

CHAPTER 7

Disaster response

Disaster response is the sum total of actions taken by people and institutions in the face of disaster. These actions commence with the warning of an oncoming threatening event or with the event itself if it occurs without warning. Disaster response includes the implementation of disaster preparedness plans and procedures. Disaster response thus overlaps with disaster preparedness. The end of disaster response ostensibly comes with the completion of disaster rehabilitation programmes.

This chapter identifies the principal activities of disaster response. Each activity is, formally or informally, governed by a set of policies and procedures, and each activity is typically under the auspices of a lead agency. In the end, disaster response activities are implemented by a myriad of government organizations, international and national agencies, local entities and individuals, each with their own roles and responsibilities.

A full discussion of disaster response would, for each activity, identify:

- Who is responsible for its implementation, who supports it?
- What means are required for its implementation?
- When are its activities implemented?
- What is its scope ?
- Why does it need to be done?

There are too many possible organizational structures for disaster response to discuss all of them here. However, the overriding principle of disaster response is that local structures are the most appropriate for the management of disaster response. External structures and organizations should support local mechanisms and limit their own involvement to filling in the gaps of required disaster assistance.

The following are typical activities of emergency response. There are important differences, however, between sudden and slow onset disasters. Differences also emerge when comparing the specific geographical situation and the disaster's socio/political context.

Warning



SUDDEN ONSET Warning refers to arrangements to rapidly disseminate information concerning imminent disaster threats to government officials, institutions and the population at large in the areas at immediate risk. These warnings normally relate to tropical storms and floods.

SLOW ONSET Early warning is the term used regarding slow-onset disasters, especially famine. Early warning activities include the process of monitoring the situation in communities or areas known to be particularly vulnerable to the effects of droughts, crop failures and/or changes in economic conditions. An adequate warning will enable remedial measures to be initiated before hardships become acute. Early warning is a disaster response activity only if it has failed to detect the warning signs or where such signs were ignored.

Evacuation/migration

SUDDEN ONSET Evacuation involves the relocation of a population from zones at risk of an imminent disaster to a safer location. Evacuation is most commonly associated with tropical storms but is also a frequent requirement with technological or industrial accidents. For evacuation to work there must be a timely and accurate warning system, clear identification of escape routes, an established policy that requires everyone to evacuate when an order is given, and a public education programme to make the community aware of the plan.

SLOW ONSET The movement of people from the zone where they are at risk to a safer site is not, in fact, evacuation but crisis-induced migration. This movement is usually not organized and coordinated by authorities but is a spontaneous response to the perception by the migrants that food and/or security can be obtained elsewhere.

Search and rescue

SUDDEN ONSET Search and rescue, often known by the acronym SAR, is the process of identifying the location of disaster victims that may be trapped or isolated and bringing them to safety and medical attention.

In the aftermath of tropical storms and floods, SAR usually includes locating stranded flood victims, who may be threatened by rising water, and either bringing them to safety or providing them with food and first aid until they can be evacuated or returned to their homes.

In the aftermath of earthquakes, SAR normally focuses on locating people who are trapped and injured in collapsed buildings.

Post-disaster assessment

SUDDEN AND SLOW ONSET The primary objective of assessment is to provide a clear, concise picture of the post-disaster situation, to identify relief needs and to develop strategies for recovery. It determines options for humanitarian assistance, how best to utilize existing resources, or to develop requests for further assistance. The post-disaster assessment must distinguish among pre-disaster chronic conditions, the needs of disaster survivors and their resources.

This activity is so vital that we will devote the next chapter exclusively to disaster assessment.

Emergency relief

SUDDEN ONSET Emergency relief is the provision on a humanitarian basis of material aid and emergency medical care necessary to save and preserve human lives. It also enables families to meet their basic needs for medical and health care, shelter, clothing, water, and food (including the means to prepare food). Relief supplies or services are typically provided, free of charge, in the days and weeks immediately following a sudden disaster.

SLOW ONSET Emergency relief may need to be provided for extended periods in the case of neglected or deteriorated slow-onset emergency situations and population displacements (refugees, internally and externally displaced people). The impact of the disaster may be mitigated for these populations through additional assistance to the host community as well.

Logistics and supply

SUDDEN AND SLOW ONSET The delivery of emergency relief will require logistical facilities and capacity. A well-organized supply service is crucial for handling the procurement or receipt, storage, and dispatch of relief supplies for distribution to disaster victims. The logistical system is perhaps more vital and of higher priority for slow onset emergencies.

Communication and information management

SUDDEN AND SLOW ONSET All of the above activities are dependent on communication. There are two aspects to communications in disasters. One is the equipment that is essential for information flow, such as radios, telephones and their supporting systems of repeaters, satellites, and transmission lines. The other is information management: the protocol of knowing who communicates what information to whom, what priority is given to it, and how it is disseminated and interpreted.

Victim response and coping

SUDDEN AND SLOW ONSET In the rush to plan and execute a relief operation it is easy to overlook the real needs and resources of the victims. The assessment must take into account existing social coping mechanisms that negate the need to bring in outside assistance. On the other hand, disaster victims may have new and special needs for social services to help adjust to the trauma and disruption caused by the disaster.

Security

SUDDEN ONSET Security is not always a priority issue after sudden onset natural disasters. It is typically handled by civil defense or police departments

SLOW ONSET The protection of the human rights and safety of displaced populations and refugees can be of paramount importance, requiring international monitoring

Emergency operations management

SUDDEN AND SLOW ONSET None of the above activities can be implemented without some degree of emergency operations management. Policies and procedures for management requirements need to be established well in advance of the disaster. More attention is given to this subject in Chapter 14 on *Responding to a sudden disaster*.

Rehabilitation and reconstruction

Rehabilitation and reconstruction complete the disaster response activities. As much of this activity is within the scope of UNDP's concern, Chapter 9 is devoted to it.

A.





CHAPTER 8

Disaster assessment

Assessment is the process of determining the impact of a disaster on a society. The first priority is to establish the needs for immediate emergency measures to *save and sustain the lives of survivors*. The second priority is to identify the possibilities for facilitating and expediting *recovery and development*.

Assessment is an interdisciplinary process undertaken in phases and involving on-the-spot surveys and the collation, evaluation and interpretation of information from various sources. These surveys concern both direct and indirect losses as well as the short- and long-term effects. Assessment involves determining not only what has happened and what assistance might be needed, but also defines objectives and how relevant assistance can actually be provided to the victims.

Some assessments are specifically conducted as damage assessments. They include the preparation of specific, quantified estimates of physical damage resulting from a disaster. The damage assessment may also include recommendations concerning the repair, reconstruction or replacement of structures, and equipment, as well as the restoration of economic activities.

Objectives of assessment

The first objective of a post-disaster assessment is to determine when an emergency exists. Next, define the actions and resources needed to reduce immediate threats to health and safety and to pre-empt future serious problems.

A frequent problem of assessment is to assume that all property losses or survival needs must be replaced or furnished from outside sources only. Instead the assessment must also identify the local response capacity, including organizational, medical, and logistical resources. The assessment must help decide how best to use existing resources for relief. It must also identify the priorities of the affected people themselves.

Another problem is that people making the assessment who are not from the disaster area may have a difficult time distinguishing chronic needs from problems created by the disaster. Knowledge of base line data is essential to identify the "starting point" for post-disaster needs. This information is established in the preparedness checklist in Chapter 5.

If the results of the assessment are to contribute to the design of a disaster response programme, then the response agency must also know the policies of the government with regard to emergency assistance. These policies will affect the estimate for the additional support required from national and international sources for relief.

Assessments for different disaster types

The design and execution of assessments are very different for sudden onset disasters versus the slow onset. For sudden onset, there are typically many different needs in many locations involving casualty management, support for local rescue efforts and recovery of lifeline services during the first two days of an emergency. Initially the needs change from hour to hour often resulting in confusion. In fact, some activities need to be done so quickly that action has to precede detailed assessments, using strategies determined during preparedness planning on the basis of previous emergencies.

For displaced persons and famine emergencies the lead times are sometimes long and donors may be unwilling to commit large amounts of assistance in response to ambiguous information. The initial priority needs which should be assessed include immunizations (particularly measles), emergency water supply, nutritional monitoring, bulk food logistics, and registration systems. Early geographical assessments of the size of the populations at risk are vital.

These prolonged emergencies may last for months, and often for years. This allows for detailed analysis of the assessment system's performance and the opportunity to adapt them as requirements change.

How assessment data is used

Assessment provides support for emergency decision makers. Assessment is conducted for a specific user or group of users who are making decisions about emergency resource allocation and response strategies in what may be a fast-changing environment. There are three aspects involved in the assessment process: picture building, situation assessment, and response planning.

Start by building up a picture of where people are, what condition they are in, what services are still available, and what resources have survived.

The situation assessment involves the identification of operational priorities. The situation itself is usually fast-changing and messy, this leads to the need to be able to forecast how the situation is likely to develop. The assessment data needs to be structured to help with the following:

- recognition and assessment of situations requiring decisions
- formulation of the operational strategies
- objectives and needs
- potential alternatives generated
- analysis of the alternatives: evaluate their impact
- interpretation and selection: alternatives compared by evaluating impacts of each

The last process of decision-making is response planning. This includes the detailed assignment and scheduling of resources (people, equipment, and supplies) to meet specific relief objectives.

The subject of assessment will also be discussed in relation to the UN Disaster Management Team and the UN response to disasters. See also the specialized training module, *Disaster Assessment*, for a broader discussion of these topics and the UNDP/UNDRO Disaster Manual.⁶

⁶ This chapter has been drawn from the UNDP/UNDRO training module *Disaster Assessment* by Rob Stephenson of the Relief and Development Institute.

FORM 2: SAMPLE QUESTIONS FOR A SURVEY OF FAMILY NEEDS

The questions in this appendix may be used as a guide to prepare surveys of family needs in the aftermath of major disasters. These questions will help identify the most critical needs. Responses to some questions should be referred to public health authorities or to the public works (or appropriate utility) department.

SURVEY DATA	
Name of Surveyor: _____	
Date: _____	
FAMILY IDENTIFICATION DATA	
Name of Head of Household: _____	
Pre-disaster Address: _____	
Post-disaster Address: _____	
Identification Number: _____	

DEMOGRAPHIC DATA

1. Family Composition

- a. Head of household _____
- b. Spouse _____
- c. Number of teenagers (age 13-18) living at home _____
- d. Number of children (ages 1-12) living at home _____
- e. Others living at pre-disaster address _____
- f. Total people living at pre-disaster address _____

Number	
M	F
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

2. Casualties (Write in appropriate number)

- a. Number with minor injuries (first aid required) _____
- b. Number with broken bones or seen by doctor (unhospitalized) _____
- c. Number hospitalized _____
- d. Number killed _____

3. Have all survivors been located? Yes _____ No _____

4. If no, how many are missing? _____

WATER

5. Prior to the disaster, where did household obtain drinking water?

- a. Water line to house _____
- b. Well on property _____
- c. Public water faucet _____
- d. Public well _____
- e. River or stream _____
- f. Lake or reservoir _____
- g. Other _____

6. Where do you get your water now?

- a. Same place as noted above _____
- b. Water tank truck provided by _____
- c. Temporary water tank serviced by _____
- d. Other _____

7. Does this water appear to be dirty? Yes _____ No _____

8. Is your normal water supply working now?

- a. Yes, full-time _____
- b. Intermittently _____
- c. No, not at all _____

9. If paying for emergency water supply, how much are you paying and to whom?

- a. Amount _____ per _____ (100 gal.)
- b. Paid to: _____

10. Since the disaster, has anyone in the family had

- a. Severe diarrhea? _____
- b. Vomiting? _____

FOOD

11. Was family able to recover food from house? Yes _____ No _____

12. If yes, how long will it last?

- a. 1-2 days _____
- b. 3-7 days _____
- c. more than one week _____

13. Can you purchase adequate food from local markets? Yes _____ No _____

14. If no, how much food do you estimate that you will need?

- a. 1-week ration _____
- b. 2-week ration _____
- c. more than 2-week ration _____

15. Was any member of the family receiving food from any of the following before the disaster?

- a. Government _____
- b. UN agency _____
- c. Church or church agency _____
- d. School _____
- e. Charitable organization _____
- f. Other _____

FAMILY GOODS

16. Remembering that many people need help, does the family require any of the following?

Types of Goods	Quantity
a. Blankets	_____
b. Bedding	_____
c. Plastic tarps	_____
d. Flashlights/lanterns	_____
e. Storage boxes	_____
f. Clothing for adult males	_____
g. Clothing for adult females	_____
h. Clothing for teens	_____
i. Clothing for children	_____

FUEL

17. What type of cooking and heating fuel did you use before the disaster?

- a. Gas supplied by gas line _____
- b. Bottled gas _____
- c. Kerosene _____
- d. Firewood _____
- e. Other _____

18. If (a) or (b), is any gas leaking now? Yes _____ No _____

19. If (a), has gas service been restored to your line? Yes _____ No _____

SANITATION

20. What type of sanitary facilities did you have before the disaster?

- a. Flush toilet in dwelling _____
- b. Communal flush toilet in building _____
- c. Access to public toilet _____
- d. Bucket latrine _____
- e. Pit latrine (earthen) _____
- f. Other _____
- g. None _____

21. If (a) or (b), is toilet working now? Yes _____ No _____

SHELTER NEEDS

22. Will family require assistance for any of the following?

- a. Temporary shelter _____
- b. Building materials/tools for shelter _____
- c. Building materials/tools for housing repairs _____

*Sample assessment
format.*

By Intertect for the Office
of US Foreign Disaster
Assistance.

CHAPTER 9

Rehabilitation and reconstruction

Rehabilitation and reconstruction comprise most of the disaster recovery phase. This period following the emergency phase focuses on activities to enable victims to resume normal, viable lives and means of livelihood. It also includes the restoration of infrastructure, services and the economy in a manner appropriate to long-term needs and defined development objectives. Nevertheless, after some disasters, there may also be a need for continuing humanitarian assistance for selected vulnerable groups.

This chapter provides brief guidelines concerning assistance to rehabilitation and reconstruction following a disaster. Although presented here as a separate chapter, rehabilitation and reconstruction must, in fact, be actively considered and planned for either at the same time as relief, or built up during the relief operations. The material presented in this chapter is taken from the UNDP / UNDRO Disaster Manual.

**Rehabilitation**

For some agencies it is important to distinguish between rehabilitation and reconstruction. Specifically, rehabilitation is the actions taken in the aftermath of a disaster to enable basic services to resume functioning, assist victims' self-help efforts to repair dwellings and community facilities, and facilitate the revival of economic activities (including agriculture).

Rehabilitation focuses on enabling the affected populations (families and local communities) to resume more-or-less normal (pre-disaster) patterns of life. It may be considered as a transitional phase between (i) immediate relief and (ii) more major, long-term reconstruction and the pursuit of ongoing development.

Reconstruction

Reconstruction is the permanent construction or replacement of severely damaged physical structures, the full restoration of all services and local infrastructure, and the revitalization of the economy (including agriculture).

Reconstruction must be fully integrated into ongoing long-term development plans, taking account of future disaster risks. It must also consider the possibilities of reducing those risks by the incorporation of appropriate mitigation measures. Damaged structures and services may not necessarily be restored in their previous form or locations. It may include the replacement of any temporary arrangements established as a part of the emergency response or rehabilitation.

Under conditions of conflict, however, rehabilitation and reconstruction may not be feasible. For obvious reasons of safety and security, activities in rehabilitation and reconstruction may need to wait until peace allows them.

Priorities and opportunities in rehabilitation and reconstruction⁷

The disaster occurred because the society was vulnerable to the impact of the hazard concerned. Rehabilitation and reconstruction must therefore not be seen as a process of simply restoring what existed previously. The need is rather to develop strategies and modalities to reconstitute services and renovate or replace essential structures such that vulnerability is reduced. These strategies must include long-term development policies and plans which take account of the current situation including any basic changes resulting from the disaster.

The disaster may, in fact, have created new opportunities for development by changing the environment and the point of departure, both in terms of physical structures and/or social patterns and attitudes. It will certainly have heightened awareness concerning disaster risks, and both the local populations and national authorities are likely to be especially receptive to proposals for risk reduction and preparedness measures. Such opportunities must be recognized and seized in the planning of rehabilitation and reconstruction projects, as well as in the formulation of new, long-term development programmes.

Assistance to rehabilitation and reconstruction must therefore be planned on the basis of a thorough assessment and appraisal of the technical and social issues involved. While the planning of such assistance cannot not be unduly rushed, it must be accomplished as expeditiously as possible. There are two reasons for this:

- Certain rehabilitation and reconstruction measures, if organized rapidly enough, can shorten the period for which emergency relief assistance is needed and eliminate the need to invest resources in temporary measures.
- The “window of opportunity” may be short for the incorporation of risk reduction measures in reconstruction (of housing, for instance) or for new development initiatives (especially social aspects).

Seasonal factors must be considered and may determine the needed timetable for reconstruction, for example the replacement of emergency shelter or the rehabilitation of irrigation systems in time for the next crop.

The aim is to promote and assist recovery. Assistance during the post-disaster phase must be planned and implemented with this clearly in mind. Damaged structures and services which are essential to the society must be repaired or replaced, duly protected against future risks. At the same time, and no less important, ways must be found to help people recover, particularly those people who have the least resources to call on.

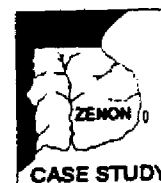
As noted earlier, “the majority of people affected are the poor.” For the poor, disasters represent lost property, jobs, and economic opportunity. In real terms they can represent an enormous economic setback. Therefore, reconstruction assistance should be designed to:

- relieve economic constraints and reduce the cost of reconstruction
- inject capital into the community
- create employment opportunities
- support and strengthen existing economic enterprises.”⁸

⁷ The rest of this chapter is taken from the **UNDP/UNDRO Disaster Manual**.

⁸ Frederick C. Cuny, quoted by Ian Davis in “Disasters and the small dwelling, progress in the past decade and key issues for IDNDR,” outline position paper, September 1990.

Timely and imaginative planning is therefore required to dovetail rehabilitation and reconstruction with short-term "relief" measures, and to make the most effective use of external financial resources, materials, and technical assistance in achieving development gains while satisfying humanitarian needs.



The danger of planning and conducting reconstruction in haste

"Post-disaster programmes—even reconstruction programmes, are often planned and carried out in haste. The rush may occur because of the reconstruction planners' perceived need to return the community to "normal" as soon as possible or because of time constraints on donor funding. Thus the sort of careful planning and community involvement necessary for development planning is often overlooked. Without such planning, these programmes may infringe on longer-term development efforts or delay their implementation. Reconstruction programmes that are ill-planned and merely return communities to the *status quo* may leave them almost as vulnerable again to a future disaster, while at the same time creating a sense of complacency because something has been seen to have been done."

From *"Disasters and Development—a study in institution building"* prepared by INTERTECT for UNDP, April 1990.

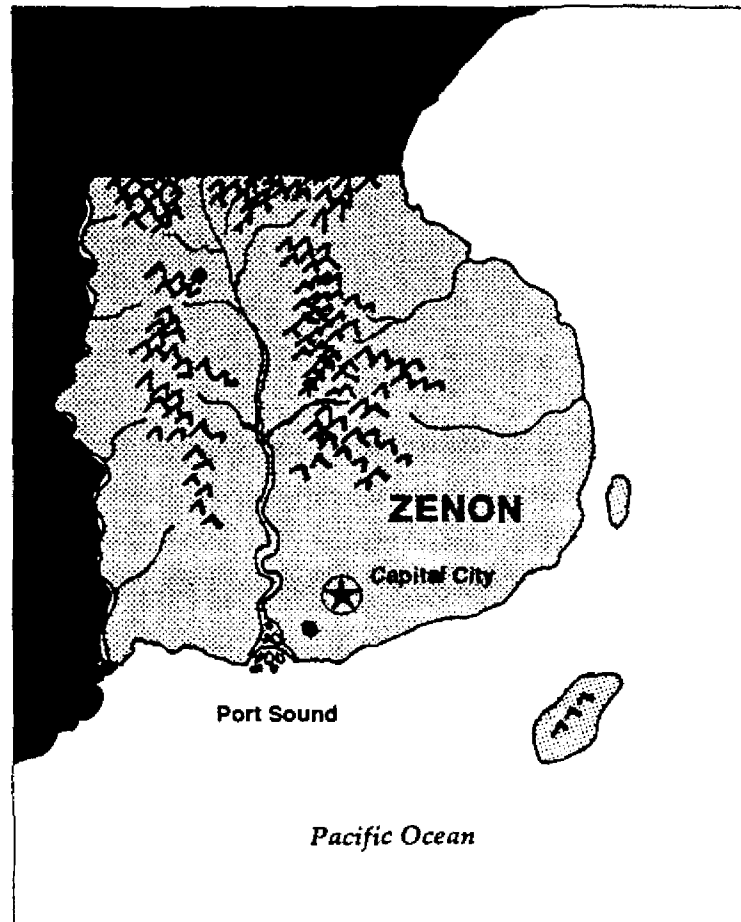
Zenon hurricane: A case study⁹

The following is a fictitious case study. However, it is constructed from events as they often occur and demonstrates how each part of the disaster system works or does not work. All of the events and actions of the agencies are based on actual occurrences.

A hurricane has been chosen for this exercise because it enables us to look not only at post-disaster actions, but also at activities that occur prior to a disaster when there is a warning period. While each type of disaster is unique, the following scenario is typical of all sudden natural disasters. Although based on actual occurrences, the examples here are intended for educational purposes only and do not reflect on the ability or capacity of any individual or agency. Most agency names are fictitious.

Your assignment is to read the following account and to analyze each management action regarding its appropriateness. That is, was the management action an example of good or bad judgment, was it the right or wrong decision, good or poor planning, was appropriate action taken upon the available information or was there oversight?

⁹ This case study has been adapted from *Disasters and Development* by Frederick C. Cuny, Oxford University Press, New York, 1983.



The setting

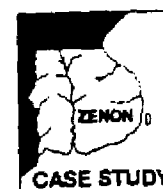
The Republic of Zenon is a small, heavily populated country situated on the coast of a major landmass in the Tropics. The land bulges out into a shallow gulf, and coastline forms 60 percent of its border. Isolated fishing villages dot the coast, but most of the fertile coastal plain is inhabited by farmers who work small subsistence rice paddies. The remainder of the countryside is mountainous, and here small farmers strive to eke a living from eroded hillsides denuded by years of deforestation.

The poverty of the mountains has driven thousands of families to the capital, which lies on the south coast of the country. Many families live in squalid shanty towns scattered throughout the city, and many have recently been moved to Port Sound, a controversial new town built on a marshy area several kilometers from the capital. Port Sound, touted by the government as a model community and criticized by the opposition as an instant slum, is less than one meter above the high-tide level.

*Chronology of events for the Zenon Republic hurricane***August 27**

Ships passing through the central tropics report a rapid drop in barometric pressure to weather stations nearby. The weather stations pass this information to the International Hurricane Tracking Network (IHTN), which soon verifies the formation of a tropical depression and notifies the surrounding countries.

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**August 28**

Satellite observation and aircraft monitoring indicate that the depression has become a tropical storm.

In Zenon, the chief weather service forecaster follows procedure and notifies the director of the Emergency Preparedness Committee (EPC). The forecaster also reviews the difference between a hurricane watch (a first-stage alert given 48 hours before a hurricane is expected to strike) and a hurricane warning (posted when the hurricane is only 24 hours away). The director of the EPC notifies a few key government personnel and suggests that preliminary actions be taken in case a hurricane should develop. One hour later, a synopsis of the storm is broadcast over the national radio system.

The public takes little notice of the storm, which is still more than 1200 kilometers away.

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August 29

Satellite photos and reconnaissance flights through the storm indicate that it is now a full-fledged hurricane. The IHTN alerts governments of the countries in the region and various international organizations.



At 2:00 p.m., the director of the EPC calls a meeting for 7:00 p.m. to bring members up-to-date on the hurricane's progress and projected direction.

Later the meeting convenes with only seven of the twelve members present. The weather service forecaster repeats the briefing. The committee asks the forecaster to predict the hurricane's path, but the request is refused. One of the committee members goes into another room and telephones the International Hurricane Tracking Network (IHTN). She is given a more detailed briefing and a description of the projected hurricane track. The briefer at the IHTN adds that in his own estimate the hurricane is not likely to strike Zenon because it is moving in a direction that will take it north of the country. The committee member returns and tells the committee what she has learned. The committee decides not to issue a statement because it would alarm the public.

Elsewhere, the monthly meeting of the Association of Humanitarian Agencies in Zenon (AHAZ) is being held. At the end of the meeting, one of the members asks what plans are being made to prepare for the hurricane. The chair replies, "Zenon doesn't have hurricanes."

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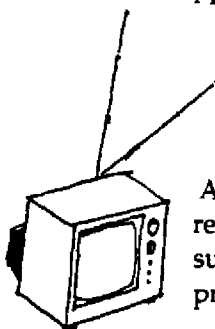
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AUGUST						
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1:00

16:30



August 30

The hurricane intensifies and begins to move in a westward direction. The radio gives hourly reports on its position and notes that it has changed direction and is now moving toward the northeastern coast of Zenon.

At 10:00 a.m., another meeting of the EPC is called. The weather service has indicated that it will issue a hurricane watch that afternoon unless the storm changes direction. The committee begins to draw up its operational plans. The first item is to find a strong building with good communications to use as an emergency operations center.

During the afternoon, meetings are held at various government ministries to prepare for the hurricane. The protection of equipment critical to the operation of each ministry is given a high priority. Building materials and sandbags are requested from the public works department to protect installations in the low-lying and exposed areas, but available supplies are soon exhausted. Precautionary measures along the coast are fairly extensive; little attention is given to areas further inland.

The Zenon Red Cross reviews its plans for dealing with the disaster. It has a series of guides issued by the League of Red Cross/Red Crescent Societies to serve as a model for its own activities. As staff review the guides, it becomes clear that most are for actions that should have been taken long ago, and there is little that can be done before the disaster strikes. Nevertheless, at the end of its meeting, the director notifies the government that "the Red Cross is ready."

August 31

At 1:00 a.m., the storm intensifies again. At 1:15 a.m., the weather service issues a hurricane warning.

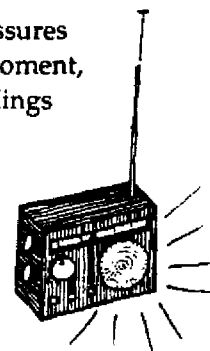
The prime minister calls the EPC to check on its activities. The director assures the prime minister that everything possible is being done. At the same moment, the EPC is trying to develop an evacuation plan and to find a list of buildings designated as hurricane shelters to give to the news media.

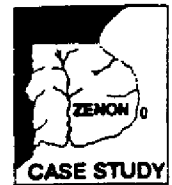
At dawn, the citizens of Zenon awake to hear the radio announce the hurricane warning. The newspaper publishes the newly found list of buildings designated as hurricane shelters, some of which no longer exist. The EPC later goes on the radio with a "new" list of shelters and urges persons in low-lying areas along the coast to evacuate.

By noon the only signs of the approaching hurricane are the rising tides along the upper portions of the eastern coast. Winds are now gusting, and there are intermittent rain showers.

Members of the EPC are running out of time. Hundreds of details remain, and each minute someone thinks of some new precautionary measure that should be taken.

At 4:30 p.m., the foreign news teams arrive and begin their live televised reports. The first story describes the profiteering in the sale of emergency supplies and shows pictures of several well-armed store owners defending their property against looters.





17:00 At 5:00 p.m., the weather service announces that the hurricane's course has now changed, putting it on a track for the central and southern portions of the country. The impact is predicted for the early morning hours of the following day. Winds are now gusting up to 60 kilometers per hour.

The EPC receives the news with great anxiety. Most of the preparedness activities have focused on the northern regions, not the south. Warnings are quickly issued to evacuate Port Sound.

17:20 Twenty minutes later, the prime minister goes on the national radio and television to issue a plea to all persons in low-lying areas to evacuate as quickly as possible. He suggests that those who cannot escape should seek shelter in churches and schools.

22:00 In Port Sound, the sea level is one meter above normal. Water is coming across the road that separates the community from the sea, and large breakers are quickly eroding the roadbed. Vehicles attempting to evacuate have stalled. The residents of Port Sound begin moving away from the sea on the only other road that links the area with higher ground, but this road is also low and crosses two streams that are now flooding. At 10:00 p.m., a bridge collapses and the people are stranded.

Word of the plight of Port Sound is flashed to the EPC. It orders an army engineering battalion to attempt to evacuate the people. The army sends a truckload of small boats to the fallen bridge but, by the time it arrives, the surface is too rough and the plan is abandoned. Twenty-five hundred families begin scrambling to their rooftops. Two thousand people will not make it to safety.



September 1

Communication from the capital to outlying areas is lost.

2:00 At 2:00 a.m., passage of the eye of the hurricane is recorded at Port Williams, 45 kilometers north of the capital. Winds in the capital reach a peak of 200 kilometers per hour.

SEPTEMBER						
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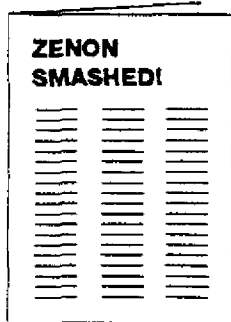
Aftermath

10:00 By dawn on September 1, the winds have subsided to 100 kilometers per hour, and a few people are beginning to venture outside to see the damage. By 10:00 a.m., winds are still gusty, but it is possible to leave shelters and other structures without too much danger.

In the capital, wind damage is severe. Almost every house has been damaged somewhat. The slums have suffered heavily, with total destruction of buildings as high as 85 percent in some areas. Casualties exceed the capacity of the hospital by 200 percent. A major disaster is reported at Port Sound, but has not yet been verified.

12:00 At noon, the prime minister orders a helicopter to take him, the director of the EPC, the Red Cross chair, and several cabinet ministers over the affected area. In their flight over the capital, the prime minister is shocked at the extent of the damage. As the helicopter moves over Port Sound, the





extent of the devastation and loss of life is shockingly apparent. The few survivors cling to the tops of the few buildings that have survived the storm. As the helicopters of the prime minister's party swoop low overhead, all aboard see frantic gestures for help.

At the Emergency Operations Center, reports are fragmented and confused. The death toll and damage are reported high in all parts of the affected area. It is difficult to discern a pattern because the reports are not submitted in any standard form or classified according to priority. The Emergency Preparedness Committee is barraged by reporters clamoring for information. Members of the EPC decide that their first action should be to conduct an extensive survey of the damage. Their second action is to appoint the Red Cross as coordinator for all emergency relief.

By nightfall, more contingents of foreign press arrive. By the next day, their reports will have made Zenon the number one news story in the world.

20:00

At 8.00 p.m., the EPC meets with representatives of the voluntary agencies and the foreign embassies. The director of the EPC reports on casualties and damage and lists the pledges of aid and assistance that have been received from other governments. The agencies ask for instructions, but it soon becomes clear that no reconstruction plans or activities have been prepared. The EPC's apparent indecision and lack of leadership is reported to the prime minister.

All through the night, casualties continue to arrive at hospitals and aid stations in the affected zones

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September 2

At 7:00 a.m., the prime minister announces that he has taken personal command of the emergency operations and reconstruction and has appointed a new Disaster Relief Committee to take over from the EPC.

7:00

In the foreign ministry, offers of assistance are pouring in. At the airport, the first flights of relief goods are arriving. They consist of tents, medicine, blankets, and military ration packs.

10:00

At 10:00 a.m., a local doctor reports a possible case of cholera. The prime minister orders mass inoculation of all persons in the disaster area.

Churches report that spontaneous donations of clothing are heavy and ask the Red Cross to arrange for helicopters to carry the donations to the mountains. The Red Cross agrees and diverts several helicopters from search-and-rescue operations. The director of the Red Cross will later lose his job over this decision.

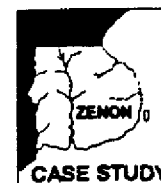
At Red Cross headquarters, the first accurate casualty reports from outside the capital are beginning to arrive. Heavy losses are reported in the delta. The largest number of casualties occurred when churches and schools used as shelters collapsed or were flooded. In one church alone, 400 people are reported dead.

The Red Cross, severely constrained by lack of resources and with no real organizational infrastructure outside the capital, asks for a meeting with the government to clarify responsibilities. At this meeting, it is decided that the Red Cross will continue to have responsibility for relief coordination in the capital and that the government will reassume responsibility for all other areas.



In the industrialized countries, televised reports of the devastation have begun to arrive. The most vivid reporting is about the tragedy of Port Sound. The story depicts the ineptitude of the government and ends with a statement that, unless massive international assistance is received, survivors will starve to death. Overnight, relief agencies report donations in excess of half a million dollars.

Several agencies decide to send their disaster officers or senior personnel to the area to assess needs and to coordinate emergency activities.



September 3

The airlift of aid continues. The majority of aid is provided by foreign governments, many of which have stockpiles of relief goods. Shipments from nongovernmental agencies also begin to arrive. Some of these materials, especially aid from governments, come from stockpiles, and these are sorted, bundled, and well-marked. Other materials are simply packed according to size, with each bundle containing a hodgepodge of different materials, which must be sorted upon arrival in Zenon.

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12:00 By noon, groups of villagers from remote highland areas begin to filter into aid stations to report massive destruction and heavy loss of life due to landslides and flooding in the denuded mountains. Overseas, more news stories arrive daily with scenes of death and destruction in Zenon.

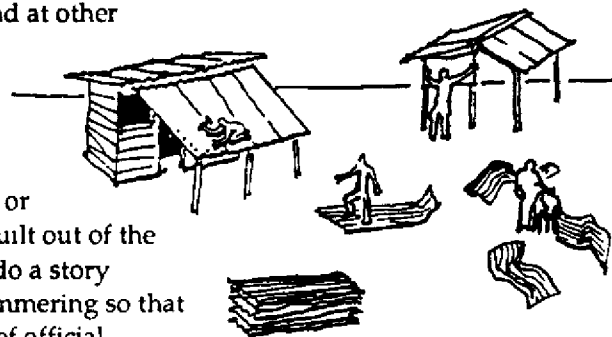
September 4

Now that certain roads have been re-opened, the government begins distribution of relief goods outside the capital. Supplies had been confined to deliveries of food and medicine by helicopter, but now truck convoys are able to take larger amounts and a wider variety of aid to the rural areas.

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At the airport, a call goes out for volunteers to help sort relief materials. The sheer volume of the material and the confusion caused by poor packaging require several thousand people working at the airport and at other sorting centers.

Throughout the affected area, a tremendous salvage effort is taking place. People are busy trying to gather up as much building material as possible, especially the tin roofs found wrapped around trees, curled on the ground, or lying intact. Thousands of makeshift shelters have been built out of the rubble. Several foreign press correspondents assigned to do a story about the need for tents ask a group of victims to stop hammering so that their sound technician can record an interview with a relief official arriving with a shipment of tents.



September 5

Helicopters arrive from the overseas military bases of a friendly government. Their first activity is to airlift a complete field hospital to the delta region.

In the capital, the Disaster Relief Committee (DRC) calls a meeting of relief agencies. To reduce duplication of effort, the government asks each agency to take responsibility for relief and reconstruction in one particular sector. A list of communities is placed on the board and each agency selects one to assist. Several voluntary agencies that have worked in the country for many years are not

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present at the meeting (later referred to as the "lottery"), and the areas where they have had extensive experience are assigned to other agencies. No attempt is made to verify the qualifications or capacities of any of the new agencies present at the meeting.

September 6

Reports of corruption and favoritism in the distribution of relief supplies are reported in the press. The prime minister asks the churches to form committees to oversee the distribution of relief goods in each community.

During the day, three different voluntary agencies call coordination meetings in separate locations.

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September 7

At 10:00 a.m., the Disaster Relief Committee calls a coordination meeting between the government and voluntary agencies to discuss housing reconstruction.

September 8-14 (Week Two)

During the week, numerous coordination meetings are held—some under government sponsorship, others at the instigation of one or more of the voluntary agencies.

Early in the week, the relief agencies in Zenon are offered large donations from foundations, intergovernmental organizations, and their own government. Most of the donors are anxious that the money benefit the victims as soon as possible; therefore they attach a restriction that the money be spent within thirty to ninety days.

Daily, new relief agencies (some "instant agencies," such as Friends of Zenon) arrive. They are assigned areas of responsibility by the DRC. Expatriate volunteers also start to arrive. Among this group are several doctors who pester local medical officials for assignments and interpreters.

Also arriving are a number of manufacturers' representatives from companies that produce small prefabricated buildings. Each claims to have the "ultimate solution" for rebuilding low-cost housing. Some houses are touted as temporary and others as permanent. The DRC, unable to choose among them, decides to hold a housing fair where the manufacturers can set up their units and show them to the public. The people's preferences will be determined and a housing system will be selected.

At a meeting of the DRC, many village relief committees report long lines for food at distribution centers. The same day, the government is offered a huge food-aid package of surplus commodities. There is one restriction: the food must be given away. Despite some opposition from farmers and cooperatives, the government signs the food-aid agreement.



At a meeting of the DRC, several agencies point out that the distribution of free aid to the victims can be counterproductive. The chair of the DRC reacts firmly, saying that to ask victims to pay for food or other aid would be against the humanitarian principles of disaster relief, and he orders that all aid be given free to the victims. Several local development groups argue that this will create dependencies, but the government is adamant.

In the private sector, architects and engineers offer their services to the voluntary agencies as advisors. At first the agencies are excited at the prospect of having this technical assistance, but they soon discover that few of the professionals are familiar with the traditional housing built by the majority of the people in the country and that their idea of low-income housing is far too expensive for most of the agencies, not to mention the survivors themselves.

September 15-21 (Week Three)

During the third week, emphasis begins to shift away from emergency relief activities to concern about interim recovery and longer-term reconstruction needs.

The prime minister, sensing a change in mood, appoints a National Reconstruction Committee to coordinate long-term recovery, but announces that the Disaster Relief Committee will remain active until all relief needs have been met.

Late in the week, groups of international banking officials arrive for talks on reconstruction loans to the government. The prime minister orders the Finance Ministry to give top priority to refinancing the national debt.

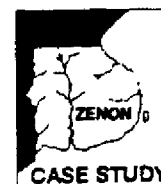
There are reports that a boom economy is developing and prices are climbing at an astounding rate, especially for materials and tools that will be used in reconstruction. The government, fearful of creating a black market, hesitates to establish price controls.

Local farmers protest the distribution of free food, and farmers' organizations report that, if the food donations continue, farmers who have been able to salvage some of their crops will have no market for them.

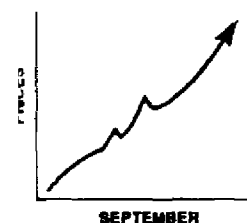
Housing reconstruction and agricultural recovery are proving difficult for some of the volunteer agencies. They cable their headquarters for permission to hire several noted specialists recommended by a local university. Fearful that the hiring of consultants will add to overhead costs that donors would criticize, the headquarters decide against hiring the specialists.

September 22-28 (Week Four)

The government announces a change in policy on the distribution of relief goods and agrees to allow sales of certain items. It also goes on record as encouraging the subsidized sale of building materials. It is left to the agencies to establish eligibility requirements. In the countryside, the differing programs and varying levels of assistance provided by each agency lead to complaints by the disaster survivors. The National Reconstruction Committee (NRC) considers setting uniform reconstruction policies. After much discussion, it decides not to set the policies, fearing that the voluntary agencies and their donors will resent such a move.

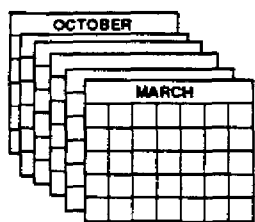


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News media in Zenon report that reconstruction programs are inadvertently helping only landowners and homeowners, because renters will not rebuild houses for fear that the owners will then force them out. The issue of the land tenure pattern and the need for land reform are not mentioned.



October-March

Aid continues to arrive. The local relief committees have been re-formed as reconstruction committees. Food aid is now arriving in ever increasing quantities. There is continuing opposition to the food program, however, especially from the Agricultural Ministry. Its fears that farmers would not replant are coming true. The ministry thus proposes a system of price supports, but the only farms eligible are the larger farms along the coast.

As reconstruction progresses, the government realizes that its policy on permanent housing is unrealistic and agrees to permit reconstruction programs to rebuild traditional housing as long as the resulting construction is "safe." The Housing Bank, however, refuses to grant loans to people working with traditional materials.

At a meeting of the NRC, the secretary reports on a survey of housing reconstruction programs. Forty-five nongovernmental organizations are involved in housing reconstruction. Twenty-nine are located in the capital or the immediate vicinity, ten are located along the highway connecting the capital and the delta, and the other six are located in the mountains. The report also shows that only 35 percent of the total area affected by the hurricane is receiving reconstruction assistance. Therefore the government must establish a housing program to fill the gaps.

Midyear

Six months after the disaster, all but a few foreign agencies have departed, claiming to have completed reconstruction of their assigned areas. The NRC surveys indicate that work is incomplete. Sixty percent of the urban residents and 85 percent of the people in the rural areas are still without replacement housing.

Midyear marks the end of the first post-disaster harvest. Observers notice a resurgence in housing demand, as people now have the time and capital to rebuild. However, only a few agencies remain to provide technical or financial assistance. Even among those agencies that want to stay, funds for continued operations are not available. To help meet the new demand, the government seeks a loan from the International Bank to finance other reconstruction activities. After two months, the loan is approved in principle, but funds cannot be made available until the next fiscal year, further delaying reconstruction.

In the agricultural sector, surveys indicate that decreased agricultural production necessitates continued food aid for another year. A report by the Agricultural Ministry that the number of small farmers has declined by seven to ten percent, and that a significant portion of the land formerly devoted to growing rice in the delta region is now used to produce cotton and other cash crops, goes unnoticed.

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