CASE STUDIES ON DISASTER MANAGEMENT

AN INTRODUCTION

Alcira Kreimer

Senior Environmental Specialist
Environmental Policy and Research Division
Environment Department

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THE WORLD BANK

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INTRODUCTION

Following are four case studies, produced jointly by the Environmental Research and Policy Division, Environment Department, and the Agriculture and Rural Development Division, Economic Development Institute, that illustrate different aspects of disaster management. The four cases were selected to cover issues raised by various types of extreme events in different regional contexts and to discuss the role of planning and management in disaster prevention and mitigation as well as in recovery situations. What links all the cases is a strong pragmatic underpinning: The inclusion of disaster prevention and mitigation in a normal development process does not only evidence good management but it is also a prudent strategy.1/

It should be noted at the beginning that the four cases included in this set are not a comprehensive or representative group. In selecting and preparing them we had to face funding and time restrictions, which certainly imposed limitations in how much it could be covered. Thus, by necessity, they only deal with a limited number of important issues. Additional essential questions relevant to disaster management such as (a) vulnerability and management for different kinds of disaster agents, (b) disaster communications, (c) NGO response to disasters and their intervention in disaster prevention, (d) mechanisms for community participation and (e) the two way relationship between environmental degradation and disasters are among the many issues that still remain to be addressed and covered in future efforts.

Taking into consideration this caveat, the cases are intended to help examine the effects of disasters on development activities and of the dynamic effects of development activity on disaster vulnerability. The four cases included in this set comprise the following:

(a) An analysis of vulnerability in the energy sector in Costa Rica;

(b) A discussion of disaster prevention and mitigation planning and implementation in a composite country in Asia;

1/ For a discussion of the economic aspects of disaster prevention see the paper by Mary B. Anderson "Analyzing the Costs and Benefits of Natural Disaster Responses in the Context of Development," Environment Working Paper No. 29, The World Bank, May 1990.

(c) A discussion of sectoral post-earthquake reconstruction in Nepal; and

(d) An analysis of coordination of international aid for post-flood reconstruction in Sudan.

We hope that the pre and post-disaster, cross-regional, multi-hazard perspective of the cases will help to ensure a balance in the presentation of relevant issues and will promote a cross-fertilization of experience. None of the cases focuses on immediate post-disaster relief activities. In fact, the relationships among pre-disaster planning, medium term emergency recovery and development are the main emphases of the exercise.

The cases included in this set do not presuppose familiarity with disaster management. They have been prepared in a flexible fashion to allow trainers to use them in different ways. It should be specifically noted that they are not intended to reflect on the effective or ineffective handling of a pre or post-disaster situation by anyone in local or international organizations.

It is expected that these cases on disaster management will help to:

(a) improve understanding of the relationship between socio-economic/physical activities and vulnerability;

(b) identify development alternatives and mechanisms that would promote a better utilization of resources for preventing and mitigating the disruptive impacts of specific disasters; and

(c) develop learning tools on planning and management that can be shared worldwide and thus multiply many times the beneficial impact of the specific case studies.

BACKGROUND

Over the last decades natural disasters have increased in number and impact, seriously hampering the development process and requiring a substantial reallocation of resources from development to relief and reconstruction. Vulnerability to natural disasters is increasing due to population growth, rapid degradation of the environment and deforestation, location of industries or large public works in high risk areas, and concentration of infrastructure and population in disaster-prone zones. The potential for a global climate change in the next decades underlines the severity and complexity of the problem.

The Bank has a long tradition of working with countries affected by natural disasters. Understandably enough, the majority of the Bank's reconstruction projects are concerned with the welfare of the disasters' human victims and have focussed on rebuilding infrastructure and productivity in the disasters aftermath. In a retrospective review of Bank emergency recovery projects currently under preparation it has been suggested that more efforts should be made to ensure preventive measures to protect future development efforts from falling victim to potential catastrophes. More attention is now being paid to repairing the environmental effects of disasters, and to preventing the environmental degradation which can augment and generate future natural disasters

The most recent emergency operations financed by the Bank include a project under preparation in India, loans to Western Samoa, Bangladesh, China, Jamaica, Pakistan, Sudan, Nepal and India, as well as restructuring of a number of ongoing operations (Costa Rica, India, Mexico, Bangladesh, Jamaica, Nepal, and Sudan) to respond to recovery needs. Considering both new financing for emergency recovery operations and reallocations from existing operations, the total amount of Bank financing for post-disaster assistance in FYs 88 and 89 amounted to approximately US$ 2.0 billion. This significant amount indicates that the need to increase the resilience of member-countries to disasters is an urgent priority.

The 1990s have been designated by the United Nations as the International Decade for Natural Disaster Reduction, IDNDR. The goals of the Decade are (a) to improve the capacity of each country to mitigate the effects of natural disasters expeditiously and effectively; (b) to devise appropriate guidelines and strategies for applying strategic knowledge; (c) to foster scientific and engineering endeavors to disseminate existing and new information related to the assessment, prediction, prevention and mitigation of natural disasters; and (d) to promote programmes of technical assistance and technology transfer, demonstration projects and education and training concerning specific hazards and locations.

The overall objective in the preparation of the training cases included here is to assist Bank-member countries in the dissemination of disaster planning and management techniques. By doing so, it is expected that this effort will help to reduce the vulnerability of those countries to extreme events and to address the urgent need to promote a better understanding of disaster prevention and mitigation. The specific objective of the cases is to provide assistance to Bank operations in the implementation of two recent operational directives: Operational Directive 4.00, Annex A, Environmental Assessment, and Operational Directive 8.50, Emergency Recovery Loans. Both directives include specific recommendations concerning (a) the assessment of vulnerability to natural disasters, and (b) the integration of prevention and mitigation concerns in Bank-financed operations.

In preparing each case study, special attention was placed on the analysis of vulnerability and of efficient disaster management mechanisms, in order to highlight the effectiveness of different methodologies and techniques for dealing with risk. The cases were prepared with a view to training trainers and officials in different national institutions (e.g., ministries of the interior and government), sectoral agencies (e.g., environment, public works, rural development and agriculture, housing, education and health), and local agencies (e.g., municipalities). The discussion in the four cases includes economic, technological, institutional, and organizational aspects of disaster prevention, mitigation and post-disaster recovery.

THE CASES

I. Vulnerability Study of the Electrical Sector to Natural Hazards: A Case Study of Costa Rica.

This case was prepared as a result of a joint effort between The World Bank and the Organization of American States. It illustrates strategies concerning the analysis of vulnerability in one sector, energy, and could be adjusted, as needed, in future efforts, to analyze the vulnerability of other sectors in the economy.

The recent earthquake in Ecuador (1987), which substantially impacted the energy sector has sharply highlighted the need to focus attention on the impact of extreme events on the supply of energy. The Costa Rica case focuses on the potential negative impacts of different extreme events such as earthquakes, landslides, floods, drought, and volcanic eruptions. The case addresses the issue that mitigating the impacts of natural hazards on the energy sector is a problem that confronts limited resources and requires efficient investment decisions. It illustrates the basic issues that need to be considered in a preliminary analysis of alternative strategies for mitigating the impact of different extreme events on the sector. The case focuses on the different courses of action that are possible given the characteristics of the sector and the range of consumers. It highlights the fact that the choice of action is complicated by the interplay between the composition of the service sector and the demands placed on it. Specifically the case promotes the discussion among presenters and participants concerning alternative viable courses of action depending on the government's policy orientation.

Costa Rica was identified as an interesting case due to the fact that it has one of the most extensive electrical energy networks of any developing country, and that the sector's natural hazard vulnerability is directly linked to the overall well being of a large sector of the population. The authors summarize the main questions as follows: (a) What natural hazard mitigation strategy may be selected since different strategies achieve different, sometimes competing purposes? (b) To what extent should the chosen strategy be as broad as possible to address

simultaneously the major concerns of the sector itself (investment, income) as well as those related to energy consumers (employment, export earnings)? (c) Do effective strategies need to be so specific as to include or exclude vulnerability reduction of one geographical area or one consumer group? (d) What criteria other than economic efficiency may have to be introduced to evaluate proposed strategies if political and technical issues are to be resolved?

As mentioned above, this case could potentially be complemented in the future with parallel cases addressing the vulnerability needs of other sectors in the economy such as agriculture, industry, tourism, urban infrastructure.

II. Disaster Prevention and Mitigation in Lada: A Case Study of Problems and Options in Planning and Implementing in a Composite Country.

This case, prepared by Dr. E.L. Quarantelli, of the Disaster Research Center, University of Delaware, illustrates the types of issues that need to be addressed in planning disaster prevention and mitigation concerning extreme events that may have an impact on socio-economic development in developing countries. In this case, rather than using a real and specific country context as was done in the other three cases, the country discussed is a fictitious entity. In planning the overall set of cases to be covered in this effort, it was felt that the use of a composite country for one of them would provide certain allowances that could productively complement the concrete experiences described in the other three cases. A composite country makes possible the presentation of a fuller range of problems and possible solutions in dealing with disasters that would not all likely be present concurrently in any give country. It also permits the presentation of issues that may be sensitive, thus, not easily described in a concrete case. And, last but not least in Quarantelli's words "it forces a greater use of the imagination on the part of the user, a desirable goal in any planning exercise."

In preparing this case for study a major effort was made to indicate local issues and characteristics upon which disaster planning can be based, such as the existing ways of coping with emergencies at the local community level. This case also underlines the fact that disaster planning cannot be too narrowly focused, that is, that it needs to be integrated into developmental planning. The case illustrates some issues that may play a role in setting up disaster planning strategies and mechanisms, such as bureaucratic rivalries, the need to involve many different constituencies in the process, and the tradeoffs existing in giving priority to relatively infrequent and uncertain events in light of other pressing socio-economic problems that afflict poor countries.

III. The Nepal 1988 Earthquake: A Case Study of Sectoral Post-disaster Response

The case of reconstruction in Nepal after the earthquake of August 1988, focuses on the reconstruction of two specific sectors, housing and schools. The author, Mary Anderson, suggests that this situation could be used to teach either disaster management, or as a case to prompt exploration of the relationships between disasters, disaster response and development. If the first option is adopted, the focus of the discussion would be on the factors in the country that one should consider for planning and implementing effective recovery strategies. During the case discussion, participants should be guided so as to analyze the two Bank-financed projects, as these relate to the in-country factors, and to analyze the efficiency of the approaches taken in the two sectoral projects. The understanding here should be that the goal of the exercise, rather than to criticize the approach followed should be to constructively explore its effectiveness, and if relevant, other possible responses. If the case is used to teach disaster management, the pertinent issues include inter alia (a) choice of institutions to deliver disaster recovery services, (b) timing and sequencing of programs, and (c) costs.

In the second option, that is, if the case is utilized to illustrate the relationship between disasters and development, the main relevant issues are the relationship between disaster response strategy and longer-term development, as well as the impact of the disaster recovery on the overall development of Nepal. In this option the specific topics include (a) linkages relating to infrastructure, disasters and development, and (b) main elements that may cause disasters. The author suggests that alternative ideas for redesigning the two projects to ensure an even greater developmental impact may be a productive discussion topic for the case.

IV. Mobilizing International Donors for Reconstruction: The Sudan Emergency Flood Reconstruction Program.

The fourth case discusses the mobilization of international donors for post disaster reconstruction. In it, Ronald Parker illustrates donor coordination within the complex situation in the Sudan after the floods of 1988. Post-disaster recovery situations beyond immediate relief are typical contexts where different donors converge and where a common theme to arise is the need for substantial improvement in the coordination of aid. The issue of donor coordination should be considered in a context in which the main underlying concern, in addition to recovery, should be to strengthen the capacity for local response to cope with extreme events.

This case offers a multilateral perspective of an effort to coordinate financial aid after a major crisis. It is intended as an example to highlight some of the dilemmas involved in coordinating aid after major disasters. As discussed by the Committee on International

Disaster Assistance convened by the National Research Council of the U S. National Academy of Sciences, "a central objective of international disaster assistance is to complement--not supplant--the efforts and resources of developing countries to cope with the effects of disasters."2/ That is, international assistance should (a) support existing local capabilities by helping disaster-prone countries prepare for and cope with disasters themselves, and (b) complement local capabilities by providing supplies, financial support, or specialized and technical skills unavailable locally.

The Sudan case illustrates a process of multilateral coordination for financing recovery. Because of budgetary and time constraints this case was prepared from interviews with World Bank staff supplemented by Bank documents Thus, the perspective of the Government and of the other donors, a main component in the Reconstruction Project included as the Annex to the case, are only indirectly conveyed. This case illustrates some important lessons learned, among which the following may be mentioned (a) the importance of an active involvement of the local authorities in the program, (b) the need to work in aid coordination closely with the local authorities and to build on existing coordinating relationships/mechanisms, (c) the importance for donors to be familiar with the recipient country, (d) the key role of a good leader in promoting a productive process of donor coordination, (e) the importance of evaluating early damage assessment information which could be inaccurate, (f) the fact that high damage estimates could be a counterproductive tool in mobilizing the donor community, (g) the linkages between environmental degradation and disaster mitigation, (h) the complexities involved in organizing a large mission of donors to define a common reconstruction program, and (i) the importance of avoiding the creation of false expectations on the disaster victims concerning what would be forthcoming.

CONCLUSION

Disaster management is an area in transition. We are constantly facing additional requirements, complexities, and potential threats generated by development processes, environmental degradation, mismanagement of resources, and uncontrolled growth. Indeed one of the main issued to be analyzed in the years to come is a potential climate change. Certainly there will be new topics to be discussed as development processes continue. A common thread among the cases included here is that there are no unique conclusions or solutions to the issues discussed. A main recommendation for presenters of these cases is that the range of issues discussed should evolve as needed by changing conditions, to avoid becoming fossilized as a set of unique and standard recommendations for disaster management.

2/ National Research Council, "Assessing International Disaster Needs", Washington, D.C.: National Academy of Sciences, 1979, p. 11.

It is expected that the dissemination of the four case studies included here will yield substantial benefits and assist institutions in member countries in (i) assessing vulnerability to natural hazards, (ii) strengthening the capacity for managing disaster risks, and (iii) developing efficient disaster prevention programs. It is our hope that this initiative would be a productive input in achieving the goals of the Decade for International Disaster Reduction. In turn, it is expected that the launching of the Decade will ensure a momentum in the international interest on disaster reduction activities, and an increased attention on the part of public and private sector institutions in disaster-prone countries on mechanisms to mitigate the negative impact of disasters.