LINKING HURRICANE DISASTER RECOVERY TO SUSTAINABLE DEVELOPMENT STRATEGIES: ST. KITTS AND NEVIS, WEST INDIES

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On Sunday, September 17, 1989 Hurricane Hugo struck the Federation of St. Kitts and Nevis. Housing loss was substantial to the twin island state, with EC$126 million (US$46 million) in damages and 1,300 residents left homeless. The islands' agriculture sector sustained severe damage, particularly to sugar, the primary export earner. Forests suffered extensive damage mainly by defoliation, which induced severe soil erosion and threatened drinking water quality. Damage to public facilities and businesses, especially tourism, was also extensive. Electric, water and telephone transmission systems were devastated, and most hotels experienced substantial damage.

This report discusses findings of an examination of the disaster planning, response, and long-term recovery activities by government and non-governmental organizations (NGOs) in St. Kitts and Nevis. (Two additional case studies of the disaster planning, response, and recovery experiences in Antigua and Montserrat are also included in this project.) The key concern is to analyze planning, response, and recovery activities to gain knowledge that can be utilized to improve future planning and to lessen the consequences of future hurricanes on the islands. The intent is to derive recommendations for developing successful recovery planning programs that make reconstructed localities less vulnerable to future disasters, and to enhance prospects for distributing recovery aid on the basis of need, and to improve local capability to undertake sustainable development efforts. In addition to any usefulness this study may have as a description and evaluation of the planning, response, and recovery experiences in the Eastern Caribbean, it is hoped it will aid in the development of disaster recovery planning programs in countries that have not recently experienced a disastrous event.

This report is presented in seven sections. The first section presents a conceptual framework for understanding the process through which a disaster impact area recovers, and the key factors or dimensions that can facilitate or constrain this process. The methods employed are discussed in section two. The pre-storm institutional context and disaster impacts are described in section three. Findings on the recovery process and on the dimensions that influence this process are presented in sections four and five, respectively. Finally, major findings are summarized in section six, and policy

and action recommendations for achieving sustainable development are presented in section seven.

Conceptual Framework

The conceptual framework for examining recovery from Hugo consists of a conceptualization of the stages of the recovery process, and the factors or dimensions that influence this process.

Stages of Recovery

Recovery is not an event, it is a complex process of physical rebuilding driven by social, economic and political forces. Haas et al. (1977) conceptualize this process as consisting of four overlapping stages. Figure 1 illustrates examples of the sequence of activities in each of these stages.

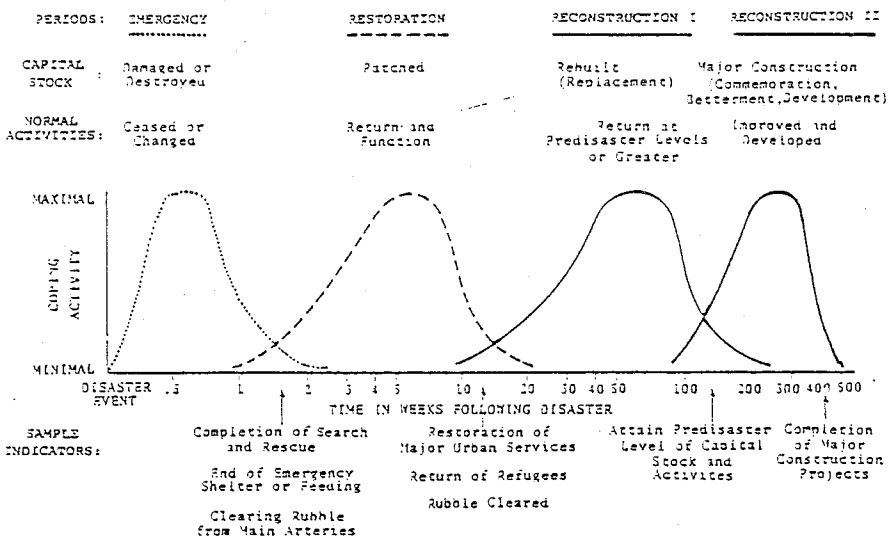

Figure 1: Stages of Recovery Activity
Source: Haas et al. (1977)

The *emergency stage* is distinguished by community coping with the immediate effects of the destruction and the handling of the casualties and homeless. Normal social and economic activities are disrupted. Indicators of the end of this stage are the drastic reduction in emergency distribution of food and medicine, search and rescue activities, and debris clearance efforts.

The *restoration stage* is the time in which the community makes temporary repairs to public utilities, housing and structures used for business. Social and economic activities return to near normal. The end of this stage is marked by the return of major public utilities, and transport and communication systems.

The *replacement reconstruction stage* is marked by rebuilding of damaged or destroyed structures to pre-disaster levels. Social and economic activities also return to such levels. Indicators of the end of this period are the replacement of homes, public utilities and structures used for businesses.

The *betterment and developmental reconstruction stage* involves activities that lead to post-disaster improvements or betterments. They include, for example, strengthening local organizational capacity to undertake long-term development projects that stem from disaster recovery work, and improvements to the physical character of the devastated area, such as making rebuilt structures less vulnerable to future hazardous events and creating open space parks in disaster prone areas.

Dimensions of the Recovery Process

The extent to which recovery efforts make reconstructed areas less vulnerable to future disasters, assure that aid is distributed equitably and on a timely basis, and improve local capability to undertake long-range developmental efforts is related to a variety of issues. Such issues can be conceptualized under six dimensions of the recovery process. The dimensions are derived from the limited, but growing, literature in disaster recovery and sustainable development (Berke and Reddy, 1990; Haas et al., 1977; Rubin, 1985; and Anderson and Woodrow, 1989):

1) Organizational Coordination. Were there specialized organizations created (e.g., recovery task force) after the disaster to enhance coordination and communication or did pre-disaster organizations handle these functions? What types of communication and relationship building activities did such organizations employ? How effective were these activities in sustaining comunication and coordination?
2) Monitoring and Assurance of Compliance. Was the use of aid by recipients effectively monitored? Did aid recipients comply to donor organization recovery strategies (e.g., structural strengthening,

purchase of hazards insurance)? Were there sanctions for noncompliance?

3) Recognition of Rights. Did "outside" foreign organizations recognize the legitimacy of domestic governing authorities in administering recovery programs? Were there instances of external organizations challenging domestic authorities? If such challenges occurred, did they erode domestic organizational commitment and capacity to manage the recovery?

4) Presence of Strong Leadership. Were there individuals or organizations that provided a strong moving force in recovery activities before or after the disaster? Did they have foresight about planning and implementing recovery activities? What types of resources did these individuals invest (e.g., time, energy, money) to promote recovery?

5) Availability of Resources. Were there sufficient resources -- financial, material and human? Was the distribution of resources fair and equitable? How well was resource acquisition and distributin tied to damage assessment data?

6) Linkage of Recovery to Well-Established Activities. Were there instances of linkage of recovery programs to ongoing development programs? Did recovery officials create new, separate initiatives or did they take advantage of established programs, and make small, incremental adjustments to established behavior? If linkage occurred, were the political, social and economic consequencs of recovery activities more manageable?

Research Methods

This study utilizes a number of traditional data gathering devices to undertake this in-depth analysis. The primary data source involves on-site, in-depth, face-to-face interviews with key informants involved in disaster planning, response, recovery and long-term development efforts in St. Kitts and Nevis. A total of 17 interviews were completed during July 1990 and February 1991.

A snowball sampling technique was used to develop a comprehensive list of informants who were key participants in the various phases of the disaster impact. The objective was to reach knowledgeable influential people who were active participants in the disaster effort, or were in a position to

objectively observe the activities of participants. Initial informants were identified based on a review of key printed materials (e.g., agency reports and disaster plans). These individuals were asked during the interviews to identify others who should be interviewed and thus the sample was expanded. The informants came from a variety of government agencies, foreign and domestic NGOs, and private businesses. Organizations represented such areas as national government planning, agriculture, public works, community development, and various NGOs.

Interviews were rich in information regarding the pre-impact, post-impact and recovery phases. They provided detailed data on the activities of various governmental and non-governmental organizations. Interview guides which were designed to identify principal concerns about hurricane recovery issues, specific recovery response activities, modes of interaction among various participants in the recovery process, and to explore explanations for successes and failures of various recovery responses.

Pre-storm Context and Impacts

Pre-Storm Institutional Context

The St. Kitts and Nevis National Disaster Preparedness and Prevention Committee (SKNNDPPC) is the lead disaster planning organization in the Federation of St. Kitts and Nevis. The 40 member committee is comprised of representatives from various government organizations (e.g., health, agriculture, and public works) and NGOs (e.g., Chamber of Commerce, Council of Churches and Red Cross). Prime responsibilities of this organization are to carry out the national disaster plan, and to mobilize and coordinate domestic and international disaster response actions. The SKNNDPPC also consists of five subcommittees, including public information and education, damage assessment, transport and road clearance, emergency shelter, and health services. St. Kitts employs a part-time national disaster coordinator. The coordinator also holds a high level government position as the Permanent Secretary of the Office of the Prime Minister. In addition, an unfunded deputy disaster coordinator position was created to provide administrative assistance to the coordinator. The primary responsibility of both disaster coordinator positions is to serve as the country's chief advocate for the promotion of hazard awareness and planning.

The SKNNDPPC, however, provides limited coordination between St. Kitts and Nevis, as its membership overwhelmingly represents St. Kitts. The St. Kitts and Nevis National Disaster Plan indicates that a "Nevis Island Administrator, (SKNNDPPC 1989, p.1)" is the only representative from the Nevisian government on the SKNNDPPC. Two members from the St. Kitts and Nevis Port Authority, and the Telephone and Telex Services jointly represent interests from both islands.

The federation plan indicates that "Nevis operates autonomously, (SKNNDPPC 1989, p.1)" from St. Kitts disaster planning activities. Specifically, Nevis has a separate organizational arrangement for carrying out disaster planning, with its own disaster plan. The 10 member coordinating committee is the lead disaster planning organization in Nevis. It has 10 subcommittees dealing with a variety of disaster related issues similar to those of the SKNNDPPC. The island has a part-time national disaster coordinator who also holds a high level government position as Permanent Secretary of the Office of the Premier.

While the disaster plans for both islands were updated by a consultant five months before the disaster, overall pre-disaster planning was more active in St. Kitts than in Nevis. The emergency operations center in St. Kitts was well staffed and had adequate communications equipment, but the center in Nevis did not. During the year before Hugo struck, the St. Kitts' disaster planning committee also conducted a national disaster awareness campaign and disaster planning workshops for government officials and NGO representatives. Nevis, however, had no such pre-disaster planning efforts underway. Thus recovery responses in Nevis were predominantly ad hoc, and poorly organized. Although most responses were ad hoc in St. Kitts, which was partly due to the absence of a workable disaster plan, they were better organized and more effective compared to Nevis.

The ad hoc nature of decision making in both islands can be explained, at least in part, by the fact that St. Kitts and Nevis have limited recent experience with hurricanes. While the islands have been struck by tropical storms about once every 20 years from the late 18th century to the present, they have not experienced a severly damaging hurricane in over 60 years (1928). Seismic and volcanic hazards also pose a threat. Mt. Misery of St. Kitts and Mt. Nevis are part of a chain of volcanic islands referred to as the Lesser Antilles. Both islands experience periodic seismic tremors which are

indicators that the volcanoes and the earthquake fault system are not dormant (SKNNDPPC 1989). A disruptive event stemming from these hazards has not, however, occurred for many generations.

Similar to Antigua and Montserrat, St. Kitts and Nevis have limited controls for guiding development. The Caribbean Uniform Building Code was in place before Hugo, but has had little affect on construction practices. Moreover, when the code does apply -- primarily for large structures requiring extensive investment -- enforcement tends to be lax. There are no land use controls in place, such as zoning and subdivision regulations, that might restrict development from occurring in hazardous locations.

Agriculture is the predominate sector of the economy, employing over one-third of the labor force. Over the past two decades in St. Kitts, and more recently in Nevis, tourism has been encouraged in an effort to diversify the economy. The recent expansion of the Golden Rock Airport on St. Kitts, to accommodate large commercial jets, has had a considerable impact on the tourism sector. Both islands have small seaports, while Nevis also has a small single runway airport. St. Kitts is 68 square miles and has a 1990 population of 36,000, and Nevis is 36 square miles and has a 1990 population of 9,000. Basseterre is the capital city of St. Kitts and Charlestown is the capital of Nevis.

Impacts of Hurricane Hugo

Hurricane Hugo was the most powerful storm to strike the Federation of St. Kitts and Nevis this century. Hugo struck the twin islands on Sunday, September 17, with estimated sustained wind speed at over 120 mph. Rain fall was about 10 inches. The eye of the storm passed 43 miles south of the federation. While Montserrat was the island most severely damaged in the Caribbean, Nevis and St. Kitts were second and third, respectively. Nevis suffered more damage as it is further south and was closer to the eye of the hurricane (see Figure 2).

Agricultural crops on both islands sustained major damage. Sugar, the main export earner in St. Kitts, was particularly affected, with 9,000 of the 12,000 acres under cultivation destroyed. St. Kitts experienced a EC$10.5 million (US$28.8 million) crop loss, with Nevis receiving EC$5.5 million (US$15.1 million). Total damage to the fisheries sector on both islands was over EC$5.2 million (US$14.3 million).

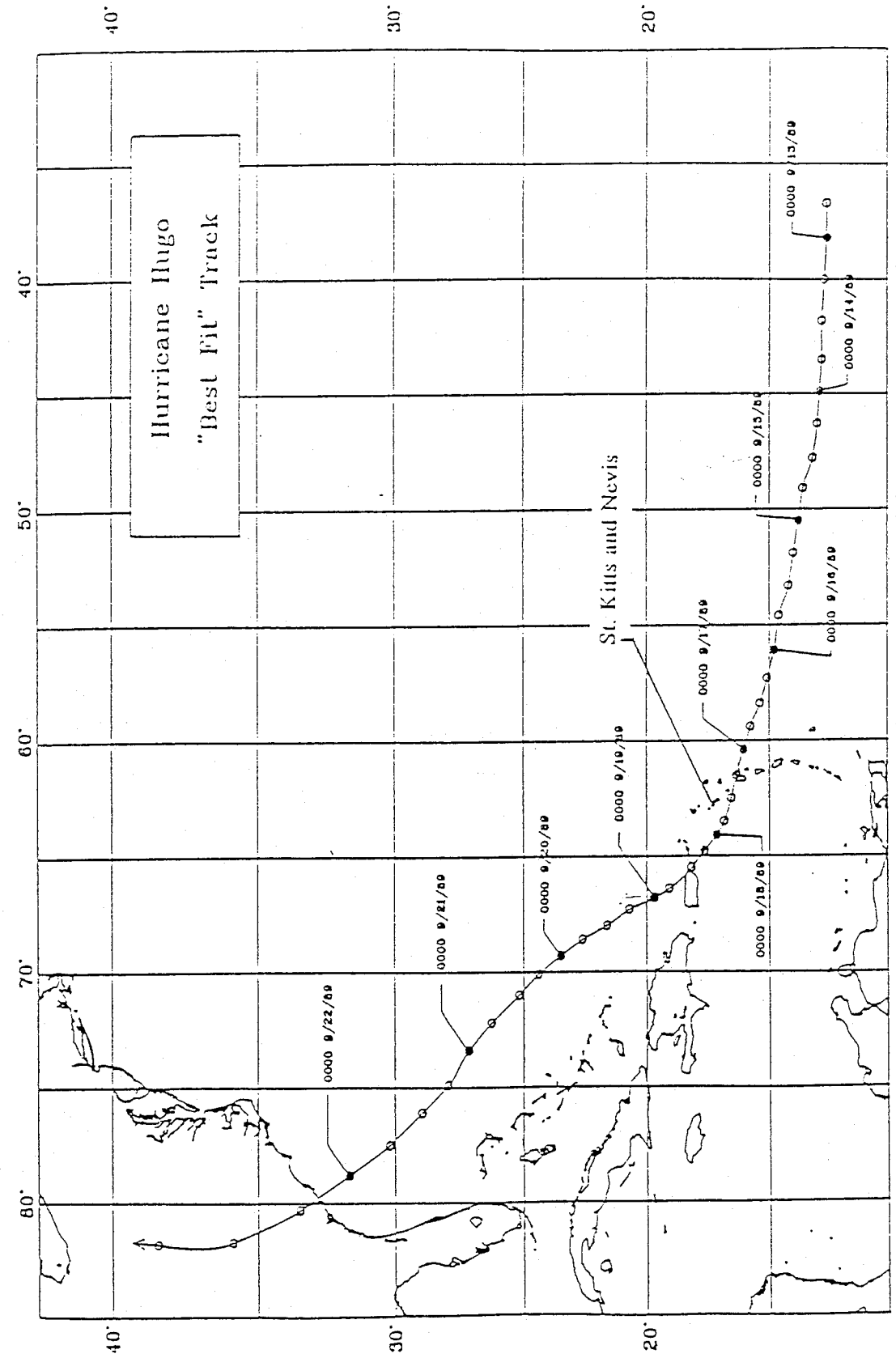

Figure 2: Track of Hurricane Hugo

Source: NOAA 1989

A major area to suffer extensive damage was the forests in the upper levels of mountain areas in St. Kitts and Nevis, mainly by uprooting and defoliation of trees. Such damage has induced extensive soil erosion in the upland, steep sloped watersheds, and has had adverse impacts on the ground and surface water resources used for drinking.

Public facilities received a severe pounding. The main pier of the deep water port in Basseterre was damaged. The only pier in the Nevis seaport sustained damages, but remained in working condition. Severe beach erosion and damages to shoreline roadways was extensive on both islands. About 20 percent of all public buildings on the islands sustained structural damage. For example, 20 percent of all school buildings were destroyed and 60 percent damaged. Roof failures and subsequent destruction of contents were the primary losses to schools and other public buildings on both islands.

Public utilities on St. Kitts and Nevis suffered extensive damages. While the electricity generating plants received some roof damage, the transmission and distribution systems were devastated. The Skantel telephone system was devastated on both islands as overhead lines, high tension wires, and regional and international lines were disrupted. Finally, the water systems were severely damaged. Many intakes were silted-up due to upland soil erosion, pipelines were broken by fallen trees, and the loss of electricity did not allow pumping.

Private businesses and homes also incurred heavy losses. Factories at the Ponds and Bird Rock Industrial Estates of St. Kitts experienced widespread damage and work stoppage. Jack Tar Village, the largest resort hotel on both islands, had over 100 rooms damaged. Most hotels on both islands suffered substantial damage and were closed to guests from two weeks to five months. Others, like the Lemon Hotel in St. Kitts and the Zetlands in Nevis, temporarily went out of business. Damages were devastating to homes as 1,300 residents in the federation were rendered homeless. An estimated 12 percent of all homes were destroyed, with an additional 25 percent sustaining severe damage. The value of damage to housing exceeded EC$126 million (US$46 million).

Although the destruction on St. Kitts and Nevis was not as catastrophic as Montserrat, damages were nevertheless severe and widespread. The task of rebuilding was daunting and the impacts will be felt for years to come.

Findings on the Stages of the Recovery Process

The *emergency stage* in St. Kitts and Nevis ended about one week after Hurricane Hugo made landfall. Debris on major roadways was cleared, the homeless were provided with temporary shelter, and immediate food, medical and potable water needs were met within the first week. Some basic public facilities, including the water distribution system in St. Kitts, airports, and radio and television communication systems, were repaired to at least minimal operational levels. Quick response aerial and ground based damage assessments were conducted within a few days after Hugo to determine the general level of need for external assistance.

The *restoration stage* began during the emergency period. The pace of restoration on the two islands was not even. Almost all water service in St. Kitts was restored within the first few days after Hugo, but this task required almost eight weeks in many areas of Nevis. Restoration of telephone service to most residents and businesses required about two weeks on St. Kitts, but about four weeks on Nevis. Electricity was restored in the two primary cities (Basseterre and Charlestown) within two weeks. Other areas on both islands did not receive electrical service until three months after the storm, which marked the end of this stage.

The *replacement reconstruction stage* in St. Kitts and Nevis began early in the restoration stage on each island. The duration of this stage was minimized in St. Kitts due to the presence of an effective emergency operations center (EOC) staff. Their well organized efforts translated into positive working relationships with NGOs and government organizations in acquiring and distributing aid for rebuilding housing and public facilities during the first few weeks of replacement reconstruction. The commitment and skill of EOC staff was especially crucial because St. Kitts did not have a workable reconstruction component in its national disaster plan. All public structures, such as the seaport and schools, were repaired or replaced by October 1990 (13 months after Hugo) and almost all households in need of housing assistance received aid within four to six weeks.

However, the much publicized and widely considered successful reconstruction efforts in St. Kitts did not account for the failure of recovery of the small, poor coastal village of Saddlers. Despite the state of normalcy the rest of the island had achieved, the reconstruction of Saddlers had not been included. The national recovery program in St. Kitts did not assure that

resources for Saddlers were allocated on a timely and equitable basis. In fact, the village did not receive housing aid until May 1990 (eight months after the disaster).

The pace of recovery during the replacement reconstruction stage was generally slower in Nevis compared to St. Kitts. Several key public facilities, such as the school in Gingerland, still had not been completely repaired as of February 1991 (17 months after Hugo). Most households received assistance for reconstruction by December 1989 (three months after the disaster), but some had been passed over due to what was generally considered inequitable and politically motivated resource allocation decisions by the government. Another factor making this stage more time consuming was that Nevis experienced more severe damage than St. Kitts, and thus required more human and material resources. Other factors extending the duration of this stage were that Nevis did not have an operational EOC, nor a workable disaster plan. This led to confusion, delay and poor coordination among NGOs and government organizations in acquiring and distributing the appropriate type and amount of aid.

The *betterment and development stage* began in the midst of the replacement and reconstruction stage on both islands. One event is a likely indicator of the start of this stage in St. Kitts. The Ministry of Agriculture initiated a Tropical Forestry Action Plan during the fall of 1989 (about three months after Hugo) as part of a United Nations Environmental Programme supported regional reforestation effort. This planning effort stemmed from the severe defoliation and subsequent soil erosion induced by Hurricane Hugo. Another effort that built upon the disaster recovery process dealt with a NGO based housing recovery program involving the Caribbean Conference of Churches (CCC) and the St. Kitts Christian Council (CC). These two organizations initiated a collaborative effort in June 1991 to link recovery operations to long term development in Saddlers. The Christian Children's Fund (CCF) initiated a similar effort in linking recovery activities to developmental efforts in Nevis about three months after Hugo struck. Also during Spring 1990 several community service NGOs (e.g., Rotary and Lions Clubs) in St. Kitts began to undertake a more visible role in national emergency planning and response activities.

The tourist industry experienced "betterment" from substantial post-disaster capital improvement investments. Several hotel owners took the

opportunity of expanding their properties at the same time they were repairing damage caused by Hugo. For example, Jack Tar Village Resort added 40 rooms and Timothy Beach Resorts expanded by 24 rooms as of January 1990. Thus the islands' tourist industry built back bigger and better than before. Finally, the rebuilding of several major public structures, like schools and electric power plants, incorporated structural strengthening measures.

Findings on Dimensions of the Recovery Process

Organizational Coordination

Four organizational coordination efforts were of particular interest in St. Kitts and Nevis during the disaster recovery period. They included the national disaster planning program, damage assessments, NGO collaboration, and inter-island coordination.

Disaster Planning Program. Evidence revealed that inter-organizational coordination during the disaster recovery was generally considered successful in St. Kitts. A key reason for success was the presence of three dedicated members of the federal disaster committee (SKNNDPPC). As will be discussed, the combined skills of these individuals gave the committee a high level of technical credibility and organizational management capacity in coordinating the recovery effort on St. Kitts.

Successful interorganizational coordination was also attributed to two events. The month before Hugo made landfall (August 1989) the disaster committee sponsored a National Safety Month Campaign intended to heighten awareness about disasters. Also, committee members attended a hurricane disaster planning workshop a few weeks before Hugo made landfall. These events, according to a high-level government official, "had a crucial effect of making ministerial and government decision makers, and St. Kittians in general, at least aware of the existence of an emergency structure and the existence of an EOC."

Interorganizational coordination efforts in Nevis, however, were not considered as successful. A key reason was that the lead disaster planning organization in Nevis (Nevis Emergency Organization) was totally inoperable during the immediate post-disaster emergency response and the disaster recovery periods. Unlike St. Kitts, there was no viable lead disaster planning organization that served as focal point of disaster recovery activities. Nor

were there any individuals who played crucial leadership and management roles.

No one interviewed on either island attributed the successes in interorganizational coordination during the recovery effort to the presence of national disaster plans for St. Kitts and Nevis. The plans were generally viewed as "paper plans" and were considered of little use during the recovery. Evidence revealed several reasons that explain why the plans were not followed. In St. Kitts the plan was prepared by a private consultant, with minimal participation by key individuals whose organizations would be involved in plan implementation, five months before Hugo struck. As a result, key members of organizations that participated on the disaster planning committees were only vaguely familiar with the plan. In fact, of the six individuals interviewed on St. Kitts who were members of the SKNNDPPC, four indicated that they were not familiar with the scope of responsibilities of their organizations as specified in the plan. These four members all maintained that they were aware of the existence of the plan, but that they had not read it. One high-level administrator in the Ministry of Agriculture maintained that while the consultant provided much needed expertise in preparing and writing the plan, some or most of the funds used for hiring the consultant should have been used to support "in-house" government efforts in developing the plan. The consultant, according this individual, should also have been used as an expert facilitator and coordinator of the plan formulation process.

Even the two informants who had read the plan reported that it was somewhat confusing to understand. A content analysis of the plan document substantiated this claim. In one instance the title of the plan changed from "National Disaster Plan" on the front cover, to "Federal Emergency Delivery and Services Plan" on the introductory page, and to the "Federal Disaster Plan" in chapter 3, part 2. In other instances, the titles of various disaster related planning organizations and the tasks of these organizations changed among the plan chapters.

Other reasons also explained why the disaster plan was not followed. One was that the St. Kitts plan document placed strong emphasis on the emergency response phase of disaster, but gave little attention to the recovery phase. While the 43-page plan specifies the scope of responsibilities and tasks to be carried out by different government and non-government organizations for different types of emergency related activities (e.g., public information

and education, damage assessment, transport and road clearance, emergency sheltering and health service delivery), it contains no discussion of long-term recovery responsibilities and attendant actions by relevant organizations. Another reason was that while the plan specified the scope of responsibilities of various organizations and the tasks to be carried out by such organizations, it makes little reference to the responsibilities of the SKNNDPPC in coordinating these activities.

Similar reasons explain why the Nevis disaster plan was considered ineffective. While the Nevis plan element was less confusing to read than the St. Kitts plan, other problems were prevalent. Specifically, the Nevis plan was prepared by an outside consultant in 1985 with no involvement from Nevis officials. In fact, all four of the seven individuals interviewed in Nevis, who were members of the Nevis Emergency Organization, claimed that they had not participated in plan preparation, or had ever seen the plan. Also, there had been no plan updating activities. The Nevis plan focuses almost entirely on the emergency preparedness and response phases of a disaster, with no emphasis placed on disaster recovery. A content analysis of the plan revealed that with the exception of a one-half page review of damage assessment procedures, there was no discussion on disaster recovery.

Since Hugo the governments of St. Kitts, and to a lesser extent Nevis, have given higher priority to disaster planning. Most notably, the St. Kitts Parliament increased the national disaster planning budget tenfold from $EC5,000 pre-Hugo to $EC50,000 post-Hugo. This increased funding will be used to employ a full-time national disaster coordinator and provide additional support for disaster planning activities. Various subcommittees of the lead disaster planning organization on each island have also been holding occasional meetings to review the successes and failures of Hurricane Hugo disaster response and recovery strategies. As of February 1991, however, no effort had been underway on either island to revise the disaster plans, or had a full-time coordinator been hired in St. Kitts.

Damage Assessment. Evidence on the effectiveness of interorganizational efforts to assess damages in St. Kitts was mixed. As will be discussed in a subsequent section, on the one hand, NGO and government collaborative arrangements were highly successful. On the other hand, collaborative activities among government agencies were generally unsuccessful.

Evidence on government damage assessments activities revealed several instances of poor interorganizational coordination. A notable example was the duplication in damage assessment activities by the St. Kitts police and Housing Authority. Within a few days after Hugo struck the police assembled field teams to conduct damage assessments on a house-to-house basis. The assessment information was originally intended to be used for determining the amount of aid required by households. An interviewer with a high-level Housing Authority administrator charged with directing the housing recovery effort in St. Kitts revealed that he and his staff were unaware of the ongoing police activity during the first few days when the Housing Authority teams had been in the field. He maintained that collaboration in both data collection and in use of field team staffs could have shortened the time required to conduct the assessments "by several days at the least, or even a week or more." Specifically, he indicated that the police only assessed structural damage, but did not assess needs based on family socioeconomic conditions. As a result, Housing Authority damage assessment teams had to return to hundreds of households that had been assessed by the police to collect information on need. Further, the Housing Authority damage assessment teams were understaffed, with only six part-time positions (or 2 fulltime equivalent positions). Pooling of staff from both teams would obviously have facilitated the assessment process.

Another instance of poor interorganizational coordination in assessing damages occurred between Public Works and the Housing Authority. During the first two weeks after Hugo, staff from both organizations had conducted damage assessments on many of the same public buildings.

In Nevis five individuals were interviewed who were knowledgeable of the damage assessment process. All maintained that the process was ineffective due to the absence of an effective disaster plan. As one informed government staffer suggested, "damage assessments were organized on a totally ad hoc, seat-of-the-pants basis." A Red Cross staffer further maintained that:

> "the government rounded-up whoever they could to get the damage numbers down on paper. It didn't matter whether these people were trained to do this type of thing. The bottom line was that they (the government) needed the numbers to get international assistance."

Indeed, personnel used to assess damages included, for example, school teachers on vacation, government clerical staff, and manual laborers from the Department of Public Works. These people obviously had limited or no expertise in building construction practices. As expected, the assessment data was considered by all those interviewed in Nevis to be highly inaccurate.

NGO Collaboration. Three cases of NGO collaboration in St. Kitts were identified. Of most long-term significance was a collaborative arrangement between external, intermediary and local NGOs. With funds from a variety of NGO groups in North America and Europe, the external NGO (the regional office of Caribbean Conference of Churches or CCC) in Antigua worked with an intermediary NGO (Christian Council or CC) of St. Kitts by providing funds to purchase housing materials and to partially support a fulltime staff person. The intermediary NGO, in turn, was interacting with a community-based NGO (Saddlers Community Sports Club) to facilitate housing reconstruction and, most importantly, promote long-term developmental efforts in the community.

The circumstances in Saddlers was particularly disturbing and urgent. About nine months after Hugo struck (May 1990), the state of housing repair in Saddlers, a rural village of about 500 people on the north coast of St. Kitts, was neglected. Despite the state of "normalcy" to which much of the country had been restored, the restoration of Saddlers had not been included. It was a "disturbing fact," according to the quarterly newsletter of the CCC, "that the much publicized rapidity of the recovery of St. Kitts did not take into account the more than 60 percent of the houses in Saddlers that were severely damaged (Links, April-June 1990, p. 14)." An administrative staffer of the CC reasoned that Saddlers did not receive assistance because the village was poor and "in the backwaters of life in St. Kitts." A Saddlers community official further maintained that provision of recovery aid to the village was "not in the political interest of those in power."

Unlike the circumstances in Montserrat (Berke and Wenger 1991), there were no community based development organizations in Saddlers before Hugo. In addition, NGO recovery work in Montserrat was initiated within several weeks after Hugo, but in Saddlers it was several months before action was taken. The challenge, according to the CCC newsletter, was to alter the local perception "to refuse to accept the status quo, to refuse to accept that because there was no formal groups in Saddlers, people could not be mobilized and motivated to come together, and to assist each other (Links, April-June 1990,

p. 14)." Moreover, the problem was not so much of material or physical assistance because as of May 1990 the government had finally provided housing aid. Village residents were faced with more of a problem of finding scarce and expensive labor. A St. Kitts CC staffer maintained that the Saddlers situation raised the need to focus staff

> "understanding of development beyond economic variables, and to take a deep look at the [village] social/organizational processes, where people are not organized, motivated and conscientized to enable the community to self-improve (Links, April-June 1990, p. 5)."

Thus the St. Kitt's CC's strategy, with staffing support from the CCC, was to undertake training through a series of workshops in Saddlers starting in June 1990. The workshops were set up to enhance community leadership and organizational capabilities. A key local group involved with these workshops was the Saddlers Community Sports Club which had been active in organizing village youth sporting events. Serious attention by CC staff during the workshops was given to building up of the Sports Club as an organization that could undertake housing recovery and long-term developmental work.

As of February 1991 -- eight months after the CC initiated the workshops -- the results of the collaborative NGO efforts were mixed. The physical and material outcome has been somewhat disappointing. To date only three damaged homes have been targeted for repair. But only one of these was undergoing rehabilitation, with the other two scheduled to be repaired during the spring and summer of 1991. The sports club leader and a CC staffer indicated that key obstacles to rebuilding were difficulties in obtaining government building permits and a lack of skilled labor with carpentry expertise in Saddlers. From an organizational capacity building perspective, however, the results appear to be more successful. The local director of the sports club indicated that the CC efforts have built up members of the group, and the group as a unit. In fact, several of the club members are becoming competent carpenters and look forward to applying these skills to rebuilding many more homes in Saddlers.

A second case of NGO collaboration involved an arrangement between SKNNDPPC staff at the emergency operations center (EOC) and local public service oriented NGOs -- Lions Club and Rotary Club -- in acquiring and distributing aid. The arrangement involved the EOC relying on the community based organizational networks of volunteer members to assess the most

pressing localized needs for various types of housing recovery materials, particularly roofing materials. Interviews with EOC staffers revealed that by relying on the needs assessments of these NGOs, the EOC was able to request appropriate types and amounts of housing recovery aid from international sources. Interviews further revealed that the organizational networks of these NGOs were also instrumental in assuring that aid was distributed to those in need. This arrangement, according to a SKNNDPPC staffer and a Lions Club member, facilitated the timely delivery of appropriate housing aid during the three to four weeks after Hugo struck. Interviews consistently revealed that the arrangement also stimulated a positive political atmosphere and a sense of mutual trust between disaster victims and the government.

Interestingly, the successful interorganizational collaboration between the EOC and the public service oriented NGOs was due, in part, to the long-term membership of the Deputy National Disaster Coordinator with the local Lions Club chapter. Given the role, the deputy coordinator had a good working knowledge of how best to integrate the capabilities of these NGOs into the recovery process.

A third case in St. Kitts involved collaboration between the Department of Agriculture and local rural development cooperatives. Specifically, the department had been involved for several years in initiating and promoting formation of local agriculture development cooperatives before Hugo struck. This locally based institution building effort paid off in facilitating disaster recovery, according to both a high-level Department of Agriculture administrator and a local fishing cooperative representative. That is, during the first few days after Hugo struck the local fishers and farmers reported their damages and recovery needs to their local cooperative representatives, which in turn reported this information to the national headquarters of the Department of Agriculture.

This collaborative arrangement was also used in distributing recovery aid to individual farmers and fishers within two or three weeks after Hurricane Hugo. According to the two officials interviewed, the entire process of distributing fishery and farm recovery aid on the basis of need was characterized as timely, effective, and accurate. One of the officials maintained that the presence of the cooperatives was a key reason for not encountering delays in the delivery of aid, and "it helped us to quickly answer the question, 'Who needs what and how much?'"

While several NGOs (e.g., Caribbean Council of Churches, Children's Christian Fund, Red Cross) were active in Nevis disaster recovery, most of their activities were separate, independent efforts. Collaboration with the Nevisian government was nonexistent. Of particular interest, was one instance of collaboration in housing recovery involving two nonprofit NGOs (CCC and Nevis Red Cross) and a local merchant. In this case the Nevis Red Cross, according to its director, never received the foreign assistance in housing materials that it was "promised." As in the case of St. Kitts and Montserrat, CCC staff at the regional headquarters in Antigua wanted to support the Nevisian rebuilding effort and found the Red Cross a deserving candidate for assistance. CCC staff thus committed funds on request from the Red Cross to purchase building materials for repairing low income homes that had been severely damaged or destroyed. The Nevis Red Cross had also received funds that were used for purchase of materials (EC$50,000 or US$18,500) from expatriates in the U.S.

The Nevis Red Cross director was also successful in reaching an agreement with the merchant to use one of his vacant grocery store buildings as a distribution center for housing materials. According to the store owner, the agreement was based on a long-established working relationship with the Red Cross, and especially its director. The two individuals had been involved in a variety of community service projects (e.g., improving local recreation facilities and conducting community first aid workshops) for several years before the disaster. As of July 1991, eight months after the housing program began, all but six of the 27 households participating in the program had been repaired.

Inter-Island Coordination. Interorganizational coordination between St. Kitts and Nevis was limited during the disaster recovery. Recovery programs in housing, agriculture and education, among others, generally operated independently on each island. Indicators of such limited coordination can be found in the St. Kitts and Nevis National Disaster Plan. As mentioned, these include the presence of separate disaster plans and lead disaster planning committees for each island, with very limited discussion of how the plans and committees are to coordinate.

Interviews also revealed that coordination between the islands was limited. Representatives of organizations (Agriculture, Housing, Public Works and a variety of NGOs) active in the recovery effort were asked if stronger

inter-island collaborative efforts would have improved their organizations' disaster recovery programs. All maintained that, with the exception of needing to improve the apportioning and distributing aid between the islands, enhanced collaboration would have had minimal impact on their organizations' recovery activities. The predominate reason given for this response was that historically collaborative efforts have been limited, and that long before Hugo there existed a sense of mistrust between the people of the two islands. Comments from people of both islands like "we're like two worlds apart," "they are a funny people," and you can't trust them" exemplify the uneasy relationship between the two islands.

This uneasy relationship was reinforced by two incidents that occurred at the outset of the disaster response. One involved the perception by Nevis officials that St. Kitts was keeping an unfair proportion of the recovery aid. Because St. Kitts has a larger seaport and airport than Nevis, most recovery aid destined for Nevis had to be shipped through St. Kitts. One high level government officials from Nevis suggested "Those St. Kittians could get away with keeping that which was not theirs -- it is obvious they took care of their own before they thought of us." Another commenting on the aid distribution "They speak so highly of an island federation, but only when it works to their advantage." In fact, this perception was likely to be accurate in some instances. Interviews with officials of international donor organizations, including UNDRO and the Red Cross, revealed that immediately after Hurricane Hugo struck, St. Kitts government officials pronounced that St. Kitts was intending to keep 80 percent of all recovery aid donated to the Federation of St. Kitts and Nevis, with the remaining 20 percent going to Nevis. The logic for using this 80/20 proportion, according to St. Kitts officials, was to reflect the proportional difference in population between the two islands. The international officials expressed aggravation with this apportionment rationale and demanded that aid be split in the 50-50 percent range, since the Nevis population experienced more severe damage.

The second incident generated mistrust on the part of St. Kitts officials toward those from Nevis. Specifically, three St. Kitts government officials who were active in emergency operations center expressed concern that an individual who was supposedly representing the Federation of St. Kitts and Nevis on the CARICOM Regional Disaster Unit (CDRU) was not officially appointed by the St. Kitts and Nevis federal government. These officials

maintained that he was appointed to the CDRU due to some behind the scenes maneuvering by influential interests, particularly large coconut plantation owners, from Nevis. They also believed that he was "watching out" for the interests of Nevis, but not St. Kitts. It was more than a week after the CDRU was in operation before St. Kitts officials were able to have him removed. While no evidence was found to substantiate that Nevis officials were behind the appointment, the perception that they participated in back-door maneuvering contributed to the sense of mistrust toward Nevis.

In sum, problems in apportioning and distributing aid between the two island states further constrained an already uneasy relationship. In fact, one informed observer of an international NGO attributed, in part, the recent efforts (Spring 1991) by Nevis elected officials to press for succession from the federation to problems stemming from the disaster.

Leadership

When asked if there were any organizations or individuals playing a leadership role in raising awareness and promoting the need for disaster planning before Hurricane Hugo, the most frequently mentioned organization was the Pan Caribbean Disaster Preparedness and Prevention Project (PCDPPP), with six of nine informants in St. Kitts identifying this organization, and five of eight in Nevis. These individuals pointed to a range of PCDPPP backed activities during the four or five year period before Hurricane Hugo. Key activities considered useful by both sets of informants included the distribution of hurricane tracking charts and pamphlets on how to prepare households for disaster, technical assistance in disaster plan preparation, and hurricane disaster planning workshops. There was consensus among these informants that the PCDPPP's activities did much to raise awareness on the two islands, but that such awareness had not triggered much pre-disaster planning activity, particularly in Nevis. Two informants in St. Kitts, however, suggested that the awareness and knowledge gained resulting from the PCDPPP's work is making a difference since Hugo. One building permit administrator in the Housing Authority noted that he was currently following hurricane resistant housing design guidelines in reviewing building plans. The guidelines were distributed in a pamphlet by the PCDPPP about one year before the storm. This individual indicated that he

had ignored this information before Hugo struck, but "dug it out from under a pile" after Hugo.

Five St. Kitts informants also reported that the deputy disaster coordinator also played a key role in raising awareness before Hugo. A recurrent response among these informants was that the deputy coordinator was persistent and tireless in conducting disaster planning workshops and promoting hurricane awareness through the media. While this individual had multiple positions to fulfill in government (i.e., meteorologist, air traffic controller, and deputy disaster coordinator) that could obviously place constraints on devoting sufficient time and effort towards disaster planning, he maintained that these multiple positions led to a unique combination of mutually reinforcing skills. For example, his knowledge of meteorology helped in understanding how to assemble storm landfall prediction data and explain the causes and consequences of hurricanes. This helped him be more effective in the limited time he could devote to actual disaster planning activities.

In St. Kitts informants maintained that government organizations played a stronger leadership role during the disaster recovery, compared to NGOs. The federal disaster committee (SKNNDPPC) was the most frequently mentioned (seven of nine informants) organization. Specifically, interviews revealed that the combined skills, commitment, and improvised and innovative decisions made by three members of the federal disaster committee working at the EOC greatly facilitated the acquisition and distribution of recovery aid.

During the first three or four weeks after the storm the work of the deputy disaster coordinator was crucial. Representatives of government and non-government organizations, who made requests and received materials by coordinating with EOC staff, consistently expressed during interviews that the deputy coordinator performed very effectively. Comments like "worked tirelessly for hours-on-end in holding the ship together," "much competency and dedication," and "displayed exemplary management skills over the long haul" were indicative of his overall job performance. As was discussed, the close ties this individual had with several public service NGOs (Lions and Rotary Clubs) before Hugo struck were indispensable in assessing local needs and distributing aid during the initial recovery period.

The Executive Director of the St. Kitts Chamber of Commerce also played a crucial role at the EOC. This individual was also Executive Director of the

SKNNDPPC at the time Hugo struck . Interviews with three officials who were members of the SKNNDPPC indicated that both the Deputy Disaster Coordinator and the Executive Director of the Chamber of Commerce had a close working relationship. In fact, they had a 20 year friendship dating back to their high schools days. The Executive Director also used his knowledge of business sector operations to acquire much needed recovery aid. In particular, his knowledge of both domestic and international building supply companies was important in identifying and acquiring the appropriate types and amounts of materials needed within the country.

The third instrumental individual was the Prime Minister of St. Kitts who regularly attended and chaired the daily meetings of the advisory council members during the first weeks after Hugo struck. The Deputy Coordinator maintained that the Prime Minister's presence provided strong leadership, as opposed to another chairperson with less authority over the various member government organizations.

In contrast to the strong leadership role provided by the St. Kittian government, leadership provided by the Nevisian government was not effective. The limited leadership present in Nevis was credited to NGOs. The most frequently cited organization was the Nevis Red Cross (four of eight informants). While this NGO is normally most active during the immediate pre- and post-impact periods of a disaster, these informants attributed the Red Cross, especially the director, as performing in an exemplary capacity. One informant explained that the Red Cross "set the standard for leadership" not so much for the number of homes receiving assistance from them (60 homes received aid), but for the "honesty and high standards by which it handled foreign aid."

Interestingly, none of those interviewed reported that a government-based organization or individual played a leadership role during the disaster recovery process. The absence of leadership by the National Disaster Coordinator was particularly noteworthy. One informant summed up the feelings of several of those interviewed by indicating that the coordinator was placed "in an impossible position" given his multiple responsibilities as the Permanent Secretary.

Linkage of Recovery to Developmental Issues

All instances of linkage encountered in St. Kitts and Nevis occurred on an ad hoc basis. There was no pre-disaster planning effort to identify on-going programs that could be linked to the recovery effort.

Nevertheless, several developmental programs were linked to and facilitated by the disaster. As discussed, a notable case was the successful short term recovery activities of the community service NGOs (e.g., Lions Club and Rotary Club), which translated into a visible role in national emergency planning and response work. Once these organizations completed their recovery activities (about three weeks after the disaster), they undertook follow-up work that took advantage of the positive image created by their earlier successes in St. Kitts. That is, these NGOs have a more active role in assisting the government in emergency planning and response during the post-Hugo period, compared to the pre-Hugo period. For example, in April 1991 the government relied on volunteers of these organizations to organize clean-up crews consisting of over 150 people to respond to a tanker ship oil spill that struck the St. Kitts beaches. The Deputy Disaster Coordinator expressed the view that such large scale government collaboration with the NGOs would have been "unimaginable" before Hugo.

As mentioned, another notable case of linkage resulting from the disaster was the initiation of development work by the CC. In this case there was a major problem in Saddlers Community that the CC wanted to deal with, but had no pre-disaster involvement in the community. Interviews with a minister of the Moravian Church in Basseterre, who also served on the CC advisory board, revealed that Hurricane Hugo provided the CC an opportunity to initiate developmental activity in Saddlers which the staff had desired for many years. Hugo, according to the executive secretary of St. Kitts CC, stimulated the motivation of its staff to get involved as well as providing the CC with some material and staff resources that would not have ordinarily been available. In turn, CCC staff at the regional office in Antigua wanted to provide the support the St. Kitts CC was requesting and, at the same time, help improve the St. Kitts CC capacity to work with local people. Moreover, the CCC's staff were especially motivated given their previous successes in promoting local participation in undertaking disaster recovery and long-term developmental work in Montserrat (Berke and Wenger 1991).

Thus, Hugo was viewed as an opportunity to promote developmental activities of the CCC and CC. As discussed, while the successes concerning housing rehabilitation have been limited as of February 1991, those involved in the Saddlers effort hold considerable promise for its future success. The quarterly newsletter of the CCC notes that "the hope is to do more than simply restore the community to a state of normalcy, but to enhance the community's local leadership and organizational capacity to undertake long-term development activities (Links, April-June 1990, p. 14)." The newsletter further indicates that:

> We hope it [Saddlers] will be the beginning of a more long-term agreement with the community, one in which we will do more than simply restore the community to a state of normalcy -- one in which we can work towards reducing vulnerabilities of the community, and enhancing its capacities (April-June 1990, p. 5).

The local Sports Club leader further believed that the club "now commands more respect and authority in Saddlers, The club's self motivation is much higher compared to what it was before the storm." The leader hoped that the improved sense of importance would translate into a variety of community housing, public infrastructure and other developmental efforts over the next year or two. As mentioned, Sports Club members have enhanced their skills in carpentry. They have also undertaken several activities that are not disaster related, including resurfacing a cricket field and cutting sugar cane, with the earnings going toward future community improvement projects like renovation of the community center and installing better public water services.

Another case of linkage involved an ongoing NGO development program in Nevis. Specifically, the Christian Children's Fund (CCF) had been active in two self-help housing development projects in Nevis for two years before Hugo struck. Each project had a field coordinator and a community-based board of directors. As with the CCF's work in Antigua, the field coordinators were trained by CCF staff in basic carpentry and organization building skills.

Like the Saddlers Community effort, CCF viewed Hugo as providing a window of opportunity for extending its developmental work by becoming involved in long-range disaster recovery. The strategy used by CCF was to involve its staff and well-developed field network in disaster reconstruction. With funds from international CCF donors, the regional CCF office in Antigua

supplied building materials to disaster stricken low income households with children. As of July 1990 a total of seven new homes were built or under construction by the CCF-led community teams.

In a similar arrangement with the CCF program, the Nevis Red Cross acquired assistance from the CCC and expatriates to link its on-going disaster response efforts to a long-range housing development project. The Red Cross used its pre-Hugo organization and field staff to assist low income households in acquiring building materials and in rebuilding damaged homes. Unlike the CCF effort, however, the Red Cross staff was not involved in organizing self-help housing groups. Instead, it provided funds and materials, and hired carpenters to do the rebuilding.

While most instances of linkage encountered in St. Kitts and Nevis involved linking on-going NGOs, one instance involved a government organization linking up with an external NGO program to undertake developmental work. Drinking water quality in St. Kitts has declined markedly since Hurricane Hugo, according to the chief scientist of the Ministry of Agriculture. He maintained that the water turbidity levels had been very high due to excessive sediment erosion from runoff. Such erosion is a consequence of the destruction of much of the vegetation on the island. Thus the department was embarking on a major reforestation program. While department staff had been aware of a United Nations Environmental Program effort in reforestation in the Caribbean, there was minimal participation in the program by St. Kitts. Since Hugo, however, the scientist indicated that there has been a renewed interest to undertake a major sustainable development effort involving reforestation. This had led to a new department initiative to collaborate with the UN effort and prepare a "tropical forest action plan."

Finally, in many instances rebuilding of public and private structures incorporated structural strengthening measures. Of most significance for public structures were the structural improvements made to the electric power plant located downstream of the St. Kitts airport. Surprisingly this plant, which is the island's sole source of power, was located in a floodplain and experienced substantial flooding from hurricane rainfall. According to the Public Works Director, much of the flooding was caused by the recent expansion of the airport terminal. This facility increased the impermeable surface area in the drainage basin and thus induced more storm water runoff.

The director maintained that the additional runoff and the resultant impacts on the power plant were not taken into consideration at the time of the expansion. He maintained, however, that appropriate floodway grading and landscape mitigation measures have been taken since Hugo. Other mitigation measures incorporated into the rebuilding of public facilities include structural strengthening of damaged roofs on schools, installation of new utility poles, and the replacement of damaged block-stone seawalls and bulkheads that protect seaport facilities with reinforced concrete.

The Assistant Planning Officer for the Housing Authority indicated that the building materials used for the reconstruction of many of the damaged homes on St. Kitts addressed several local concerns. He maintained that the repaired homes throughout the island were structurally stronger, more aesthetic, cooler and generally more comfortable due to the nature of the roof building materials used for reconstruction. Specifically, these materials were asphalt shingles and plywood which replaced the pre-Hugo light galvanized and sheetrock roofs. The officer further indicated, however, that these concerns were addressed only on an ad hoc basis, with minimal involvement by the government. For instance, while this individual had no data on the actual number of households that made structural improvements, he was sure that in most cases mitigation was generally not of concern to carpenters during rebuilding.

Monitoring and Enforcement

Strategies used by different organizations to monitor the distribution of aid and assure that aid recipients comply with reconstruction guidelines had varying degrees of success. The more successful monitoring and enforcement activities generally stemmed from NGO activities, rather than government initiated recovery work. For example, the community serviced NGOs (e.g., Lions Club and Rotary Club) recovery activities were widely considered successful in assuring that much of the recovery aid was used appropriately. A Lions Club official explained that because the volunteer members of his organization had long been involved in pre-Hugo service activities in their communities "they had a pretty good feel for the needs and the situations of the people affected by the disaster." He further maintained that since the volunteers were local citizens, they could regularly observe how aid was used

for recovery in the neighborhoods in which they lived. This close contact served as a deterrence to using aid for unintended purposes.

Another example of effective monitoring and compliance stemmed from the work of local agriculture and fishery development cooperatives. As mentioned, these NGOs provided a supportive role in assuring that appropriate types and amounts of aid were distributed to farmers and fishers in need. A Department of Agriculture official indicated that a key reason for successful monitoring of aid to local fishers was that the fishers had in place for many years arrangements for closely monitoring one another in terms of catch limits to assure that the local fishery was not depleted. These institutionalized arrangements, according to the official, were effectively adapted to the distribution of aid.

Insurance companies also experienced considerable success in monitoring the distribution of aid to claimants. Interviews with two claims agents of the primary home insurer in St. Kitts and Nevis - National Caribbean Insurance Company - revealed that the company had an adequate staff of over 30 to assure that accurate damage assessments were conducted. About 300 claims were filed with the company in St. Kitts, and about 60 claims were filed from Nevis. Staff also, according to one agent, "scrutinized all claims with a fine tooth comb" to assure that claims payments matched damages that were insured.

Positive benefit resulting from Hugo was that relative to pre-Hugo the company became more effective at monitoring of household insurance needs. Because home values are continually changing there is a need for people to regularly update their insurance. In St. Kitts and Nevis home values had been increasing during the pre-Hugo period. Thus when the storm hit many people were under-insured and unable to claim all damages incurred. Since Hugo, the company has instituted a policy to inspect all buildings it insures, and places a notice on customer billing forms to remind people of the need to regularly update their insurance.

While monitoring of claims and insurance needs has been effective, assurance of compliance on the use of claims payments has been somewhat suspect. Claims agents maintained that the company relied on housing authority inspection staff to assure that rebuilding complied with the national building code. As discussed previously, this organization had an inadequate inspection staff to monitor all structures undergoing repair. These structures

included not only those that were being repaired with insurance payments, but also 600 structures that housed low income, uninsured occupants.

It was also widely viewed that additional problems involving inadequate mitigation requirements in the national building code and shoddy workmanship by unqualified people further constrained effective monitoring and enforcement. A housing authority planning officer summed up the situation by commenting that,

> Many people suddenly became overnight carpenters and building contractors and there was a lot of sloppy work as a result. We just did not have the building inspection people to go out and keep track of all of these characters. Besides even if we could track them, the rules of the game, the codes, just weren't adequate to require any really effective mitigation.

Another issue with government monitoring and compliance activities involved concerns over potentially politically motivated aid distribution, as opposed to distribution based on need. Specifically, interviews revealed much concern regarding the situation in Saddlers among NGO officials involved in long range development. Because Saddlers was overlooked for so long in terms of receiving aid (eight months after Hugo) there was an increasingly deep concern over why such a desperate situation was allowed to develop in the first place. An atmosphere of deep mistrust and ill-will ensued between residents and the government. A NGO representative involved in development work in St. Kitts suggested that whether it was oversight, bad politics or both, the adverse political atmosphere created by the Saddlers incident seriously eroded any NGO initiatives, at least for the near future, that might require collaborative work with the government. He indicated that "if there were any hint that we are involved in any way with the government, the Saddlers people would not have anything to do with us." Further indicating his NGO's effort to distance itself from the government were blue t-shirts that all of his organization's field staff were required to wear when working in the village, with a slogan, "Work Together for the Better," symbolizing staffers and residents working together to build for the future. The NGO representative indicated that the t-shirts have helped residents readily identify the staff as NGO people, and not government officials.

The situation in Nevis regarding monitoring and enforcement was similar to St. Kitts. That is, NGOs generally were more effective at monitoring the distribution of aid and in assuring that aid recipients comply with

guidelines specifying how the aid should be used. The CCF and the Nevis Red Cross effectively used their well established field networks to assure that aid was distributed based on need, and that it was used for its intended purposes. In contrast, the Nevisian government was the subject of widespread accusations that some building materials were distributed based on political favoritism. In fact, a Public Works employee maintained during an interview that he personally witnessed inordinate amounts of galvanized sheets for roofing being given to people whose homes could have been "reroofed 20 times over." Compounding the problem was an inadequate number of building inspection staff, with only one building inspector on the island. Also, as in the case of other island states in the Eastern Caribbean, there was widespread dissatisfaction with the Nevis building code as it did not stipulate building strengthening standards to guide reconstruction.

Recognition of Rights

The right of domestic NGOs and governments to formulate and adapt recovery strategies to changing needs and demands of disaster impacted populations throughout the recovery process is crucial. If external donor organizations impose inflexible and stringent conditions on how aid is to be used by domestic organizations, the pace of recovery is constrained due to bureaucratic red tape as in Antigua, and the commitment and capacity of domestic organizations to carry out recovery programs can be severely diminished as in Montserrat.

Fortunately external organizations generally recognized the legitimacy of St. Kitts and Nevis authorities to manage the recovery process. In St. Kitts the federal disaster committee (SKNNDPPC) exerted substantial control in coordinating the distribution of externally donated aid. The regional CCC headquarters in Antigua had an effective relationship with the St. Kitts CC that built on the CC's capacity to undertake development work during the disaster recovery period. The CC, in turn, built on the Saddlers Sports Club's capacity to do development work. In Nevis the Red Cross benefitted from the CCC's recognition of its capacity to undertake housing recovery activities.

Some caution, however, should be taken in attributing effective recognition of domestic rights and capabilities as an important factor in explaining successful recovery. A reason that at least partially explains such recognition in St. Kitts, and to a lesser extent in Nevis, is that these islands did

not experience the catastrophic level of devastation that occurred in Montserrat. Thus while the demands placed on the domestic organizations were extensive and in many instances exceeded their capabilities to effectively respond, St. Kitts and Nevis organizations were not nearly as overwhelmed in dealing with foreign disaster relief organizations as those in Montserrat.

Resources

Resources include organizational staff and materials used for reconstruction.

Staff. The adequacy of staff varied by organization and type of recovery activity. In general, the governments on both islands had insufficient staffing in terms of number of positions and expertise. The St. Kitts Housing Authority had only two fulltime positions for damage assessment. While the authority did receive some assistance in damage assessment from the police department, coordination in using staff from both organizations was lacking, resulting in much duplication of effort. The housing authority also lacked inspection staff to insure appropriate building practices were used during reconstruction. Similarly, Nevis had inadequate staffing to carry out damage assessments and inspect structures undergoing repair. For example, the Nevisian government employed only one building inspector.

On the positive side, however, the St. Kitts EOC was adequately staffed. As mentioned, the combined skills of the EOC staff members led to a high level of technical credibility and organizational management capacity. Moreover, since Hugo the St. Kitts government has appropriated funds to make the part-time national disaster coordinator position fulltime. This positive step will obviously provide additional support for future disaster planning activities.

In contrast to the government, the staffing situation of NGOs was better. As discussed, the numerous volunteer members of the community service organizations were used effectively during the disaster recovery by the St. Kitts EOC. Additionally, plans have been implemented to further integrate these NGOs into ongoing emergency preparedness and response activities, as evidenced by the oil spill incident. Also, NGOs involved in long range development (CC in St. Kitts, CCF in Nevis) and emergency response (Nevis Red Cross) activities relied on their field staffs for undertaking disaster recovery activities. Finally, private insurance companies had well established and

trained staffs to conduct damage assessments and tightly monitor the distribution of claims payments. A shortcoming of the insurance industry efforts, however, was their reliance on the government to monitor the construction practices of claimants. This was particularly unfortunate because they were well-staffed to handle building inspections, while the government had inadequate staffing to carry out this task.

Materials Used for Reconstruction. In general, building supplies on St. Kitts and Nevis met most of the needs for reconstruction. There were several factors attributed to the presence of readily available building materials. First, there was a substantial pre-storm stock of building materials available for reconstruction on both islands. Interviews with building supply store owners revealed that their businesses were well stocked because they were supplying large resort based construction projects with building materials. Second, building suppliers on Nevis were widely credited for giving a 10 percent discount for building materials. This action alleviated a potential problem of selling materials at inflated costs which can obviously slow the pace of recovery.

Third, compared to Montserrat, St. Kitts and Nevis had smaller portions of their housing stock damaged, which minimized heavy reliance on seeking foreign sources of aid. Thus unlike Montserrat's high level of dependency on foreign aid, the recovery in St. Kitts and Nevis was not substantially constrained by spending large amounts of time and effort in seeking such aid. Fourth, the CARICOM Regional Disaster Unit was given high marks by two EOC staff members in helping the two islands acquire appropriate types and amounts of external aid on a timely basis. As discussed, aside from initial problems of appointing an official representative, this organization was recognized as playing an effective regional role in securing aid for the two islands.

Of notable concern, however, was the extraordinary eight month delay in providing housing recovery aid to Saddlers. There was a consensus among three of the four people interviewed in St. Kitts who were queried about the Saddlers situation that the delay did not stem from resource shortages, but was politically motivated. Comments like "it was an unsettling fact that Saddlers was ignored," or "once the government got involved then anyone can assume that some people will automatically get more than they deserve and others,

like those in Saddlers, get less" reflect an awareness and concern over the Saddlers situation.

Summary of Major Findings

This section summarizes the principal study findings in light of the conceptual framework introduced previously. The discussion addresses both the successes and failures of the recovery effort in St. Kitts and Nevis.

What Components Were Well Handled?

First, the St. Kitts disaster committee, particularly the three members who participated on the EOC staff, provided much needed leadership. During the pre-disaster period the committee conducted a variety of activities that raised awareness and knowledge about hurricanes. The Deputy Disaster Coordinator was especially effective in conducting workshops and promoting hurricane awareness through the media. During the recovery the EOC staff provided leadership in identifying and coordinating roles of various government and nongovernment organizations. For example, the close ties staff maintained with public service NGOs (e.g., Lions Club and Rotary Club) before Hugo struck were indispensable during the recovery period in assessing local needs and distributing aid.

The limited leadership present in Nevis, however, stemmed from NGOs, and not the government as in St. Kitts. In particular the Nevis Red Cross was given high marks for acquiring and distributing foreign aid.

Second, the PCDPPP provided a strong leadership role during the pre-disaster period in St. Kitts and Nevis in raising awareness and knowledge about hazards. This organization undertook numerous useful activities, such as distributing hurricane tracking charts and pamphlets on how to prepare households for disaster, providing technical assistance in disaster plan preparation, and conducting a variety of disaster planning workshops. Much of this work also provided the ground work for undertaking post-disaster planning actions, especially in St. Kitts.

Third, interorganizational coordination was generally considered successful in St. Kitts. A key reason for such success was the presence of three dedicated staff at the EOC. The combined skills of these people gave the EOC a high level of technical credibility and organizational management capacity in coordinating the recovery effort. Other reasons explaining success were the

undertaking of a National Safety Month campaign by the national disaster committee, and the active participation by committee members in a disaster planning workshop the month before Hugo.

Fourth, effective collaboration occurred between domestic public service NGOs and the St. Kitts EOC. This arrangement led to a strengthening of interorganizational capacity to assess needs and distribute appropriate types and amounts of recovery aid on a timely basis.

Fifth, in St. Kitts the EOC staff were aware of the availability of external resources, and understood how to gain access to foreign government and NGO programs that administered use of these resources. The pace and efficiency of recovery was thus improved by such awareness and knowledge.

Sixth, some organizations recognized Hurricane Hugo as providing a window of opportunity to initiate activities that were not related to the disaster. The St. Kitts Ministry of Agriculture sought to become involved in reforestation planning and management, and the St. Kitts Christian Council and the Christian Children's Fund in Nevis advanced their developmental work. Other public service organizations in St. Kitts (e.g., Lions Club and Rotary Club) viewed the disaster as providing an opportunity to become involved in disaster planning and response activities. Still other organizations sought to use the disaster to extend their traditional activities to long-range recovery. The Nevis Red Cross shifted from its traditional role in emergency response to housing recovery, and the local fishery and agriculture co-ops of both islands became involved in recovery operations.

Seventh, collaboration between a national level and a local NGO strengthened the local NGO capacity to undertake long range development activities. The goal of the national NGO (St. Kitts Council of Churches) was to empower the Sports Club in the village of Saddlers, and not to do the work itself. The Sports Club was thus able to initiate several developmental activities that built on its disaster recovery work.

Eighth, private insurance companies were able to provide accurate, rapid damage assessments, and deliver housing recovery aid to claimants on a timely basis. The companies were well staffed with experienced adjusters and claims agents to assure that accurate damage assessments were conducted quickly. They also closely monitored all claims payments to assure that claimants received payments that reflected actual damages.

Ninth, Hugo generally caused moderate damage on both islands, but with some areas suffering severe losses in Nevis. Thus the islands were not heavily dependent on foreign assistance, as in Montserrat (Berke and Wenger 1991). As a result, compared to the Montserrat situation domestic authorities were more likely to have control of the recovery process and were better able to devise programs and strategies that accounted for local needs.

What Components Were Problematic?

Pre-disaster Period. First, the national disaster plans for both islands were ineffective in guiding long-term recovery activities. While the plan texts emphasized emergency response, little attention was given to recovery. Thus the plans were generally considered to be "paper plans." Government and NGO officials were not familiar with plan contents. Such lack of knowledge was attributed to infrequent meetings focused on the plan, and lack of participation in reviewing and updating the plans. As a result, recovery responses on both islands, especially in Nevis, were ad hoc and not a product of prior recovery planning.

Second, government staff assigned to carry out disaster recovery programs were not trained before Hugo and were inadequate in terms of numbers. For example, the St. Kitts Housing Authority had only two fulltime equivalent building inspector positions to assess damages, monitor aid distribution, and assure structural strengthening during rebuilding. Also the EOC in Nevis was not adequately staffed with people who had the expertise, time, and energy to undertake the crucial pre-disaster planning task of identifying and coordinating roles of organizations involved in disaster response and recovery.

Third, the National Disaster Coordinator in Nevis did not provide effective leadership in pre-storm disaster planning. This individual had many other critical roles to fulfill, particularly as the Permanent Secretary, which precluded his ability to effectively carry out the coordinator role.

Fourth, development management and land use planning programs, particularly building code regulations, and inspection and enforcement procedures were not effectively carried out in St. Kitts and Nevis during the years before Hugo. Thus the housing stock and many public structures, such as schools and electric power plants, were not designed with storm resistant construction techniques.

Post-disater Period. First, residents in need of assistance in St. Kitts did not have equal access to housing aid as there was substantial disparity in allocation of such aid. That is, residents of the the poor, working class village of Saddlers did not receive assistance until eight months after the storm struck, while residents on the rest of the island received assistance within one or two weeks. Whether this incident resulted from a conscious politically motivated decision or from benign neglect, the outcome resulted in much suffering that clearly could have been avoided if greater priority was given to aid distribution policies that accounted for equity.

Second, while interorganizational coordination was present in St. Kitts, it clearly was ineffective in Nevis. The Nevis EOC was not operational, and the island's disaster committee was not a functioning entity. Decisions were thus made on an ad hoc basis, and there was little effort to coordinate ongoing recovery efforts.

Third, post-Hugo leadership on Nevis was weak. The limited leadership that was present primarily stemmed from NGOs, the Nevis Red Cross Director being particularly successful. Government, however, provided little, if any, leadership in guiding the recovery effort.

Fourth, while some NGO human and material resources were successfully used during the initial weeks of the recovery in St. Kitts, development based NGOs were not initially used on either island. In Nevis it took more than two months after Hugo before the CCF got involved, and in St. Kitts the CC did not become active until almost 10 months had passed.

Fifth, many opportunities to mitigate and make rebuilt housing structures less vulnerable to future storms were lost in St. Kitts and Nevis. As discussed, this was primarily due to the lack of adequate building codes and government inspection staff. Further,although insurance companies were successful in delivering and closely monitoring the distribution of aid, they did not seek involvement in monitoring reconstruction practices. This inaction represents a missed opportunity to assure that rebuilt structures are less vulnerable to storms.

Post-Hugo Changes Regarding Long-term Recovery

Since Hugo, St. Kitts and Nevis have taken several positive steps to improve their disaster recovery planning capabilities. These changes can be

attributed to two conditions. One is that many of the changes are in response to the problems encountered during the Hugo recovery effort. The other is due to the pre-disaster efforts of the PCDPPP and the St. Kitts national disaster committee.

Most notably, the St. Kitts parliament has increased funding for national disaster planning by a factor of 10 relative to pre-disaster levels. The additional funds will be used to create a full-time national disaster coordinator position, and to support more disaster planning activities. Several post-Hugo workshops have been sponsored by the national disaster committee and the CC. They have focused on sharing personnel and organizational disaster response and recovery experiences. Other activities in St. Kitts include increased participation by community service NGOs in emergency planning and response, initiation of a tropical forestry management planning program by the Ministry of Agriculture, and more active monitoring by insurance companies to assure that customers have adequate insurance.

In Nevis, post-Hugo activity has been less ambitious. The only significant activity encountered was the occurrence of several workshops sponsored by the government in cooperation with the PCDPPP. The workshops were on storm resistant building design, and on linking recovery to long-term development issues.

This increased priority toward disaster planning, however, has some shortcomings. One is that as of March 1991 the St. Kitts government still has not hired a full-time disaster coordinator. A second shortcoming is that neither island has revised their disaster plans to take advantage of the lessons learned from the Hugo experience. Another is that most of the post-Hugo disaster planning activity appears to reflect the pre-Hugo trend of placing great emphasis on emergency preparedness, and to a lesser extent on mitigation and recovery planning.

Recovery Planning Recommendations: A Strategy for Achieving a Sustainable Society

The recommendations offered here provide a starting point for improving the recovery planning program in St. Kitts and Nevis. They also serve as a strategy for achieving a more sustainable society. This strategy recognizes that recovery, hazard mitigation, and long-term sustainable development are interrelated activities. All these activities require planning,

depend on similar information bases, and should be considered in recovery programs. The strategy also maintains that actions needed to be taken must be mutually supported, with no single group--whether government, NGOs or citizens--acting alone. While the following recommendations provide broad strategic directions, specific recovery activities and priorities need to be worked out for St. Kitts and Nevis:

1. Designate a Disaster Recovery Task Force to give direction to long-term recovery. Actions needed to establish this organization are to specify: sphere of responsibility during pre- and post-disaster periods; membership; procedures for activating the organization; and responsibilities of each member.

2. Conduct hurricane hazard vulnerability analysis to describe, at least in general terms, the population-at-risk, and the extent of damages to buildings and infrastructure to be expected for different locations. Such an analysis requires review of the best available information on location and magnitude of hazards, and, if possible, on structural characteristics of existing buildings. The information can be used to estimate probable damages from future storms.

3. If data is inadequate, institute programs to improve information base for making damage estimates for use in recovery planning.

4. Review existing building codes and compliance procedures for adequacy in relation to hurricane forces to assure safety. This step requires the updating of the Caribbean Uniform Building Code, particularly for small buildings, and the hiring of additional inspection staff. Such staff, however, should not be viewed as "enforcers" of the code, but as extension specialists who act as promoters and trainers of appropriate building construction practices. Further the code should not be viewed as "regulations," but as a guide for providing sound construction practices.

4. Define areas where new building construction should be prohibited or subject to special requirements to assure safety.

5. Establish retrofit priorities giving top priority to critical facilities, such as electric power lines or schools, essential to health and safety, and to those facilities that could cause severe loss to occupants or property in the event of their failure.

6. Prepare a loose-leaf binder containing information on potential sources of disaster recovery assistance and instructions on how to apply for such assistance.

7. Provide for training that brings together persons from different organizations that would be involved in the recovery effort. Such training (workshops, table top exercises) would also serve to establish new patterns of communication and cooperation, particularly among

government and NGO staff within St. Kitts and Nevis. Professional organizations in engineering, geology and architecture, among others, could play a useful role in such training.

8. Update National Disaster Plans on both islands to include a recovery component and to incorporate lessens learned from recovery experiences.

9. Updates of the National Disaster Plans should occur to review appropriateness of recovery strategies as the patterns of urban development, population, economic and hazardous conditions change.

10. Revision of the National Disaster Plans should be done by representatives of government and non-government organizations that would be involved in the recovery process.

11. Revisions of the National Disaster Plans should evaluate recovery procedures including the roles and assignments among cooperating organizations.

12. When revising the disaster plans improve inter-island planning efforts by encouraging more collaborative activities, such as conducting workshops or joint disaster exercises that are attended by key representatives from each island. This action also assures that revised disaster plans identify the roles and responsibilities of a national disaster committee, perhaps the SKNDPPC, in coordinating activities that require inter-island cooperation (e.g., acquisition and distribution of foreign aid).

13. When revising the disaster plans, participants should view a disaster as opening up a window of opportunity to do development work.

14 Compile and maintain information regarding non-government organizations that are undertaking (or could undertake) development activity; establish and maintain contacts with such organizations.

15. To reduce disparities between the rich and the poor and to assure equitable distribution of aid, representatives of low-income communities should be encouraged to participate in disaster planning programs. Such involvement would enhance opportunities for the poor to share their response and recovery experiences, and to express their specific needs to others. This action assures that future disaster planning programs will integrate lessens learned from different segments of the population and thus account for their needs.

16. Domestic and international relief organizations should rely on local people and leadership whenever possible. Such reliance can facilitate long-term recovery and can improve the chances for occurrence of local developmental initiatives. Relief organizations should emphasize building-up human skills, and not solely rely on physical and material assistance.

17. Public sector disaster planning programs should encourage involvement by the private sector. Private companies in many cases are well staffed and equipped to handle disaster response and recovery activities, as is the case of the insurance industry's potential involvement in monitoring the distribution and use of housing recovery aid.

18. Disaster recovery and development programs should reach all social groups, particularly opinion leaders in each group. Such leaders are typically individuals who are willing to invest their resources--time, energy, and money--to assure that a particular issue is raised on public agendas. They can be a strong moving force in disaster planning.

19. Establish evaluation criteria to hold government and NGO relief activity accountable to long-term development standards. Such criteria would serve as a benchmark for monitoring and evaluation of impacts on development. Impacts could be measured based on mitigation, environmental protection or economic growth criteria, among others.

20. Set up a continuous system for monitoring progress toward sustainability. Monitoring the behavior of various social, economic, natural resource and physical indicators to determine if sustainability is being enhanced or impaired. Such monitoring would also involve assessment of the performance of policies, laws, and other institutional arrangements.

21. Think of local people that experience loss form a disaster as "participants" in the recovery process, and not "victims."

22. Establish a public information program with communications aimed at various segments of the population. The program should relate national and global concerns to local situations, and should cover: information about hurricanes and their effects on the islands; updates on programs and plans for recovery information for homeowners and businesses which describes assistance programs and "how to" instructions for repair; continuous progress reports on major recovery problems and responses to such problems.

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