

## VI. DESIGNING A COUNTRY PROGRAMME WITH MITIGATION INPUTS

### A. DISASTER MITIGATION APPROACHES WITHIN THE COUNTRY PROGRAMME

As mentioned in Section V-A, UNDP should encourage and assist governments of disaster-prone countries to develop national policies on mitigation. Where appropriate, this should be one of the themes of the country programme, and relevant objectives can be set within this context.

There are a variety of approaches that can be taken to encourage governments to begin addressing disaster issues. The first problem to overcome is a government's concern that mitigation is too expensive or will compete for funding with development projects. To counter these concerns, a three-stage process is recommended. First, UNDP should help the government to initiate mitigation by providing technical assistance to identify mitigation activities that can be undertaken at little or no cost to the government. These activities are normally adjustments to new development projects to lessen the impact of hazards, revised design criteria for physical structures that will make them more disaster resistant, or changes in plans that would reduce economic losses in a disaster or at least spread the risk so that all the government's assets are not threatened by one disaster event. This process would begin with an inventory and review of existing development projects and provision of the necessary technical assistance to adjust them to meet mitigation goals.

The next set of actions should be ones designed to help the country adopt economic development strategies that would mitigate the effects of disasters. For example, in earthquake-prone countries, a basic way to improve the performance of traditional housing is by reducing the weight of the roof. Rather than developing a programme to provide roofing materials to the people, the government should be encouraged to develop pricing policies that would promote the use of lighter-weight roofing materials. For example, replacing heavy tile or earthen roofs with corrugated metal roofing sheets is considered an excellent way to increase seismic resistance in low-cost owner-built housing. In most countries, roofing sheets are imported. By reducing the import taxes -- which in most countries represent 50% of the retail cost -- a substantial increase in its use would be likely, and a corresponding net reduction in building losses in an earthquake. UNDP can help a country conduct resource inventories and recommend pricing policies and subsidy structures that would encourage greater mitigation at little cost to the government. This approach is one of the best ways to get a government to begin addressing disasters in a development context.

The second set of programme activities to consider includes training for government officials at the central, regional and municipal levels. Training is important to the creation of a constituency for disaster mitigation. Training activities should be carried out in the country and should focus on specific projects that could be undertaken at each level of government.

Long-term activities focus on institution-building and project development. Institution-building is extremely important, especially in the line ministries and in local

government. However, developing mitigation capabilities in disaster management agencies does not always yield effective results, as they rarely have the resources to implement or sustain programmes.

There are literally hundreds of good projects that can be developed to mitigate disasters using the development tools available to UNDP. Projects should focus on the most vulnerable sectors, especially: low-income housing; agriculture, livestock and fishing; small enterprises; and activities that promote economic security during times of crisis or hardship. Some examples include:

- housing mitigation programmes, including
  - improved design (seismic- or wind-resistant)
  - improved construction
  - skills and craftsmanship training
  - improved site development
- food security programmes, including
  - improved food storage at farm and community levels
  - improved food marketing systems
  - support for livestock
- agricultural vulnerability reduction programmes, including
  - soil conservation
  - soil or pasture improvements
  - introduction of drought-, flood- or wind-resistant crop varieties
  - introduction of supplementary crops
- livestock protection programmes, such as
  - vaccination
  - crisis marketing systems
  - improved pastures and reserve pastures
  - development of constant water sources
  - herd size management
- environmental protection, such as
  - dune fixation
  - reforestation
  - bio-diversity
  - passive flood protection

The following lists illustrate some other activities that UNDP or other agencies can undertake or assist governments to undertake. In addition, the Hypothetical Cases (Nos. 1 - 4 set in boxes scattered throughout the report) give concrete examples of how UNDP might provide assistance in various situations, mainly through taking the lead in reminding a government about the various opportunities for mitigation that exist in slow-onset disasters.

## EXAMPLES OF WHAT UNDP CAN DO OR ASK OTHER UN AGENCIES TO DO TO ASSIST GOVERNMENTS IN DISASTER-PRONE COUNTRIES

### DROUGHT-PRONE COUNTRIES

- Review current country programme for any drought-inducing elements.
- Ensure that existing drought-prevention efforts in the programme are implemented on schedule.
- Identify non-UNDP programmes for mitigating drought that are already in progress and could be accelerated or re-targeted.
- Through vulnerability mapping, identify areas most likely to be affected.
- Prioritise high-risk and especially arid agro-ecological zones in implementation of on-going programmes.
- Identify lead agency for drought-related matters and offer appropriate inputs (e.g., technical assistance).
- Inventory water supplies in and near target areas, and review policy for development/extraction of water resources.
- Carry out livestock analysis.
- Assess population dynamics for possible conflicts or competition between groups that could be exacerbated by drought.
- Implement rangeland management measures.
- Accelerate/implement reforestation efforts.
- Identify and implement efforts for improved agricultural production (e.g., crop substitution or rotation) and possible changes in planting cycles.
- Review grain storage on farms and in communities.
- Prepare food-for-work or cash-for-work projects for countering drought (e.g., windbreaks).
- Review and/or develop a drought early warning system; evaluate variables included in the monitoring system for relevance.
- Prepare market interventions for containing prices when first signs of drought appear.

### FAMINE-PRONE COUNTRIES (COMBINATION OF FACTORS)

- Identify areas most vulnerable to famine.
- Identify all reasons (meteorological, geographical, political, social, economic) for potential famine situation (may vary between areas).
- Identify government agencies (national and with local representation) with responsibility or ability to affect the factors identified.
- Identify programmes or projects that may have a negative or positive impact on these factors, and modify or accelerate them as appropriate.
- Identify donors and NGOs with expertise in technical areas or community organisation/motivation.
- Review marketing situation for food and livestock.
- Implement early warning system.
- Attempt to resolve local conflicts which may be exacerbating the potential for famine.
- Prepare and implement food-for-work and cash-for-work programmes.
- Review transportation and distribution system; make necessary repairs to infrastructure.

### FLOOD-PRONE COUNTRIES

- Review current country programme for any elements that might increase vulnerability to floods.
- Ensure that flood control elements within existing programmes are being implemented according to plan.
- Obtain and/or produce vulnerability maps to determine areas at greatest risk from flooding.
- Identify agency best suited to coordinate flood mitigation and other key institutions, and offer appropriate inputs.
- Target high-risk areas for immediate action.
- Inventory development programmes in these areas.
- Inventory government assets/essential infrastructure to be protected.
- Study indigenous coping mechanisms for incorporation into mitigation efforts.
- Involve NGOs in mitigation planning.
- Review and promote crop substitution of flood-resistant varieties, possible changes in planting cycles.
- Develop protected grain storage.
- Plan road and public works projects, keeping in mind the need for refuge for people/livestock.
- Prepare food-for-work, cash-for-work projects for flood-protection measures, such as embankments, and for income-generation following flood.
- Review design of water supply projects to ensure protection during floods.
- Reforest hillsides and other areas to prevent erosion.
- Dredge silted-up waterways.
- Promote flood-resistant sanitation systems.

### COUNTRIES PRONE TO ENVIRONMENTAL DEGRADATION

- Identify high-risk areas for environmental problems.
- Review national policies on development in these areas.
- Identify elements in current country programme that may promote environmental degradation and modify accordingly.
- Promote development of appropriate national conservation strategy.
- Review and improve information system so that all agencies working on development have the information they might need to avoid exacerbating existing problems.
- Accelerate environmental protection activities, such as reforestation, terracing, and so on.
- For affected areas, explore alternative economic activities which are less destructive to the environment.
- Promote population policies that will decrease pressure on environment.

## B. FUNDING MECHANISMS

UNDP has a variety of mechanisms available to it to provide funds for governments to carry out mitigation activities. From 1971-88, UNDP spent US\$34 million on 229 activities related to disaster relief, rehabilitation, preparedness and prevention. Fifty-nine per cent of these projects related to emergency relief. The funds released to finance them were drawn from UNDP's Special Programme Resources (SPR) and amounted to US\$5 million.

Financial commitment averaged \$37,000 per project. The remaining 41% of the projects addressed rehabilitation as well as disaster prevention and preparedness, and amounted to \$29 million, financed from SPR and also from country Indicative Planning Figures (IPF). The SPR component for the financing of rehabilitation and/or reconstruction activities has amounted to US\$14 million spread over 41 projects, usually direct-support and short-term in duration (two or three years) and responding to specific needs emerging from government programmes targeted to the population in the devastated area (Godfrin, 1989; Siegel and Witham, 1990).

It is, however, often difficult to fund disaster prevention and mitigation activities. As mentioned earlier, governments often view them as competing with development work -- as do many development agencies and personnel. The way that projects are funded during disasters often creates the impression that all disaster-related projects are poorly planned and executed. Therefore, one essential task is to develop projects that are fiscally sound and well-managed. For pre-disaster projects, this should be no problem since the project planning process will be the same as for normal development projects.

The problem is more acute with regard to pre-famine situations. There have been significant developments in recent years in famine early warning systems; yet despite these new capabilities, the ability to respond promptly to the warnings, with sufficient funds to counter the threat, has not yet been resolved. With the way that most funding mechanisms are structured, there must be clear evidence of a famine before money can be raised or diverted, which means that mortality must already be high before institutions begin to take action. Therefore, a high priority in famine-prone countries should be not only the development of interventions that can be activated quickly, but also the establishment of funding mechanisms that permit rapid implementation of mitigation plans. These mechanisms could include: establishing national emergency funds using counterpart currencies; developing food banks using local reserves; developing legislation that would permit the government to divert capital from existing projects on a loan basis; and so on.

In formulating country programmes and implementing specific mitigation projects, UNDP staff should explore various sources of funding, as described below.

1. IPF: Following a disaster, a government may propose a re-orientation of its country programme funded under the IPF in order to divert funds to technical assistance purposes which will alleviate the impact of the disaster on the afflicted population and on the country's development (UNDP, 1980). In practice, most governments are reluctant to use the IPF for disaster-related purposes, including mitigation. Where they do not see the linkages between disasters and development, they are often reluctant to divert funds, and they may think that disaster funding, even for mitigation, should come from another source. However, some countries have re-oriented their country programmes following a disaster, such as Jamaica after Hurricane Gilbert in 1988. This catastrophe was used as an opportunity to contribute to a series of structural changes in national resource management in the rehabilitation and reconstruction phase.

2. SPR: UNDP can grant up to US\$50,000 to a government right after a disaster strikes, a sum usually matched by UNDRO. In addition, up to US\$1 million in SPR funds can be used for rehabilitation after a given disaster, some of which should be used for institution-building. Last year, a third use was established: disaster preparedness. Present limited available funds will be used to finance awareness creation activities and other catalytic activities which could include mitigation initiatives requiring modest UNDP inputs. UNDP intends to ask its Governing Council for increased resources for these activities in the future (Joseph, 1989).
3. Appeals: As UN coordinator for a disaster, UNDP helps formulate appeals on behalf of the government to UN member countries. Donors may respond to an appeal by giving the money directly to the government, by contacting NGOs or other institutions to carry out a project, or by contracting private sector companies to carry out a project on behalf of the government. Appeals are generally designed more to meeting immediate human needs than to initiating mitigation efforts for a possible future disaster.
4. Counterpart Funds: Counterpart funds are the proceeds from sales of commodities (and sometimes hard currencies) in the general market. The commodity is given to the government to sell at auction, and the proceeds go into an account in the central bank; joint signatures are required to withdraw and use the funds, and expenditures must meet certain criteria set by the original donor. These criteria usually include emergency or disaster purposes. Major holders of counterpart funds are usually the U.S., the European Economic Community, individual European governments, and the World Bank.
5. Local Currency Accounts of Donors: Donors often hold large sums of local currency on hand in their own accounts as a result of sales of items such as disposable equipment. These funds can often be used for emergency operations extending to mitigation efforts, but the amounts available are generally fairly small.
6. Blocked Currency: Large corporations doing business in the Third World often have difficulty converting local profits to hard currency due to governmental currency restrictions. In many cases, these corporations have large local currency accounts that they cannot use and cannot convert and export. The money in these accounts is called "blocked currency". Since inflation may erode the value of the money, many companies are willing to sell it at a substantial discount, thus recouping at least some of its value. Corporations can sometimes be persuaded to donate the currency as a charitable contribution if they can obtain a tax credit close to the original hard currency value of the account.
7. Debt-for-Equity Swaps (Debt Swaps): The term "debt-for-equity swap", or "debt swap", refers to a scheme where non-performing loans held by private foreign banks are sold at a discount to an organisation operating in the country that borrowed the money. The organisation buys the note in hard currency at a discount from the creditor. It then presents the note at a special window of the country's central bank where the country buys back the loan in local currency. Often a broker is contracted

to work out the details; these are formalised in a treaty that sets out the rate at which the buy-back will occur and the amount of local currency that will be paid against the face value of the note.

Debt swaps were very popular several years ago, but recently enthusiasm cooled when it became evident that large corporations were using the local currency for their operating expenses and not to support new investments in the country. However, most countries have continued to encourage debt swaps where they have been assured that the money will be used for development or disaster purposes. In 1989, UNICEF was able to arrange a debt swap from a consortium of Swiss and Belgian banks that was used to finance a major water programme in Sudan. In some cases, banks can be persuaded to contribute a non- or weak-performing loan as a charitable gift and receive a sizeable tax write-off (often at, or close to, the original value of the loan).

Debt swaps are a good way to obtain sizeable quantities of local currency for longer-term activities such as mitigation.

## C. COORDINATION

1. The Role of the Resident Representative (ResRep): UNDP has an important role in coordinating both disaster assistance and pre-disaster planning. UN General Assembly Resolution 36/225 stipulates that "...in response to a request for disaster relief from a disaster-stricken state, as necessary, and in particular in disaster-prone countries, the United Nations Resident Co-ordinator shall, with the full concurrence, consent and participation of the Government, convene meetings of the concerned organs, organisations and bodies of the United Nations system to plan, monitor and take immediate action to provide assistance." The ResRep is *ex officio* the representative of UNDRO at the country level and during emergencies serves as the focal point for coordination within the UN system and in many cases for the entire international community, especially the bilateral donors.

This mandate puts the ResRep in a key position to influence disaster preparedness and prevention activities. In many famine-prone countries, for example, UNDP chairs and hosts food security committees made up of donors and local government officials. In flood-prone countries such as Bangladesh, UNDP has played a vital part in providing technical assistance for the development of flood preparedness programmes for the country in general and in the sectors of agriculture and irrigation. Recently, UNDP technical assistance has helped the country begin the process of developing a national flood policy.

In countries faced with long-term complex emergencies, UNDP has begun to establish special emergency units to develop responses to the ongoing problems. In Sudan, Ethiopia, Somalia and Mozambique -- countries that face famine and civil conflict -- UNDP emergency units serve as focal points for information and help the ResReps coordinate international assistance and supervise special projects. In some cases these units have moved from strictly emergency response and coordination to helping the

countries to develop disaster mitigation activities. For example, in Sudan and Ethiopia, the units are providing technical assistance to help the governments examine a broad range of food security strategies that would help reduce food shortages during droughts.

2. Coordination Difficulties and Issues: The international disaster "system" is not a true system; rather, there are many different organisations that provide different types of assistance at different levels. In any situation, these groups may band together formally or informally to provide relief or to try to mitigate an impending disaster. Some organisations act in the capacity of fund-raisers; others act as donors. Some provide funds directly to the people while others operate through the government or through other agencies.

Within this *ad hoc* structure, coordination can be very difficult. NGOs are often preferred by donors as the primary operational agencies in times of emergency, but their role in pre-disaster preparedness and mitigation is less prominent. While many agencies specialise in disaster response, few have significant capabilities in pre-disaster assistance. Because of these structural deficiencies in the system, UNDP must often plug gaps by arranging for the necessary services either from the host government or other agencies.

Coordination in this environment becomes even more critical than in normal development activities, and can be difficult to achieve. Beyond periodic meetings, it requires:

- agreement about the approaches to use for specific problems;
- comprehensive strategies that provide an integrated framework which builds on the strengths of the agencies involved; and
- an overall conceptual framework or "vision" of what is needed (i.e., all agencies should be moving toward a common goal).

It is often difficult to get organisations to share information about their activities. This may be attributed to an unwillingness to take the time to prepare the necessary paperwork, a reluctance to share ideas that are not yet approved by their headquarters, or simply competitiveness among agencies, especially if funds are short. In complex emergencies involving civil war or ethnic conflicts, or in cases where agencies may be having a difficult time with the host government, some agencies may be hesitant to give out information that they feel will compromise their work or create operational difficulties. If an agency is not sharing information, it is important to try to determine the reasons and see if they can be overcome.

3. Coordination Instruments: A number of instruments can be used to enhance coordination. The most common are the project document and procedures spelled out



to effect coordination among the participants, and the national strategy and/or country programme documents. In addition, there are:

- standards, protocols and standard operating procedures;
- operating agreements;
- standardised reporting procedures and formats; and
- budgets.

#### D. PLANNING CONSIDERATIONS

When developing a mitigation strategy for a country, planners must take the following into consideration:

1. Institutional Capacity: Many governments simply do not have the capacity to undertake some disaster mitigation activities within the existing governmental framework. Much mitigation work requires a field-oriented approach and strong local support. UNDP staff should realistically assess regional and local governmental structures before undertaking projects. Strengthening local institutions through technical assistance and/or small inputs of supplies and equipment may yield impressive results.
2. Governmental Priorities: The most successful mitigation activities are those that fit into or support a government's long-term development priorities. Mitigation planning should begin with a careful assessment of these priorities and determine where activities can be integrated into ongoing or planned activities.
3. Cost: Planners must realistically assess the cost and benefits of proposed disaster prevention and mitigation projects. Since governments are likely to view these new activities as competing for funding, it is usually best to start out with low- or moderate-cost projects until the government can see the benefits.
4. Constituency: There is no natural constituency for disaster mitigation or prevention in a developing country. Most governments are only now recognising the importance of mitigation to their overall economic well-being and development. Few civil servants are concerned with disasters, and rarely more than a handful of professionals in the private sector focus on the problem. Therefore, one of the key tasks of UNDP is to create this constituency through educating decision-makers, institutionalising disaster prevention and mitigation responsibilities, and supporting institutions in the private sector and universities. These can then serve as advocates and pressure groups and support efforts with research.

### HYPOTHETICAL CASE STUDY 3 - FAMINE IN AFRICA

Country C is a large country in Africa with a broad range of ecological zones and a mixture of ethnic groups. The country has always been poor, but usually produces enough food to feed its population, which is growing rapidly. A wide range of developmental efforts have been attempted, but little overall growth has been achieved. Recurrent natural disasters often wipe out infrastructure. In addition, ethnic tensions have given rise to a low-key guerrilla war in part of the country which flares up from time to time.

Floods last year wiped out many of the crops in the country, but the economy was resilient enough to survive without external assistance. However, this year's rainfall has been below average and, because of last year's flood, some farmers were displaced until after the growing season for the main rice crop. Thus, food crop production will be low overall but especially in one district in the south. The government could probably cope through redistributing food, except that the flood also destroyed infrastructure, such as main roads, so that access to some areas is difficult. The roads have not been repaired because government workers feared attacks from guerrillas. Popular demonstrations in the capital over low wages and inflation have also diverted attention away from the potential food shortages in what, for the government, is not an area of great importance because of the insurgency and its distance from the capital. Since the country as a whole is not suffering from possible food shortages, national food stocks together with the normal quantity brought in by international donors for on-going programmes would be adequate to prevent a famine. However, it would need to be distributed in the affected area in sufficient quantity and soon enough to prevent food prices from escalating.

In this theoretical situation, UNDP worked with the government to focus on the areas of greatest vulnerability to famine in its next country programme, which were the same as those that most needed developmental inputs. While being supportive of the government's concern with current political problems, it sensitised its counterparts in the planning ministry to be sure that the area's special needs were taken into account. In the meantime, UNDP provided technical assistance and training for monitoring the situation in the most vulnerable areas, and funding to activate low-cost famine mitigation mechanisms. Many countries already have early warning systems for alerting to potential famine conditions; but even where these exist, they often are not sensitive enough, or they sometimes lack information on some critical variables such as livestock. UNDP also coordinated with the national marketing board to see that the supply of food in the market place would be adequate to keep prices of basic staples from rising beyond pre-determined levels.

UNDP provided technical assistance and used its coordination role to determine which types of aid should be made available to the area and when. In this role, it helped to promote a dialogue not only between national government and donors, but also between local government officials and NGOs, to ensure that any measures taken were locally-appropriate and developmental in nature rather than relief-oriented. For example, food-for-work and cash-for-work programmes were designed to resolve local needs (such as repair of roads) or to prevent future disasters (e.g., soil conservation and reforestation).

UNDP continued to help after the situation was resolved by providing funds so that local-level officials, now sensitised and with experience, could travel to similar regions of the country and share their new knowledge with colleagues. UNDP also helped to evaluate the efforts, so that both positive and negative experiences were documented for reference in similar situations in neighbouring countries.

## VII. INSTITUTIONAL ISSUES

### A. ROLES OF GOVERNMENT INSTITUTIONS IN DISASTER MITIGATION

As noted previously, integration of disaster concerns into development planning is not something that can be undertaken by one sector of government alone. As the matrix in Figure 4 shows, many government institutions at the national, regional and local level, as well as NGOs and some private sector organisations, should be involved in the process. All have certain expertise to offer or have responsibility for particular aspects of development which fall into the field of mitigation.

Disaster mitigation has usually been seen as the responsibility of specialised disaster preparedness or emergency coordination agencies. Sometimes, the function is placed within the executive level of government (such as an office of emergency coordination) or, in the case of larger countries, in a specialised agency such as civil defence. Figure 5 shows the most usual models. Traditionally, organisations such as UNDRO have focused on improving the capabilities of these agencies by providing equipment, technical assistance and training to improve their performance and give them the capacity to coordinate during emergencies. Despite these inputs, the results have not been encouraging. Specialised agencies often have difficulty coordinating, or coordinating with, line ministries during disasters, and even more in non-emergency situations. Furthermore, small specialised agencies rarely have good ties with provincial and municipal governments where the burden of implementing mitigation policy may be focused.

For these and other reasons, most observers believe that there has been too much emphasis placed on developing specialised disaster preparedness agencies at the executive levels of government, and not enough emphasis placed on strengthening ministries that have day-to-day responsibilities which fall into the realm of disaster preparedness and mitigation. In short, too much knowledge has been concentrated in the hands of too few and in the hands of those with the least power or opportunity to use the knowledge.

The establishment of new agencies or committees specifically for mitigation runs into other problems also. High-level committee members have other duties and will probably delegate to colleagues within existing agencies anyway. A great deal of commitment is required to continue the special purpose committees when the memory of the last disaster has faded.

New ministries or agencies face a problem of lack of respect from other agencies and/or lack of expertise unless they recruit staff from existing technical ministries. In countries with limited personnel resources, the existing ministries may be weakened through this process, making it harder to institutionalise these activities in the long run. New agencies may also suffer from envy or resentment if a donor provides them with equipment and supplies, salary top-ups or other perks not generally available to government offices. Problems of overlap of mandates will also almost always occur.

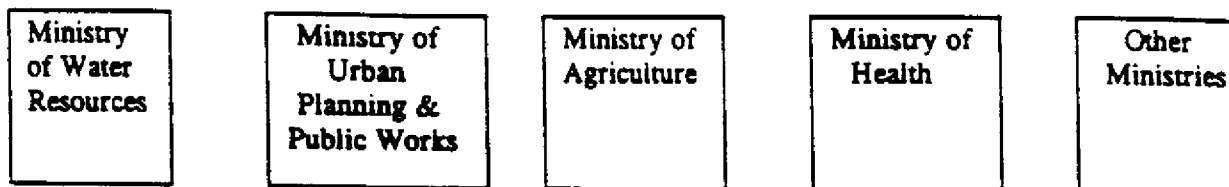
**FIGURE 4: GOVERNMENT SECTORS INVOLVED IN  
MITIGATION AND RELATED ACTIVITIES**

	Agriculture/ Forestry	Water Resources	Nutrition/ Health	Community Development/ Local NGOs	Education/ Universities/ Tech. Institutes	Planning/ Institutional Development
<b><u>Hazard analysis</u></b>						
Geological	X	X			X	
Meteorological	X	X			X	
Hydrological		X			X	
Environmental	X	X	X	X	X	
Epidemiological			X			
<b><u>Vulnerability analysis</u></b>						
Structures and infrastructure adjustments	X	X		X		X
Cropping patterns	X					
Health conditions			X	X		
<b><u>Preparedness</u></b>						
Early warning	X					
Organisation						X
Legalisation						X
Planning	X	X	X	X	X	X
Education/training	X		X	X	X	X
<b><u>Mitigation (General)</u></b>						
Development of overall strategy						X
Risk reduction	X		X	X	X	X
Review of projects						X
<b><u>Prevention</u></b>						
Land use	X	X		X		X
Physical adjustments	X	X		X		

**FIGURE 5: MODELS OF INSTITUTIONAL FRAMEWORK FOR DISASTER AGENCIES**

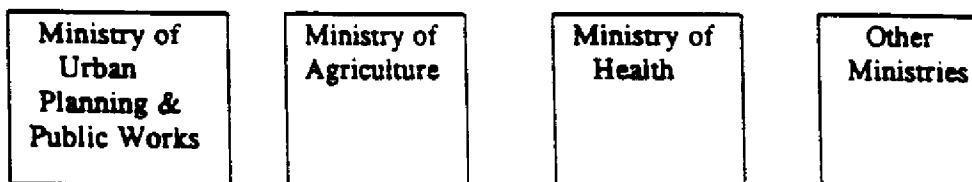
**MODEL 1**

**Pre-Disaster Planning  
within Executive  
Minister's Office**

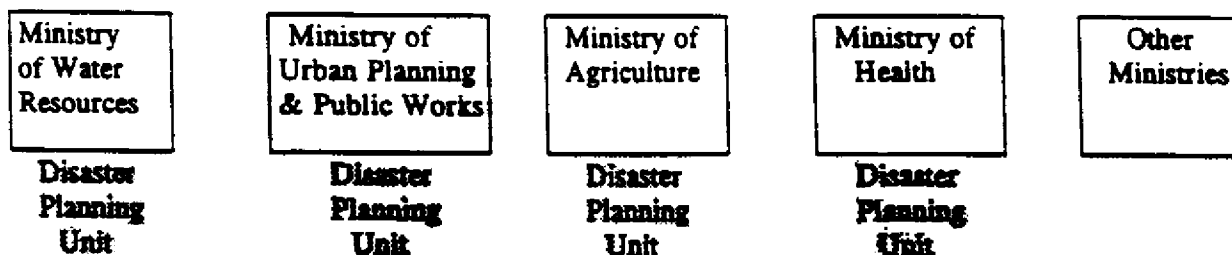


**MODEL 2**

**Ministry of  
Disaster  
Planning**

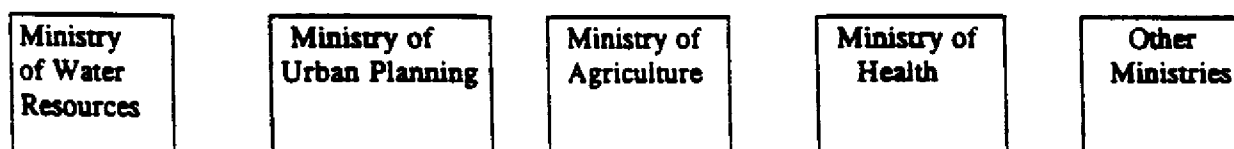


**MODEL 3**



**MODEL 4**

**Disaster Response Council**



**Key:**

**Pre-Disaster  
Planning**

**Government  
Ministries**

Source: Lohman, 1990

When using a broader "disasters and development" approach focused on grassroots organisations, it becomes clear that a much greater range of agencies needs to be developed and strengthened to support disaster mitigation. Strengthening should begin at the local level, enhancing the capabilities of municipalities and provincial governments. Line ministries that play key sectoral roles in disaster-related issues should also be strengthened. Only after the capabilities of these institutions have been expanded should UNDP focus on strengthening the coordination role on the central level. At that time, the coordination needs and the organisational structures required will be clear. This approach to institution-building should also help in the sustainability of mitigation efforts.

## **B. WAYS THAT UNDP CAN EXPAND AND SUPPORT MITIGATION EFFORTS OF GOVERNMENT AGENCIES BY SECTOR**

The case studies have brought out many sectoral mitigation efforts used in various situations (see boxes below). Similar activities could be supported by UNDP elsewhere through technical assistance, moderate funding levels, inputs of supplies and equipment, and/or coordination or programme development support from the UNDP disaster focal point or other staff. Most of these activities could be implemented by line ministries in other countries through small adjustments to their existing programmes. Through doing so, the sectoral agencies will gain experience and strengthen their capacity for mitigation, and planners will become sensitised to the issue.

### **AGRICULTURE**

- strengthening research, extension and training facilities to attain crop diversification
- strengthening seed production (to withstand drought, flood)
- establishing flood protection measures around existing food warehouses
- building modern grain silos and warehouses at district level for safe grain storage
- exploring production incentives
- promoting intra-rural migration where no other solutions exist
- establishing seed reserves
- establishing or increasing food reserves
- exploring tax/loan incentives for increasing cultivation of drought/flood resistant crops
- increasing areas under cultivation
- increasing supply of improved agricultural inputs
- promoting terracing and other conservation techniques
- delineating special agricultural development areas
- expanding agricultural credit
- establishing alternative employment for drought-affected farmers

### **COMMUNITY DEVELOPMENT**

- education at local level about affordable mitigation measures and orientation on how to undertake them as individuals
- organisation of local groups for community mitigation projects
- training of community leaders in mitigation issues

#### FORESTRY

- planting trees and other vegetation to deter flood damage
- establishing new tree plantations
- encouraging strip planting of roads
- supporting nursery development
- using tree-planting projects for income-generation and employment projects (food-for-work, cash-for-work)
- adopting tax incentives for maintaining forested land
- promoting all aspects of forestry development (reforestation and afforestation, wildlife, soil and water conservation and research)

#### FISHERIES

- supporting development and management of aquaculture in floodplains
- expanding fish culture in large, shallow bodies of water
- increasing fish culture and development in open water
- raising embankments around fish ponds

#### LIVESTOCK

- training field assistants and farmers in livestock care, including protection of livestock during floods, emergency feeding during natural calamities, preliminary diagnosis and treatment of diseases following flooding, etc.
- preparation of feeding centres (cattle camps) for livestock, to be implemented in pre-famine conditions

#### RURAL INSTITUTIONS

- constructing drains, culverts, bridges, feeder roads
- building new villages, and/or new public buildings (schools, government offices) in existing villages, above normal flood level
- sinking tubewells in elevated positions
- establishing realistic building codes with incentives and enforcement mechanisms

#### URBAN INFRASTRUCTURE

- constructing embankments around key public works and offices
- establishing building codes with incentives and enforcement mechanisms
- promoting low-cost insurance for resistant structures

#### WATER MEASURES

- building structures (barrages, etc.)
- expanding small-scale irrigation schemes
- constructing subterranean dams

#### INDUSTRY AND POWER

- constructing dykes around power substations, raising substation premises and constructing control rooms

#### ROADS AND HIGHWAYS

- raising height of roads
- integrating road networks with flood-control measures
- improving construction standards so raised roads can serve as refuges for people and livestock

#### EDUCATION

- setting improved construction standards (e.g., 2-storied, flat-roofed, elevated pillars) so that schools can serve as refuges
- locating schools out of highest risk areas, where possible
- incorporating mitigation issues into educational programmes at all school levels, both under formal and non-formal educational structures

#### HEALTH

- establishing health facilities in high-risk areas
- expanding production/distribution/stockpiling of ORS and contraceptives
- expanding nutrition surveillance programmes
- establishing emergency reserve commodity stores

#### PLANNING

- conducting inventory of capital stock, and assessment of critical installations and services
- conducting inventory of development projects in high-risk areas



### C. METHODS OF IDENTIFYING AGENCIES TO STRENGTHEN AND AREAS WHERE MITIGATION GAPS EXIST

A process of identifying specific agencies to strengthen and the needs that must be met by specialised agencies could include:

- establishing the disaster mitigation functions that should be carried out, by priority.

Most governments already have an idea of what major mitigation functions should be carried out. UNDP, either through the country programming or project development process, or with special technical assistance provided for this purpose, can help national planners and disaster specialists systematically identify and prioritise these functions.

- identifying which agency or agencies in government currently carries out these or similar functions, and which have proven or potential capacities to implement aspects of a proposed strategy.

A more detailed analysis of government sectors involved in mitigation and related activities, such as in Figure 4, individualised for the particular country and including local levels, may help to clarify the range of institutions which already have responsibilities or interests in this field and where gaps occur. Using Figure 5 to identify what type of national institutional framework exists for mitigation and other disaster issues, and what the strengths and weaknesses of this framework have been, may also be useful.

- identifying which non-governmental or private sector agencies are involved in similar activities.

In most countries, a coordinating body for NGOs exists which may already have an inventory of its members according to their activities, interests and capabilities. The government office which deals with foreign cooperation may also have this type of information for international NGOs, and the ministry in charge of community development often has a list of national and local NGOs with which it works. Informal discussions within the UN community and government offices will probably yield a reasonable idea of the NGOs and private sector agencies which already or potentially play an important role in this field.

- determining how information is disseminated both within central and regional governments, and also from the central level down through local bodies and back up again.

Where disaster-related information systems -- such as a drought early warning system -- already exist, UNDP can help government to review how these function and whether they are effective. Consideration should also be given to how other types of routine information are disseminated, how long it takes, whether an institutional memory exists for these communications, etc., in an effort to establish how best to see that important

information on disaster risks and vulnerability can be made available to planners and mitigation policy implementers.

- establishing what information exists, and where.

Besides the information available through formal government channels, technical faculties within universities may have carried out vulnerability analyses without disseminating them to national or local planners. Similarly, donors may routinely review risks for particular sectoral projects without passing the information on to interested staff in other government sectors. As well as reviewing the information available in disaster offices, an informal survey of other possible sources of information, and how to access them, would be worthwhile. This search could be lead by the UNDP disaster focal point, since the information is of interest to UN agencies.

- determining the strengths and weaknesses of the agencies and information bases identified, and what can be done to take advantage of the strengths and rectify the weaknesses.

The process of clarifying which agencies actually or potentially work in the mitigation field, and where information is lacking or not easily available, should help to point out what needs to be done to develop more effective institutions. Some weaknesses can be overcome by relatively simple measures such as training or long-term technical assistance. For example, a lack of knowledge about the links between disasters and development can be overcome by staff seminars. Lack of motivation may be modified by financial incentives, increased prestige due to involvement in an issue that the government considers important, etc. Other weaknesses -- due to personalities, political favouritism or external forces such as civil wars -- may not be resolvable but local officials and non-involved observers may have insights on how to work around them.

- establishing an action plan to overcome the weaknesses identified.

UNDP should have particular expertise to offer in developing an action plan, since the process is essentially the same as that for a project of cooperation with the government and the matters to be considered, such as objectives, methods, etc., similar. An action plan must obviously include a timetable, with responsibilities clearly spelled out.

These steps could be initiated in a national seminar or conference called for this purpose, with participation of key government staff at appropriate levels, representatives of key donors, UN agencies and non-governmental organisations and communities, and international experts to lend prestige to the event and provide technical expertise. UNDP could lend assistance with the follow-up process. In some countries, the work would be started and followed-up just as effectively through a series of lower-key meetings or by a committee, as long as high-level government officials in both the planning and disaster sectors are involved and agree with the process and findings at each step.

## D. ROLES OF OTHER AGENCIES IN MITIGATION

1. **UN Agencies:** Figure 6 shows the major roles of other UN agencies in disaster mitigation. These agencies have formal roles established by UN guidelines, but may become involved to a greater or lesser extent in particular mitigation activities according to local conditions and to the interest and expertise of staff.

Some agencies are making special efforts to become involved in this field. For example, the World Bank has recently recognised the need to strengthen support for prevention and mitigation. Recent Bank efforts in this field have included supporting a sequence of loans and mitigation efforts in countries which are particularly disaster-prone (such as Bangladesh), including mitigation components in non-emergency projects (such as the La Paz Municipal Development Project in Bolivia), and preparing free-standing prevention and mitigation projects in disaster-prone countries (the first being Mexico). Their operation policy now gives greater prominence to mitigation and prevention. In order to meet World Bank criteria for emergency lending, an operation must demonstrate that there are prospects for mitigating the impact of future emergencies (Harth, 1989).

FIGURE 6:

### USUAL ROLES OF UN AND OTHER MAJOR AGENCIES IN MITIGATION

<u>Agency</u>	<u>Funding</u>	<u>Technical Assistance</u>	<u>Training</u>	<u>Commodity Supply</u>	<u>Supportive Activities</u>
UNDRO		X	X		
World Bank	X	X			
UNEP		X			
UNCHS-HABITAT		X			
UNICEF			X	X	X
FAO/WFP				X	
WHO		X	X		
OAS		X	X		

2. **NGOs:** NGOs are playing an increasingly important role in all aspects of disasters, including development efforts to prevent or mitigate the impact of catastrophes. On the international scale, these include the League of Red Cross and Red Crescent Societies, the Save the Children Fund (UK), Médecins sans Frontières (French and Belgian), Oxfam, and many others. National agencies in disaster-prone countries

include national Red Cross/Red Crescent Societies, local branches of international agencies, and national NGOs (such as those mentioned in the Bangladesh case study). There are also local, community-based organisations that operate only in small areas.

NGOs are usually development-oriented, but because their workers see first-hand the disruption to development efforts that disasters cause, they often design their own localised mitigation strategies in consultation with their target populations. Most have strong links with community leaders and can identify practical projects or educational messages that are likely to be implemented by community members because they are acceptable and within their reach financially.

In Ethiopia, NGOs provided valuable expertise and experience in improving distribution systems, in shelter management, and in nutritional surveillance programmes. The success of the relief relationship with the NGO community and resultant close contacts have given the UN system an admirable opportunity for building up an equally productive development partnership.

Unfortunately, not all NGOs are development-oriented in their approach. This constraint applies mainly to international NGOs without a history of working at the community-level in a particular country in non-disaster times. Agencies that enter an area only after a disaster strikes are often concerned only with distributing relief assistance in the most rapid, visible way, without concern for developmental implications or preventing future catastrophes.

3. Private Sector: An important and often-overlooked opportunity is the involvement of the private sector in disaster mitigation. Many constituencies could be developed, including banks, the insurance industry, contractors, architects and engineers, doctors and other health professionals, service organisations such as Lions Clubs, Rotary Foundation, and so on. At the community level, organisations such as private cooperatives, farmers' groups, thrifts and credit unions, and fishermen's groups, should all be interested in disaster mitigation. It is often possible to attract local groups by conducting workshops and seminars and to increase general public awareness by releasing the findings of major studies about disaster mitigation opportunities.

## E. CONSTRAINTS ON INSTITUTION-BUILDING

The particular situation of the country may make it difficult to implement even a well-thought-out disaster mitigation effort if political constraints are not taken into account. As noted elsewhere, UNDP can only work with governments, which in turn limits the geographical areas in which it can work to those where the government will permit it. In countries with civil wars or insurgency movements, this will limit areas of action and curtail involvement of local level governments with any national process.

Even for governments at peace, constraints exist to development of a comprehensive policy. Some governments may deliberately wish to keep the subject of disasters rather

vague, so that their supporters will benefit in the event of international assistance in a disaster. Others will favour a particular approach to mitigation if it brings benefits to a certain area, promises contracts to certain groups, or brings patronage to supporters. Politicians may favor structural measures (dams, roads, buildings) instead of non-structural ones, because the former are more visible to the electorate. They may also favour top-down solutions instead of community-based ones, because central governments have less control over the latter. Indeed, in dictatorships or one-party states, solutions that involve communities and serve to educate or teach them to organise may prove threatening.

The political constraints on implementing policies once formulated are related to those for designing them. It is difficult for any government to turn away outside assistance, so some development projects will be accepted regardless of their potential impact on vulnerabilities. Some mitigation measures are too difficult for a government to sell to the public and survive politically (such as prohibiting development in high-risk areas, or evacuating settlers from dangerous regions). Others carry risks to a government -- for instance, distributing urban services more equitably, if it means that richer areas must suffer somewhat to serve poorer ones. In addition, governments do not like to admit they have been wrong, for example, in promoting the settlement of tropical forests; thus, such policies are not likely to be reversed even though they are later shown to have disastrous environmental consequences.

Although it may have limited effect in such circumstances, UNDP offices should use their prestige and influence with the governments involved to encourage policy modifications wherever possible. If disaster mitigation concerns are encompassed in the Country Programme and/or a national strategy exists which was developed with UNDP inputs, the organisation's position in influencing the government in their field will obviously be stronger.