A MODEL PROGRAM FOR ECONOMIC VULNERABILITY REDUCTION AND RECOVERY

This paper was prepared by the Pacific Islands Development Program for the Disaster Preparedness Strategies Seminar, March 23-25, 1983
Suva, Fiji
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The preparation of this paper and other PIDP disaster preparedness activities have been supported in part by the Office of Foreign Disaster Assistance of USAID under Grant No. PDC-0000-G-SS-2215-00.

Pacific Islands Development Program
East-West Center
INTRODUCTION

Disasters represent more than the loss of lives and property; they also represent an economic hardship on people, on a society, and on governments. There are measures, however, that can be taken to reduce losses and, by recognizing the threats, governments can take a number of actions to reduce vulnerability and ensure that post-disaster programs contribute to economic recovery as well as physical rehabilitation.

This paper describes steps that can be taken to reduce economic vulnerability to a major natural disaster such as a hurricane, earthquake, major flooding or volcanic eruption. The activities described herein are presented as a model, step-by-step program that can be adapted to serve as a guide for national planners.

A. Background

Reducing a country's economic vulnerability to disasters should be a high priority for all governments in areas where disasters occur frequently. There are several reasons for this concern:

1. Economic impact of a disaster on a nation's economy: A number of studies have indicated that disasters can severely affect the total economic output of a country and in some cases have caused a decline in the total GNP. In countries that are highly dependent on one or two crops or economic enterprises, disasters pose an extremely serious threat.

2. Impact on the balance of trade: A widespread disaster
can have an immediate impact on a country's balance of trade, especially if a substantial number of housing units have been destroyed. Unless a country has the ability to replace losses from materials within the country, vast quantities of materials and supplies may have to be imported.

3. Impact on the balance of payments: Widespread disasters often have an immediate impact on a country's balance of payments. Normally the country will experience a decline in earnings from foreign investments and must increase its volume of borrowing.

4. Possibility of increased dependence on foreign aid: If a country cannot cope with the disaster, it must seek international aid to facilitate a swift recovery. While foreign assistance can be extremely helpful, it does place additional constraints on the government and may slow moves towards self-sufficiency.

5. Competition for development funds: Disaster relief and reconstruction compete with development projects for available funds. Often a country must postpone major development schemes in order to divert funds to disaster recovery. If major disasters occur frequently, the overall pace of development can be severely affected.

B. Experience in the Region

The economic impact of disasters can be seen by examining the case of Fiji. In the last decade, five hurricanes or floods have struck the group. A sizable portion of the national budget has been reallocated after each disaster, and expenditures for reconstruction have increased dramatically during this period. There has also been
a corresponding increase in foreign aid, but the total amount of money available for both development and reconstruction, in terms of real dollars, has only seen a slight increase. The total amount of funds available for development has decreased because a greater portion has been channeled into reconstruction.

Relief operations have also contributed to raising expectations regarding the standard of housing, not only for the people within the disaster-affected areas, but also for people on the outer islands and in the rural areas of the larger islands. This has placed the government in the position of having to expand the range of housing services offered to people throughout the country to ensure equity for all. While undoubtedly this might have occurred even without the disasters, it is clear that the disasters have hastened these expectations and further increased the government's burdens.

C. Objectives of a Vulnerability Reduction Program

The objectives of an economic vulnerability reduction program are:

1. To develop methods to reduce losses.

2. To develop methods to reduce the economic impact of disasters on:
   a. individuals and families;
   b. small businesses;
   c. principal economic sectors;
   d. a country's overall economy.

3. To determine the most appropriate uses and types of foreign aid.
4. To determine viable alternative economic activities that could reduce losses.

5. To identify opportunities created by disasters for redirecting economic activities (e.g., heavy losses to coconut plantations may provide the impetus to change crops or to select other uses for the land).

6. To identify opportunities created by disasters for expanding development program activities.
The following steps are a suggested list of activities for developing an economic vulnerability reduction program. They are presented in the sequence in which they should occur, so that each step builds upon the previous.

A. Develop an economic loss profile. This profile helps planners determine what the potential losses from a disaster will be and provides the background information that planners need to establish vulnerability reduction priorities in each sector.

There are five sets of activities for developing an economic loss profile. They are:

1. Conduct a hazard and risk analysis: There are three steps involved. The first is to identify the threats. Hurricanes, earthquakes and floods are fairly easy to recognize and historic information, as well as data from international scientific organizations, can provide useful information about the hazards that may be prevalent. For hazards that occur less frequently (such as volcanic eruptions, tsunamis, and the various man-made threats such as oil spills, fires, etc.), more detailed research may be required.

Next, determine the degree of probability that any one of the hazards might affect a particular community. Historic records as well as scientific information about patterns and recurrence intervals are used to determine the probabilities.

Comparing probabilities, location and the geographic areas where disasters are likely to occur, forms the basis for a
"risk map". A risk map is usually prepared for each hazard or threat. Risk areas are usually fairly broad and may encompass whole communities or even regions.

Within each of the areas at risk, planners then identify communities that are threatened, their economies and principal economic activities. This is known as "vulnerability analysis". A community that is vulnerable to one type of disaster may not be vulnerable to others. Furthermore, not all sectors (e.g., housing, agriculture) may be equally at risk. For example, mountains may protect an area from high winds, but not flooding. Certain types of agriculture (e.g., palm trees) may be vulnerable to high winds but not to flooding.

2. **Estimate the Gross Economic Loss (GEL).** The Gross Economic Loss is the total cost of losses in each economic sector, plus the losses in investments made by both the public and private sector (for example, loss of capital investments, damages to infrastructure, and loss of raw materials).

3. **Estimate the potential Net Economic Loss (NEL).** Net Economic Loss is determined by calculating the total cost of replacing or rehabilitating damages and losses from the disaster, less the percentage of the GEL that was insured, plus the percentage of the GEL that is non-recoverable, plus the increased costs of borrowing for reconstruction.

4. **Determine the overall impact of the NEL.** It is necessary to determine the impact of the NEL in order to determine which sectors should receive priority. The impact is determined by:
a. estimating the percentage of loss that the NEL represents as a percentage of the total output in each sector and as a total of the Gross National Product (GNP);

b. estimating the country's ability to absorb the losses in each sector and in the overall economy;

c. determining the impact on economic development. The costs to economic development are determined by calculating the cost of diverting development funds to relief, rehabilitation and reconstruction, the costs that accrue from delays to normal development activities, and the additional costs that result from "accelerated modernization" (e.g., the replacement of traditional housing with more modern and more costly buildings).

The impact on economic development may not always be negative, for disasters often hasten the demise of a weak or declining sector. This permits the government to focus reconstruction resources where they can help strengthen or start new activities that can advance overall development plans.

5. Determine the social costs of economic losses. The social costs can be determined by:

a. the impact of economic losses on employment: Sectors of concern are normally agriculture, fishing, forestry, small-scale enterprise, and large industries that provide a substantial percentage of the jobs in a community.
The economic consequences may not all be completely negative. In urban areas, a "boom economy" may develop in the aftermath of a disaster, especially in the construction industry. The boom may provide a substantial number of jobs for those who have lost other sources of income.

b. the impact of relief and reconstruction on the society: There are numerous concerns of which planners should be aware. Among them are:

1) Rising expectations: Relief operations often foster the idea that the standard of living will improve in the aftermath of a disaster through the provision of better housing and substantial economic assistance. For example, countries that have attempted to replace damaged traditional houses with modern and more costly prefabricated units have often set in motion a nationwide expectation and demand for improved housing for all the people. Planners must ensure that relief operations do not encourage unrealistic expectations that cannot be met.

2) Disincentive effects of relief on recovery: Often relief operations foster a belief that government and relief agencies will assume responsibility for the total economic welfare of the disaster victims for an indefinite period of time. Victims often are led to believe that if they try to help themselves, it may jeopardize the amount or type of assistance they will receive. This serves as a disincentive and slows the recovery process, which in turn further
increases the total costs of recovery.

5. **Determine the impact of reconstruction on the private sector.** Relief and reconstruction efforts often focus on providing individuals and families with aid. Planners should remember that the private economic sector is also affected by a disaster and by relief operations. It is important that, to the greatest extent possible, relief operations should be designed to encourage the economic recovery of local producers, markets, etc. Methods for stimulating recovery may include providing "script" to disaster victims to enable them to purchase materials through local stores, providing temporary jobs for people to enable them to purchase goods through local markets, and restricting the distribution of free relief materials that compete unreasonably with goods available in local markets and that could be purchased in stores and markets in the affected area.

B. **Establish priorities for vulnerability reduction.** By reviewing the economic loss profile, planners should be able to establish priorities for vulnerability reduction. Priorities should be established in each sector (industry, agriculture, small business, etc.).

The establishing of priorities requires consultation with a wide range of groups. It is important that community leaders in each sector be consulted and that ministers, directors and supervisors of the government organizations responsible for both mitigation and response have ample opportunity to review and comment on the priorities.

C. **Prepare an economic mitigation plan.** Economic mitigation involves examining existing development plans and either
reordering priorities or initiating activities in sectors that require special attention due to disaster threats. Most activities can be carried out as part of normal development programs. The steps of economic mitigation planning are:

1. **Identify and study alternatives.** The various strategies for mitigating the economic impact of disasters are:

   a. **Adjusting normal development programs to reduce losses.** For example, certain varieties of crops that are more wind or flood resistant and that produce higher yields can often be introduced in hurricane- or flood-prone areas. Not only will normal crops be improved, but disaster losses can be reduced.

   b. **Strengthening the capacities of the private sector to absorb losses.** This is normally accomplished by encouraging the private sector to acquire disaster insurance or by developing stockpiles or reserves of important commodities. Both approaches will enable the private sector to continue at least limited operations in the aftermath of a disaster, as well as stimulate local markets.

   c. **Economic diversification.** In communities where the principal or sole source of income is threatened by disaster, governments should attempt to diversify the economy and introduce economic activities that are less vulnerable or not as vulnerable to the same types of disaster. Diversification is extremely important where economies are based on a single cash crop. It will help protect the economy not only from natural disasters but from dramatic price fluctuations on the international market.
d. **Strategic investment.** Government is often able to encourage development away from hazardous areas by investing, or creating a favorable environment for investment, in less vulnerable regions or communities.

e. **Developing "disaster resistant" economic activities.** For example, handicraft production is relatively unaffected by disaster. Efforts should be made to identify enterprises that are less vulnerable and to encourage their development.

f. **Expansion of economic opportunities to help mitigate losses.** Studies have shown that savings-and-loan associations, cooperatives, credit unions and other mutual economic institutions play a key role in helping people obtain funds in the aftermath of a disaster. Governments should encourage the growth and development of these institutions in vulnerable areas. Both savings and credit are invaluable assets in reconstruction and will reduce the burden on government.

2. **Select mitigation strategies and begin implementation.** After reviewing the various alternatives and strategies, a formal mitigation plan should be developed. Government and private sector leaders should review the options in a series of meetings and determine the approaches to be used. Once these choices have been made, they should be incorporated into the normal operating and development plans. To ensure that progress has been made, responsibility for overseeing and coordinating implementation should be assigned to an appropriate authority within the government.

D. **Develop an economic preparedness plan.** Economic preparedness
refers to the development of plans and programs to stimulate economic recovery in the immediate aftermath of a disaster. The actions attempt to reduce immediate economic hardship on families and institutions within the stricken community, as well as to provide methods for shaping economic recovery.

Several approaches are used to expand economic preparedness, including:

1. *Expansion of a government's ability to assist in salvage and recovery.* In the immediate aftermath of a disaster, a government should assist in salvaging and/or recovering supplies, materials, crops, etc., to reduce the total percentage of loss. For example, some crops may be partially salvagable. The usual problem is finding transport to move the recovered crops so that they can be processed or sold. Government transport networks can be extremely useful for this purpose.

2. *Improvement of infrastructure that can help reduce losses.* Certain essential services or physical infrastructure can be extremely useful in salvage and recovery operations. Efforts should be made to develop or expand the necessary infrastructure or services so that they can be used in the aftermath of a disaster.

3. *Development of stand-by programs for economic assistance.* Four types of stand-by programs can be developed, including:
   
a. *Economic relief programs for families,* e.g.,

   --- loans;

   --- grants;
subsidies;
--- material assistance;
--- temporary (or alternative) employment;
--- loan guarantees.

In many cases, emergency economic programs for families can be based on existing programs and require only a change in eligibility criteria and the terms or conditions of existing contracts. When reviewing various alternatives, planners should be careful to select programs and structure them so that they will not raise unrealistic expectations, increase economic dependency, or create disincentives to recovery in other sectors.

b. Economic relief programs for farmers. Farmers require specialized economic assistance in the aftermath of disasters. Programs may include:

--- loans;
--- grants;
--- subsidies;
--- material assistance (replacing or repairing damaged structures);
--- loans of equipment;
--- temporary (alternative) employment;
--- provision of seeds, fertilizers, pesticides or chemicals/additives to treat or protect soils.

(For further discussion of aid to farmers, see the paper, "A Model Program to Reduce Agricultural Vulnerability").
c. Economic relief programs for small businesses.

Small businesses require two types of assistance -- assistance to reduce or recover losses, and programs to stimulate recovery from lost business.

1) Programs to reduce/recover losses: Economic assistance to help businessmen replace damaged merchandise and repair facilities include:

--- loans;
--- grants;
--- subsidies;
--- loan guarantees;
--- material aid (for reconstruction of buildings or facilities.

2) Programs to stimulate recovery from lost business include:

--- issuing coupons to disaster victims that can be redeemed through local stores. Coupons can be of two types: script redeemable in merchandise or coupons that can be used for partial payment of the normal price of specific goods.

--- guaranteed credit. In the immediate aftermath of a disaster, survivors may have difficulty obtaining funds for purchasing materials through local stores. A government may wish to encourage store owners to extend credit so survivors can buy needed materials. To facilitate this process, a government can guarantee survivors credit
for the store owners.

licensing distributors of relief aid. As a means of both stimulating recovery and controlling prices, the government may wish to consider licensing certain stores to sell disaster relief materials and reconstruction supplies. The government could provide the supplies to the stores or markets at a greatly reduced price and allow them to sell the materials at a small profit. This would enable materials to be distributed at relatively low cost while at the same time allowing the small business to obtain funds for recovery.

4. Programs for encouraging institutional development. Participation in economic recovery activities can be a strong stimulus to small-scale lending institutions and other economic organizations, such as cooperatives. Governments should develop plans to utilize existing organizations for economic recovery. For example, by providing loan funds for co-ops to administer, the cooperative movement could be expanded.

Once various alternatives have been explored, government and private leaders should meet to select the approaches to be used. When a consensus has been reached, a formal economic preparedness plan should be established. The plan should become a part of the overall national disaster preparedness plan and should be periodically reviewed and updated. Participating financial organizations should be kept informed of any revisions and encouraged to develop new ways in which they can participate in the program.
E. **Determine aid requirements.** In reviewing the mitigation and preparedness programs, planners should determine if foreign assistance could be helpful in implementing the program. Direct assistance to support specific projects or schemes might be obtainable. Furthermore, foreign governments or other institutions might be prepared to enter into standing agreements for support of specific projects as part of their overall commitment to disaster preparedness. Mechanisms for activating the programs and integrating foreign aid on a stand-by basis should be established.

F. **Reprogramming foreign aid.** Some international aid organizations permit governments to reprogram normal economic development assistance for meeting disaster needs. The requirements of each of the donors should be determined and plans for reprogramming should be developed as a preparedness measure.

G. **Restructuring national debts.** In the aftermath of a disaster, many international lending institutions will allow a government to restructure its national debt to permit it greater flexibility in reconstruction. Each government should determine what the requirements are and what additional constraints or costs may be imposed by such moves. If restructuring is considered necessary, stand-by plans for initiating a request to restructure should be developed and the necessary data to analyze and process the request should be collected on a routine basis.

**SUMMARY**

Reducing a country's economic vulnerability should be a high priority of all governments in disaster-prone areas. Emphasis should be placed on integrating vulnerability reduction measures with normal
development programs to the greatest extent possible. Mitigation efforts should become a routine part of the planning process, and government officials in all sectors should be made aware of the need to include disaster preparedness and mitigation measures in their routine activities.