

Alternative intervention models: Mitigation strategies and programmatic approaches

What are the planning and programming opportunities for responding to disasters in such a way as to promote development and for working toward development in such a way that vulnerability to future disasters is reduced? The three papers in this section describe approaches that have been effective in specific contexts that are suggestive of approaches with wider applicability.

Franklin McDonald describes the experience of establishing an Office of Disaster Preparedness in Jamaica. He discusses the ways in which those involved set priorities and, even at the national policy level, he emphasizes the necessity of enabling local communities to develop their capacities to meet their own immediate emergency needs in a crisis event. He notes that education and training are central to this effort in increasing public awareness of potential hazards and responses, in providing expertise in specific skills and in integrating development and disaster issues into basic schooling.

Robert Gorman and Melvin Foote recount the experience of their agency, Africare, in Seguenega, Burkina Faso. During the 1970's drought, Africare with many other agencies, came into this area with emergency food and other supplies. As the crisis subsided with the advent of rains, Africare remained to work with the people in infrastructure development and management training which seems, even as the new drought has worsened, to have had an important effect in limiting the disastrous effects of the current crisis.

Corrine Johnson analyzes four programs of the American Friends Service Committee for their effectiveness in reducing long term vulnerability of the people with whom they work. She notes many important dilemmas that face the small private agency as it approaches its work this way, but points to the vivid possibility and necessity of enabling people to meet their own crises.

Establishing a national program of disaster preparedness, mitigation and prevention: The Jamaican experience

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In 1980, the Government of Jamaica formally established a national focal point, with full time staff, to promote action to reduce the effects of future disasters or emergencies on the Jamaican population and economy. I was asked to work on the establishment of this new organization, called the Office of Disaster Preparedness (ODP), and this presentation describes the process which led to the formation of the ODP and also sets out our early operations, experiences and approaches.

JAMAICAN DISASTER HISTORY

Over the last few years of recorded history, Jamaica has experienced many natural disasters (including earthquakes, hurricanes, and a variety of other meteorological problems) as well as some caused by man. Jamaican history is in fact full of incidents illustrating the linkage between disasters and development.

Let me remind you of one of these, the real story behind the Mutiny on the Bounty. Not many people know that it was influenced by hurricanes which between 1780 and 1786 struck Jamaica (seven times in six years). These successive hurricanes devastated food crops and it became difficult for the island to import food staples from outside, because of the American War of Independence. With the British and American rebels at war, Jamaica had very limited food supplies and many thousands starved to death. The answer to this problem proposed by the planters and supported by the British Government was to introduce a new range of food and tree crops from the South Pacific into the island to mitigate the food shortages arising from the hurricanes and wars. Captain Bligh (whose family owned land in Jamaica) was chosen to bring the precious breadfruit to Jamaica, and he pressured his sailors so much that they finally mutinied providing Hollywood with material for several films. Unfortunately the underlying link with disaster induced food shortage and the successful introduction of new food crops to the West Indies is often overlooked.

Since these experiences, we have had many hurricanes and earthquakes, and our understanding of their causes and effects has improved. Nonetheless when in 1979 parts of Jamaica experienced thirty five inches of rain in twenty four hours (seventeen inches falling within one six hour period) most of the infrastructure was severely affected. This flood event caused our disaster response mechanism to collapse totally.

There were a number of factors which are thought to have contributed to the failure of the disaster management system in this event. There have been significant increases in population over the last three decades (the average age of the population in Jamaica is about sixteen years) accompanied by shifts in the population. The last major hurricane struck in 1951 and the last significant earthquake was in 1907, so that there are a large number of people (including parents raising children) who have had no disaster experience of this kind.

As a consequence, when the 1979 rains came there was very little collective or institutional memory of any significant disaster and very little memory of the coping mechanisms and responses required to deal with major natural hazards. In addition, with independence in the early sixties, we had developed new governmental institutions, breaking the linkages to the institutions that had dealt with the 1951 hurricane crisis.

With independence, we had undertaken a series of development activities with perhaps too little recognition of the potential impact from hurricanes or earthquakes on those developments. Development has taken place on land that had previously been considered marginal, including land at very low elevations, subject to the potential risk of earthquake induced liquefaction or hurricane induced flooding. Economic development on the island had caused other changes. For instance in 1981 there were a number of small electrical generating plants. But by 1979 we had only two major power plants, and these were situated near each other, some fifteen miles apart, both on reclaimed land on the south coast vulnerable to severe damage from a single disaster event.

After the flooding in 1979, the response of the Jamaican government was to send in the army and to execute a large number of *ad hoc* measures to provide humanitarian relief. It requested assistance from outside agencies, including UNDR0, the U.S. Office of Foreign Disaster Assistance, and the League of Red Cross Societies. Although the *ad hoc* measures were largely effective, it was recognized that a prepared response would have led to more timely relief and a more orderly post disaster operation. In the aftermath of the disaster, the government requested these agencies to review Jamaica's emergency management systems and to make recommendations for change.

THE OFFICE OF DISASTER PREPAREDNESS

The recommendation was that Jamaica should set up an office concerned with Disaster Preparedness and Emergency Relief Co-ordination and that the office be permanent, staffed by technical people, and it should focus primarily on contingency planning and the co-ordination of response. At that time, relatively little attention was given to mitigation and prevention issues.

The political situation in Jamaica played an important part in the development of the agency. Jamaica, like most of the English speaking Caribbean, is a plural democracy with two strong political parties. Neither party has absolute control over the country as they each hold about 40% of the vote, with about 20% floating or uncommitted. This balance of party strength played a very important part in arriving at a

consensus, especially regarding a public safety matter such as disaster management. Both parties had been concerned about the effects of the floods and agreed that effective action should be taken to prevent such destruction in the future and limit loss of life and injury.

The agency was therefore established with broad consensual agreement and was directly accountable to a very wide constituency. Therefore when the government changed within the year of formation of the agency, it made little difference to the continuity of disaster management activities.

The agency began its operation attached to an operational ministry, the Ministry of Local Government. Shortly afterwards, the Prime Minister decided that it should be directly responsible to him as Head of State. Lately, it has been transferred to the Ministry of Science, Technology and the Environment.

The mandate of the organization was, first, to take action to reduce the impact of disasters and emergencies on the Jamaican population and economy and, second, to co-ordinate emergency relief operations in case of major disasters.

To reduce the impact of disasters on Jamaica, the agency's main activities are (1) to create and maintain response plans at national, parish, and community levels; (2) to promote public awareness of disaster threats and appropriate responses; and (3) to monitor the effectiveness of hazard mitigation strategies which are supposed to be an integral part of social and economic planning. To co-ordinate emergency responses, the agency has to establish an emergency operating system supported by appropriate communication systems and devise a plan for co-ordination and control of emergency action.

ISSUES DEALT WITH

The first issue the ODP had to tackle in order to put this organization together was just how to begin. Where in the world was there experience of starting virtually from scratch as we were doing in Jamaica? At first, we looked to UNDR0 as a repository of this kind of information, but we soon found that this information required adaptation to be made applicable to Jamaica.

Second, we felt very strongly that public information, training, and education were important components for restoring within the Jamaican society an awareness of the disaster threat and the linkage between disasters and development. There were few precedents in this area, as we quickly discovered. The civil defense organizations of large states were not what we wanted. There were few agencies anywhere attempting to pool concern for prevention and mitigation with contingency planning and to do so with an effort to involve the public. Some civil defense organizations dealt with preparedness and public awareness, but ignored prevention and mitigation. We decided to try to maintain the connection.

We did find some useful information in the literature about local level organizing. For instance, we found a book called *Comprehensive Emergency Management — A Governors Guide* (a booklet prepared for governors in the United States) that contained many of the definitions and

methodological approaches for comprehensive emergency management. This book was only published in 1979, so we were possibly among its first users. It seemed that a comprehensive or integrated approach was relatively new, and we in Jamaica were close to the cutting edge of this approach for which there were few precedents relating to small developing countries.

A third decision made very early was to focus on local level or community planning because the community is the first to face a crisis. In past Jamaica disasters, people have been cut off from outside help for up to five or seven days after the event. Even during the flood of 1979 when we had helicopters available to us, Jamaican hillside villages were not accessible to these large helicopters. They were too big to land on the difficult terrain. In any event, for thirty-six to forty-eight hours after a hurricane, helicopters may not be able to fly because the air is too turbulent. Therefore, we shifted from an assumption that massive external support could be immediately delivered to the view that realistic disaster planning should be based on the recognition that for at least seventy-two hours each community may have to fend for itself.

We also acknowledged that, if there were a really major event in Jamaica, the capital city of Kingston could be the worst effected area. The model of planning which had gone before us — that Kingston would be able to supply rural areas with assistance — was, in fact, the reverse of what would actually happen. It was more likely, we concluded, that the rural areas would be in a position to supply Kingston with some forms of assistance.

This had a wide range of implications for the training of particular skills (e.g. first aid skills) and community emergency planning. For example, it implied the resuscitation of certain skills such as how to carry injured people out of remote areas when roads were blocked, a skill that we found still existed in some rural parts of Jamaica.

It required also an understanding of the likely impact on local communities. If a landslide were probable so that road access would be cut off, then a community needed to recognize that and not wait on action from the outside, but take action on their own to make themselves safe or to find a way of continuing activities in spite of the blockage.

Fourth, we undertook a careful review of long term prevention and mitigation measures. Our approach was to look at all existing information rather than immediately generating new information, because we believed that far more information existed in Jamaica than was being used.

We gained some of these insights very early and in a practical way since two weeks after our office actually got started, Jamaica was hit by Hurricane Allen. When we reviewed the damage on the north coast after the hurricane, we found among the local population a large residue of information about previous hurricanes that had had similar effects. In Hurricane Allen some houses at about forty feet above sea level were destroyed by the waves. Local people were able to show us locations of sixty feet above sea level where earlier hurricanes had caused damage.

None of our scientists had told us to expect such damage at forty feet, and even the regional meteorological experts did not believe it until we showed them. But all the

communities along the north coast remembered. They knew that in a hurricane the sea could reach those elevations so they moved away. Seven people were killed in Hurricane Allen, of whom all were fairly well educated, and had come from other communities to build houses by the sea.

STRATEGY AND METHODS

As the story I have just told you indicates, we found skills and knowledge existing in Jamaica that were important to our work in both disaster prevention and mitigation and in emergency response. However, there were areas where information, or the mechanisms for communicating it, was lacking. We have undertaken a number of programs to fill these gaps. Our strategy has been based on the assumption that hazard mitigation can be built into economic development planning.

For instance, the Jamaican building code and the related building enforcement and regulation system has been under review for a long time, but with very little sense of urgency or of the importance of those activities to public safety. Because of the influence derived from the ODP position of reporting directly to the Head of State, we were able to support and promote the completion of the drafting of a building code and its early promulgation.

From time to time our activities have brought to light issues which require not training, but sensitization. We find that the officials concerned, the political directorate, the opinion makers in the society need to be made aware of the disaster related issues. They have to be sensitized before the other activities can follow.

In the area of building construction safety, we have tried to create a program of sensitization for a wide range of key officials. For instance, architects and engineers have not been aware of the history of disasters in Jamaica, nor of the vulnerability of some of their own structures. They often were not even aware of the impact of disasters in the Caribbean basin, such as the earthquakes in Managua and Guatemala, or the 1979 hurricanes in the Dominican Republic. Many of them had never seen pictures of damage from these events due in part to the separation between the English speaking Caribbean and the Spanish speaking Caribbean.

We have now generated information from those events and introduced it to the local engineers, eliciting responses from them which have been helpful in our disaster mitigation efforts. We have asked them what the engineering association would do in case we were hit by a major earthquake. Would they stay at home, or would they come out and help us assess damage? If they did come out to help assess damage, for how long would they do it before they started charging fees? They had never thought through this process and had not realized that they had a contribution to make. It also sensitized them to the needs to improve current practice, and to being more concerned about their building systems.

In the health sector we have developed with the support of PAHO a book which contains a series of courses and course outlines that address the adequate preparation of health professionals for dealing with emergencies. We did this by meeting with the training officers from each of the

institutions in Jamaica training health professionals. We sensitized them over three days with materials on disasters and disaster management. Then we asked them to evaluate their own programs to see whether they were adequate.

By a process of curriculum development and infusion we hope to use the existing training courses to facilitate training the health professionals such as nurses, doctors, X-ray technicians, medical technologists, dental nurses and the public health inspectors in relation to disaster mitigation and response.

We are currently doing the same kind of co-operative programming with the schools. We are examining the primary and secondary school curricula and identifying where, in the geography syllabus for example, we can put more about hurricane and earthquakes and what they have done in Jamaica in the past, or where, in the chemistry syllabus, we can introduce the safety aspects of pesticides. There are many opportunities which have not been taken advantage of. Our approach will take some time, but it is an opportunity for influencing education to mitigate disasters.

The sensitization process for the broader public is supported by a public education campaign. It is helped by the mass media, as well as a public education campaign at the face-to-face community level.

We have also considered some of the not so obvious linkages between emergencies, disasters, economic activities and development and between natural events and man's activities, perhaps more related to strategic planning than disaster planning. For instance, if Jamaica produces no tin plate and the British dock workers go on strike (our tin plate is imported from Britain), we may have a "domino" effect. Jamaican agricultural workers will eventually be effected by the British dock strike because they cannot produce without the tin plate. People in the agriculture sector depend on their sales of fruits to the canning industry. Hence a distant event can lead to economic dislocation and crisis or emergency conditions affecting our economy and population.

To some extent, our planning system was not in the past very responsive to this kind of situation. I think there are implications of this example for other situations, where drought and other slow acting phenomena may effect economic sectors and ultimately the welfare of the population. The point I am trying to make here is that comprehensive emergency management (if an emergency is anything which disrupts or displaces the community) requires responses to a wider range of events than simply fast onset natural disasters.

As we worked with the sectors on their roles in domestic preparedness, another issue arose concerning what we should do as against what other agencies should do. Co-ordination requires the careful cultivation of a number of specialized relationships with other agencies and the sensitization and training of persons in those agencies. Disaster preparedness implies working with the emergency services of government, including the police, the army, fire departments, ambulance services, and the supporting agencies such as the Ministry of Works, as well as public utilities, like water and power and the Social Welfare agencies, the voluntary agencies and the private sector.

The potential of the voluntary agencies is worth mentioning, because at first they seemed to be a major existing asset. In many cases however, local voluntary agencies turned out to be weak and not mass organizations with an indigenous supporting structure. The local churches, it transpired had very much stronger organization at the community level.

We found that if we wanted to work with any local voluntary agencies that had the depth to reach the communities, we were virtually confined to the churches, service clubs, the political parties, and the farmers associations. We were surprised because we thought at first that the private voluntary agencies represented a tremendous community resource. What we have tried to do in practice is to stimulate the voluntary agencies to seek mass membership and broad involvement in day to day development action.

We have found that the churches provide a useful channel for communication of information both from the local communities to us and from us to the communities. We hope that other voluntary agencies will develop the ability to provide these channels as well.

All communities have both opinion-making and decision-making authority figures, and we found we must recognize and become involved with both groups if we are going to have success. The parson may not make decisions, but he certainly influences opinions. The guy who runs the local tavern very often influences opinion and serves as an information source. We need to listen to and use a variety of communication channels.

Another critical co-ordination issue was the placement of disaster management functions. It was important for us to be an operational agency. That is we had to be able to give orders and get things done. It was also important for us to have access to a wide range of technical and professional skills. Our analysis showed that the government's most effective role in the first seventy-two hours after a hurricane was in mobilizing machinery for restoring public utilities and key infrastructure to effect tasks such as getting the roads open and fixing the water supply. In these areas government has competence and control.

On the other hand, it was difficult for us to create a system for reaching thousands of people in shelters. The churches and the community agencies could do a better job in that area. We have developed, therefore, an understanding with local groups and local community resources, that while they look after people for a fixed period, the government will facilitate the resumption of normalcy in the infrastructure.

We have also found it necessary to develop credible and rapid decision-making systems for dealing with overseas donors.

Our approach does not emphasize only humanitarian concerns. While we are concerned about public safety, the cost/benefit analysis of mitigation action is not overlooked. We can justify on economic grounds some of the programming which yields humanitarian benefits. Our analysis of economic programs justifies the small amounts of money it takes to train building inspectors to do a better job, to teach people to build better through a mass media program, to identify high risk areas and begin a long term

process of development in them, or to enter into dialogue with the voluntary agencies as to their optimal role in disaster management.

But our emphasis on preparing for disasters by community involvement and development again raises questions about roles. If the international voluntary agencies are not involved with development planning in the United States, why do they think they are competent to do it in the Third World? Our emphasis in disaster relief has shifted from the voluntary agencies to the government and this represents a shift in sensitivity on the part of the Jamaican government, like many other, to an awareness of its vulnerability to natural events. We now ask, in a new way, who is best suited to offer development assistance programs which incorporate disaster loss reduction features. Is it international donors or technical assistance agencies, or is it the government? We suspect it is all of them.

CARIBBEAN AREA

I would now like to mention activities within the Caribbean area that are similar to our Jamaican experience. The development of emergency response systems in the English speaking Caribbean parallels to a great extent the Jamaican experience. Little residual memory of disasters seems to have entered the post-colonial institutional development except in the case of Barbados and Belize.

In 1979 there was a volcanic eruption in St. Vincent and a hurricane affecting Dominica. In June of that year the U.S. Office of Foreign Disaster Assistance sponsored a regional seminar to look at disaster preparedness measures in the Caribbean. Shortly after that seminar, hurricanes David and Frederick, within a week of each other, devastated Dominica and the Dominican Republic. In Dominica there was inadequate warning of the hurricane's approach. The government did not cope effectively with the event. They had no plans and the international response resulted in poor co-ordination, the arrival of multiple competing agencies, the overlapping of efforts and waste of resources. Part of the early relief was, in fact, washed away by the second hurricane. These experiences produced a consensus regarding the need to provide technical support to all the Caribbean islands in disaster management.

By 1981, acting with UNDRO, OFDA, the League of Red Cross Societies, and CARICOM (the regional common market institution), a Caribbean regional project was developed. It had a number of objectives: (1) to help governments plan preparedness and prevention programs based on existing threats; (2) to help governments assess the potential impact of disasters on their development; (3) to help governments implement prevention and preparedness programs; (4) to provide a regional pool of expertise for relief co-ordination whenever a disaster occurs, and (5) to reevaluate the vulnerability of the Caribbean and take appropriate action to reduce it.

The idea behind this project was to address consciously the linkages between disasters and development. It had become clear to many of the Caribbean countries and their economists and decision-makers that a major part of their national assets could be destroyed or damaged in a single disaster event, and that it takes years of effort to restore those assets. These region-wide efforts will continue to develop experience with disaster preparedness based on the recognition of the importance of this matter to long term development.

CONCLUSION

What I have presented is not meant to be a completely transferrable or generalized model. These are my observations based on our experience in Jamaica with a methodology which we think has been working within our context leading to the sensitizing of a wide range of publics, including the two political parties, the opinion makers, the private productive sector, the voluntary agencies, the local community groups as well as the public sector which is responsible for implementing development.

We do not have all the things in place which we think will protect us. But we believe that the approach to disaster management of keeping development objectives in mind, keeping the people involved, and aiming at sensitizing, training, and educating people across a wide range of issues, can be done at a reasonable cost and can support the developmental mandate of the country. This approach can be motivated by a sensitivity on the part of the government to the wide range of potential problems, both humanitarian and economic, that must be addressed for reducing disaster effects.