hunger Now) (Noon 2001); and smaller, non-profit humanitarian organizations (e.g., The Evangelical Lutheran Church in America; The Cuban Aid Project of New Jersey) that are allowed into Cuba for specific purposes.

Noon (n.d.; for a more recent list see Aristiqueta, 2004) provides a very useful chart describing the international organizations that have projects in Cuba related to the following sector activities: agriculture and food security; business development and cooperatives; capacity building; political relations; disaster and emergency relief; education and training; environmental development; gender issues and women in development; health care; rural development; and water and sanitation. Five organizations provide disaster related assistance: Church World Services, International Aid, Oxfam America, Stop Hunger Now, and U.S. Funds for UNICEF.

Extensive government-specific programs of humanitarian assistance (such as the Canadian International Development Agency) have not operated for long in the island, for they fall victim to the vagaries of international political relations, and this sensitivity is particularly true with U.S. government offerings of humanitarian assistance, which most recently in the case of Hurricanes Michelle and Dennis were refused. It is also the case that in most instances the Cuban government is willing to recognize both the full magnitude of sudden disasters as well as accept its responsibility to assist the victims of disasters (Thompson and Gaviria 2004), although it tries to structure the distribution of disaster and humanitarian assistance in such a way—for example its treatment of the aid provided by CARITAS—so as to dissimulate if not to misrepresent to the public the international sources of the aid, representing such assistance as its own (Gunn 1995).

Despite claims to the contrary that are often found in official statements in the US (USDA 2002; Natsios 2004) and elsewhere, if a major disaster or a catastrophe would happen in Cuba there will be an ongoing Cuban government dealing with it, and the best way for the U.S. and other governments wishing to give humanitarian assistance would be through the system of NGOs already established in Cuba or attempting to do so (Simon and Echeverria 2005), that cooperate with the Cuban government in its assistance of the people of Cuba. This system could be used not only to deal with response to catastrophe but also to strengthen disaster programs in the island and to encourage the adoption of disaster mitigation initiatives that would include the threat of earthquakes in the eastern part of the country (Alexander 2003).

As was the case with Michelle and Dennis, it can be anticipated that faced with a massive catastrophe, the Cuban government will not be willing to accept foreign aid because it cannot supervise it (Cuny 1983: 142-143). It will most likely define a catastrophe as an “unforeseen event that causes widespread loss of life and requires immediate large-scale relief.” Its consequences, however, would be understood by the Cuban authorities not so much as an opportunity to transform the society but as a national security problem; official responses will most likely center on assumptive challenges of control, on how to deal with increase in crime and acts of mass protest, and on how to dissimulate the poverty and the inequalities that exist in the island as well as the inability of the regime to provide solutions to the short and long term needs of the Cuban people during the period of reconstruction and recovery from disaster. It thus behooves international humanitarian agencies and governments responding to a catastrophe to understand Cuba’s “local coping mechanisms” and also to understand the Cuban regime’s predicament faced with catastrophe: it will need international disaster assistance, and it will also insist in using the assistance to enhance its ability to keep in power. However reluctantly at present, it needs to be made to understand its need for the assistance that NGOs and other members of civil society can render it during major disasters and this can be done most effectively, as Sinclair (2000) reminds us, if it perceives these other actors and efforts of humanitarian assistance as not threatening its political hegemony. An effective civil society in Cuba does not imply a necessary antagonism with the state, for as Burchardt (2002) argued, “it is possible for civil society and the state to merge synergistically and provide new legitimacy to the system,” particularly if its authoritarianism would gradually subside and constitutional guarantees and public administration emerge (p. 70). The gradual development of civil society could be a way to strengthen in Cuba an international network of organizations that understand international humanitarian assistance work and that could provide continuity and effectiveness to international humanitarian aid efforts, including that of the U.S. government, in case of a catastrophe such as famine or a major disaster. At the present time, it is one of the only options available to help Cubans survive the present day crisis, and in the

long term could facilitate the transition to democracy and the rule of law while safeguarding the hopes and values of the Cuban people.

Conclusion

The Cuban state has a very poor record in the area of disaster reconstruction, recovery, and mitigation. Its record is much better when it comes to certain features of disaster preparedness and response. The claim that the rest of the developing world should emulate the Cuban model ignores its basis in the unique social organizational features of Cuban society that may not be present in these other countries. What Cuba has is a type of integrated warning system composed of an effective meteorological agency, a powerful civil defense agency, a state-run mass media, and a number of other state mass organizations that cooperate effectively in responding to the demands created by severe storms. Rather than copying this system, the real question is how to effectively coordinate these generic parts of the system of disaster response without adopting the highly centralized and authoritarian features of Cuba's political and social life that generate a number of other vulnerabilities. This is the real challenge that is being faced by other countries.

Notes

1. This description is derived in part from a close reading of material describing Hurricane Michelle in 2001 and Dennis in 2005, the most intense hurricanes (class 4) to strike Cuba in more than half a century. Michelle forced the evacuation of an estimated 700,000 people and it damaged approximately 40,000 homes. Dennis forced the evacuation of more than 1.5 million persons. It seriously damaged approximately 120,000 homes. For the official review by Mr. Fidel Castro of the extensive damage, see Pelaez and Schlachter 2005. Some of the articles consulted on Michelle are: Davila 2004; Hurlich 2002; Kriner 2001; Kim 2002; Ward 2001; Schweimler 2001; US-Cuba Sister Cities Association 2001. I also consulted information available on Hurricanes Isidore and Lili during 2002.

2. Articles cited in this report and published in *Cubanews*, the foremost source of business information on Cuba, are available at <http://www.cubanews.com/cgi-bin/news.cgi>.

References

- Aguirre, B. E. 2002. "Social Control in Cuba," *Latin American Politics and Society*, 44, 2: 67– 98.
- Alexander, Brian. 2003. "Targeting Castro, Not Cuba: Considering a Smart Sanctions Approach Toward Cuba." Pp. 293-301 in *Cuba in Transition*. Proceedings, Thirteenth Annual Meeting of the Society for the Study of the Cuban Economy, Vol. 13. Miami, Florida: Institute for Cuban and Cuban American Studies, University of Miami (<http://lanic.utexas.edu/project/asce/publications/proceedings>).
- Alonso, Daniel. 1989. "Plans Against Catastrophes, Hurricanes and Heavy Rains in Cuba". *Proceedings, Meeting of Experts in Hazard Mapping in the Caribbean*. Compilado por David Barker. Jamaica: University of Kingston and UNRO, pp. 10-12.
- Alonso, Daniel, M. A. Sánchez Celada, y J. L. Batista Silva. 2000. *Desastre y medio ambiente en Cuba*. Habana, Cuba: Instituto de Geografía.
- Alvarez, Jose. 2003. "Natural Disasters and Cuba's Agricultural Performance: Is There a Correlation?" Pp. 227-233 in *Cuba in Transition*. Proceedings, Thirteenth Annual Meeting of the Society for the Study of the Cuban Economy. Vol. 13. Miami, Florida: University of Miami, Institute for Cuban and Cuban American Studies.
- Aristiqueta, Maria del Pilar. 2004. "Civil Society in Cuba: Advancing through Moral Convictions and Public Connectedness." *Unpublished manuscript*.
- Batista Silva, José Luis y M. Sánchez Celada. 1999. *Riesgo por inundación pluvial en Cuba*. San Juan, Puerto Rico: VII Encuentro de Geógrafos de América Latina, 34 paginas, en CD-ROM.
- Blaikie, Piers, Cannon, Terry, Davis, Ian and Wisner, Ben. 1994 *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. London: Routledge.

- Burchardt, Hans-Jurgen. 2002. "Contours of the Future. The New Social Dynamics in Cuba." *Latin American Perspectives*, 124, 3: 59-76 (<http://www.ish.uni-hannover.de/Dateien/staff/HB/texte/socdyn.pdf>).
- Canadian International Development Agency. *Canadian Cooperation Program in Cuba*. (<http://www.acdi-cida.gc.ca/cidaweb/webcountry.nsf/VLUDocEn/Cuba-Programmingframework>).
- Christie, Frances, and Hanlon, Joseph. 2001. *Mozambique and the Great Flood of 2000*. African Issues series. Bloomington: University of Indiana Press.
- Cuban NGOs. No date. *Contribution of Cuban and International NGOs Established in Cuba*, for the Millenium Forum (www.geocities.com/CapitolHill/Lobby/4677/cubacontribution.htm).
- Cuban NGOs. No date. *A Look at Cuban NGOs* (www.ffrd.org/cuba/cubanngos.html).
- Cuny, Frederick C. 1983. *Disasters and Development*. New York: Oxford University Press.
- Davila, Carlos Lage. 2004. "Cuba se recupera de los danos del huracan Michelle." *Agencia Informativa Latinoamericana Prensa Latina S.A.* (www.prensa-latina.org).
- Drabek, Thomas E. 2003. *Strategies for Coordinating Disaster Responses*. Boulder, Colorado: Institute of Behavioral Science, Monograph no. 61.
- Focus*. 2002. "What can we learn from Cuba about disaster prevention? An interview with Gilberto Quevedo." *Basin News*, June, no. 23 (www.gtz.de/basin).
- Gunn, Gillian. 1995. "Cuba's NGOs: Government Puppets or Seeds of Civil Society?" (www.trinitydc.edu/academics/depts/Interdisc/International/caribbean%20briefings/Cubas_NGOs.pdf).
- Haddow, George D. and Bullock, Jane A. 2004. *Introduction to Emergency Management*. Amsterdam: Butterworth and Heineman.
- Hurlich, Susan. 2002. "Personal Testimony of Michelle's Impact 10/12," Havana. *AfroCubaWeb*.
- Kapur, Teddy and Smith, Alastair. 2002. "Housing in Castro's Cuba." *International Union for Housing Finance*, May (www.housingfinance.org/IndustryInformation/Carribbean_Cuba_HousinginCastrosCuba.asp).

- Kim, Susan. 2002. "How Does Cuba Do It?" (www.disasternews.net/news/news.php?articleid=1567).
- Kriner, Stephanie. 2001. "November Storm Leaves Cuba Dependent on Outsiders." *Disaster Relief, Worldwide Disaster Aid and Information Via the Internet* (www.disasterrelief.org).
- Mileti, Dennis. 1999. *Disasters by Design*. Washington, D.C.: Joseph Henry Press.
- Ministerio de Salud Publica. 1996. *Analisis del sector salud en Cuba. Resumen ejecutivo*. La Habana, Abril 29, 30.
- Mulwanda, Mpanjilwa. 1993. "The need for new approaches to disaster management; the 1989 floods in Lusaka, Zambia." *Environment & Urbanization* 5, 2: 67-77.
- Natsios, Andrew S. 2004. "Remarks by the Honorable Andrew S. Natsios." Pp. 5-12 in *Cuban Transition Project, Humanitarian Aid for a Democratic Transition in Cuba. Seminar Proceedings*. Miami, Florida: University of Miami Institute for Cuban and Cuban American Studies.
- Natural Hazards Research. 1999. *A Review of the Literature and Programs on Local Recovery from Disasters* (www.Colorado.Edu/hazards/wp/wp102/wp102p1.html).
- Nigg, J. M. 1995. "Risk Communication and Warning Systems." Pp. 369-382 in *Natural Risk and Civil Protection* edited by T. Horlick-Jones, A. Amendola, and R. Casale London: E & FN Spon.
- Noon, Jessica. 2001. *A Guide to Humanitarian Development Efforts of InterAction Member Agencies in Cuba*. Washington, D.C.: InterAction, American Council for Voluntary International Action (www.interaction.org).
- Noon, Jessica. No date. *Efforts of Interaction Member Agencies in Cuba*. Washington, D.C.: InterAction, American Council for Voluntary International Action (www.interaction.org).
- Pearce, Fred. 2002. "Disaster preparedness, a priority for Latin America." *World Disasters Report 2002*. International Federation of Red Cross and Red Crescent Societies.
- Pelaez, Orfilio and Schlachter, Alexis. 2005. "Mas solida y fuerte la revolucion," *Granma*, 12 Julio de 2005.
- Portela, Armando. 2005. "Dennis only the latest in a long legacy of killer hurricanes." *Cubanews*, 13 (7): 3.

- Portela, Armando and Aguirre, B. E. 2000. "Environmental Degradation and Vulnerability in Cuba." *Natural Hazards Review* 1 (August): 171-179.
- Ramos, Ariel. 1997. "Cuba Admitted the Country's Ecological Disaster at the Earth Summit." *Diario las Americas*, June 27th.
- Ravsberg, Fernando. 2005. "Cuba enfrenta grave crisis habitacional." *BBC Mundo* (La Habana, Infosearch: J. F. Sanchez, Jefe de Buro E.U., Departamento de Investigaciones, La Nueva Cuba, Julio 2, 2005).
- San Martin, Nancy. 2004. "Food Shortages in Cuba Raising a Yellow Flag." (sanmartin@herald.com; www.futurodecuba.org).
- Scarpaci, Joseph L. 2002. Trinidad's Tourism: Between "Glocal" Heritage and National Economic Development." Pp. 360-367 in *Cuba in Transition*, Vol. 12. Miami, Florida: Association for the Study of the Cuban Economy (lanic.utexas.edu/project/asce/pdfs/volume12/scarpaci.pdf).
- Scarpaci, Joseph. 2000. "Winners and Losers in Restoring Old Habana." Pp. 289-298 in *Cuba in Transition*, Vol. 10. Miami, Florida: Association for the Study of the Cuban Economy (lanic.utexas.edu/la/cb/cuba/asce/cuba10/scarpaci.pdf).
- Schweimler, Daniel. 2001. "Hurricane Michelle: Assessing the Damage" *BBC News, Cuba and Hurricane Michelle. EcoSur Disaster Prevention* (www.ecosur.org/eng/desastres/cuba_michelle.php).
- Sims, Holly and Kevin Vogelmann. 2002. "Popular Mobilization and Disaster Management in Cuba." *Public Administration and Development*, 22: 389-400.
- Simon, Helen J. and Vito Echeverria. 2005. "NGOs mobilize to send humanitarian aid to Cuba in the wake of Hurricane Dennis." *Cubanews*, 13, 7: 1, 6-7.
- Sinclair, Minor. 2000. *NGOs in Cuba: Principles for Cooperation*. Washington, D.C.: Oxfam America.
- Thompson, Martha and Izaskun Gaviria. 2004. *Cuba. Weathering the Storm: Lessons in Risk Reduction from Cuba*. Boston: Oxfam America. <http://www.oxfamamerica.org/cuba>.
- Tierney, Kathleen, Lindell, Michael K. and Perry, Ronald W. 2001. *Facing the Unexpected. Disaster Preparedness and Response in the United States*. Washington, D.C.: Joseph Henry Press.

- Tulchin, Joseph S. and Espach, Ralph H. (Eds.) 2000. *Combating Corruption in Latin America*. Washington, D.C. Woodrow Wilson Center Press.
- Twigg, John. 2004. *Good Practice Review. Disaster Risk Reduction*. London: Overseas Development Institute, Humanitarian Practice Network.
- UN 2004. *Cuba: A Model in Hurricane Risk Management* <http://www.un.org/News/Press/docs/2004/iha943.doc.htm>.
- UNA-USA Policy Studies Panel on International Disaster Relief. 1977. *Acts of Nature, Acts of Man: The Global Response to Natural Disasters*, United Nations Association of the United States of America, Incorporated.
- U.S.-Cuba Sister Cities Association. 2001. "Preliminary Report. United Nations Interagency Mission in Response to Hurricane Michelle's Passing Through Cuba" (<http://uscsc.org/unmichelle.htm>).
- U.S.-Cuba Sister Cities Association. 2001. "Hurricane Assessment Team Going to Cuba, 11/27." (<http://uscsc.org/michelle.htm>).
- USDA. 2002. *USDA Update on Program to Promote Cuban Transition to Democracy*. Washington, D.C.: U.S. Department of State, International Information Programs, May 21.
- Ward, Christina. 2001. "Hurricane Michelle Hits Cuba." *Disaster Relief, Worldwide Disaster Aid and Information Via the Internet* (www.disasterrelief.org/Disasters/011104michelle5);
- Wisner, Ben. 2001a. "Lessons from Cuba? Hurricane Michelle, November." *Radix, Radical Interpretations of Disasters*. http://online.northumbria.ac.uk/geography_research/radix/cuba.html.
- Wisner, Ben. 2001b. "Risk and the Neoliberal State: Why Post Mitch Lessons Did not Reduce El Salvador's Earthquake Losses." *Disasters*, 25: 251-268.
- Wisner, Ben, Victor Ruiz, Allan Lavell, Lourdes Meyreles. 2005. "Run, tell your neighbor! Hurricane warning in the Caribbean." *World disasters Report 2005*. International Federation of Red Cross and Red Crescent Societies.