Namibia

Area: 824,000 sq. km

Population: 1.5 million (1992)

Population Growth Rate: 3.21

GNP/Capita: US$1,520 (1991)

Main Natural Hazards: Drought

Chief Environmental Problems: Desertification, deforestation

Disaster Reduction Efforts to Date: Emergency Management Committee (Executive Officers of Government ministries), established in 1992 in response to severe drought; then creation in 1993 of Emergency Management Unit for disaster response; early warning system (focus on drought and famine); food security and nutrition campaign

Objectives of Workshop: Emergency management system with strong preparedness/mitigation and which "ensures that the people likely to be affected are prepared to help themselves in case of disasters"

Synopsis of country paper

The country, which features the western third of the Kalahari Desert, a central "broken escarpment" of mountains and isolated hills, and a coastal plain containing the Namib Desert, has been wracked by "continuous droughts during the last 24 years." It is sparsely populated. In terrain roughly the size of Mozambique, Namibia holds one-twelfth as many people.

Development and settlement patterns are strongly related to availability of water. According to the report delivered by the delegation at the workshop, "Water is, undoubtedly, Namibia's scarcest mineral." There are no perennial rivers entirely within the country, "although such features do form all the southern boundary and much of the northern boundary." In the countryside, "permanent settlements are found where springs or fountains are in regular evidence. Riverine settlements are found along the Okavango (River), rarely elsewhere." Moreover, "the major conurbation, Windhoek, has far outgrown the original water supply capacity which gave rise to the initial settlement."

The economy is based on agriculture — 70 per cent of inhabitants are engaged in it. There also is a mining sector which extracts diamonds, semi-precious stones, and several basic minerals, and there are fishing and resort settlements along the coast.

The environment has been damaged by prolonged droughts and by the cutting of trees for fuel; "**desertification** is a serious problem." Response to the 1991-92 drought, termed "the most serious" yet endured, led to creation of an Emergency Management Committee staffed by executive officers of Government ministries and chaired by the Secretary to the Cabinet. During the recovery process in 1994, an Emergency Management Unit was added to deal with the day-to-day aspects of disasters.

Natural disaster profile

Drought is the overwhelming threat and one of the country's chief preoccupations.

"Namibia has a lot of capacity to deal with disasters such as drought, epidemics, floods, fire, and other natural events," the initial report notes. "These, however, are not properly coordinated. The newly established EMU was given the important task of coordinating these capacities, which are situated in many different bodies, including Government ministries, NGOs, and the private sector... Since our most severe disaster is drought, the structure in place

is biased in favour of the preparation for management and logistical requirements during droughts."

Response to the 1991-92 crisis cost the Government some US$60 million for purchase of food, logistical expenses, the operation of health and nutrition programmes, and provision of water. The drought budgetary provision was made possible by 10 per cent cuts in the 1992-93 budgets of all Government ministries. Damage from the disaster to crops, livestock, and other aspects of agriculture was termed "very high," and delegates said that as a result "the economy was slowed down considerably."

Logistics and materials in place in the wake of the drought were used to respond to a 1993 **flood** which affected 1,500 people, killed three, and destroyed significant quantities of crops and livestock. Among the aid provided were tents, blankets, and clothing.

The country also has problems with **crop pests** such as the *Oestrus Ovis* worm, army worm, and locusts, but "a good measure of preparedness limits the damage of these pests." There also have been **epidemics** of plague (1975), malaria (1982 and 1990), measles (1987), and meningitis (1993). The 1990 malaria epidemic killed more than 300.

Summary of presentations and discussions

Successes: Workshop participants said the Government had effectively united different sectors of the economy to confront the drought, and had complemented the capacities of those sectors. They noted the role played by the private sector as a donor, and said the country has used democracy "as a tool of political reconciliation."

Challenges: It was felt that **poverty** — a great contributor to disaster vulnerability — has to be targeted, and that there is a need to make an inventory of national capacities for coping with disasters. Participants at the meeting also said country must guard against developing a "dependency syndrome."

Resource mobilization strategy

The country's domestic potential for responding to natural disasters was reviewed, including the following areas:

Intra-governmental cooperation: The Emergency Management Unit is well established in the Prime Minister's Office; methods should be set up for mobilizing resources from relevant ministries whenever necessary.

Private sector: Use of existing capacities was acknowledged, along with inputs and funding contributions from non-governmental organizations.

Community empowerment: It was noted that local and regional structures have recently been set up; decision making should be decentralized to spur preparedness and response.

Applied research and development: The University plays a watchdog function, reviewing Government performance, and also carries out various research projects on disaster management.

Recommendations for National Planning Framework

- The chief objective is to improve preparedness and mitigation and to strengthen local abilities to prevent and respond to natural disasters.
- The Emergency Management Unit is now established, but the regional and local structures created for coping with droughts need to be revised so that they can respond to other threats. Ten strategic warehouses have been constructed around the country to help with drought-related needs for food, and expertise exists outside the Government — particularly with the Council of Churches of Namibia, the Red Cross, and the Rossing Foundation — for conducting relief programmes.
- A major preventive step will be the establishment of rural water-supply programmes; clear estimates of costs and dates of implementation will be announced. Another serious shortcoming — lack of a telecommunications system, especially to rural areas — was expected to be resolved three months after the workshop.
- There are plans to produce disaster-management manuals in the country's seven major languages so that community workshops can be held; the Namibian Defence Force will be trained in disaster-management skills so that members can be dispatched quickly for flood-rescue operations and food distribution — at least 500 members will be trained in the next five years; and it is expected that disaster management and preparedness legislation will be enacted by the end of 1995. A comprehensive budget of activities related to disaster reduction was to be submitted to donors by March 1995.
- Disaster-response contingency plans also are being developed. Plans will be done for squatter locations "regarding health and fire hazards," and arrangements will be made to assist a minimum of 10,000 refugees and displaced persons.
- Other goals include an inventory and "paper index" of resources available in case of natural catastrophe, and the establishment of clear budget procedures.

Seychelles

Area: 447 sq. km.

Population: 72,000

Population Growth Rate: 1.1%

GNP/Capita: US$5,070 (1991)

Main Natural Hazards: Landslides, tropical cyclones, torrential rains

Chief Environmental Problems: Sea-level rise

Disaster Reduction Efforts to Date: Early warning system for tropical cyclones

Objectives of Workshop: Permanent committee to oversee disaster management and development issues; disaster-management plan

Synopsis of country paper

The Seychelles Archipelago is spread over 1.3 million square kilometres of the Indian Ocean, and since the opening of the international airport in 1976, tourism has replaced fishing and agriculture as the major economic activity. Terrain plays a key role in settlement patterns and in vulnerability to natural disasters. The three main islands are mountainous, with development largely restricted to narrow coastal plains; recent expansion often has taken place through reclaiming land from the sea. On the largest island, Mahe, there are now 85 hectares of reclaimed land; they serve as a site for sporting complexes, schools, and housing projects.

The four main groups of smaller islands "are flat and hardly one metre above sea level;" settlement there is hazardous and limited by storm risk and by high insurance premiums.

The intensity of coastal development has led to **intensive environmental regulations** to protect very fragile terrain. "The Government is very environmentally conscious and several drastic measures to protect the islands are in force," the country's initial report explains. "No buildings can be built before planning authorities have surveyed the place to see its impact on the environment. The removal of sand from the beach is prohibited so as to avoid erosion. The height of buildings should not be taller than the palm trees so that the green canopy will mitigate the effects of erosion due to torrential rains... Trees are planted on the reclaimed land as well as along the coast in order to prevent erosion, and there is a law that protects nearly all types of trees, and one that requires permission to fell any tree."

The climate includes a rainy season that lasts for more than six months. The rainfall is the direct source of the country's fresh water.

Natural disaster profile

Ten deaths were attributed to natural disasters between 1974 and 1994, and they largely resulted from **landslides** after heavy rains. The steep hillsides of the main islands leave shoreside residents vulnerable to this threat. The delegates' report noted that "a mother and child died on 30 January 1987 when a landslide crashed into their home as heavy rains continued to cause extensive damage around the islands. The cost of damage was over (US)$1 million. On 28 January 1992 a man was buried under a landslide and was only found the next day. Four

persons died in April 1992."

Tropical cyclones pose a much greater potential threat, even if deadly storms have missed the Seychelles in recent decades. The heavy population of the shorelines, the low elevations of the lesser islands, and recently rising sea levels blamed on global warming and climate change leave thousands vulnerable. The country's careful building regulations and strict attention to maintaining tree cover and other natural defences are one response. Still, it was predicted that "a direct hit by a cyclone on a major population centre will lead to significant damage and loss of life."

Currently, the Office of the President directs responses to natural disasters — an admittedly ad-hoc system. Warnings and public notices are issued against tropical cyclones, and the fire brigade deals with most emergencies involving landslides or floods. One form of mitigation is a recent regulation that reclaimed land be a minimum of three metres above mean sea level "in order to be safe from a rise in sea level and flooding."

Summary of presentations and discussions

Successes: Those attending to the workshop lauded the country's strict codes on environmental conservation; these limit erosion and bolster defenses against heavy storms, and are strongly enforced. Participants also approved of land-reclamation projects, which they said are well-performed and represent a method of government investment that can be recuperated through development.

Challenges: The disaster exposure of small island countries with small populations was discussed; such nations must spread protection and services over vast areas "with very little percentages of dry land," and there is "vulnerability to **sea-level rise.**"

Resource mobilization strategy

Domestic resources that can be applied to disaster management were reviewed.

Intra-governmental cooperation: Workshop participants pointed out that the current approach is only to respond on an ad hoc basis under the coordination of the President's Office. On the other hand, the population is small, making disaster-reduction efforts "easy to manage."

Private sector: Non-governmental organizations such as the Red Cross are established in the country and have provided relief in the form of food and clothing; funds from private donors generally are passed through the central Government to communities.

Community empowerment: There are district councils and local governments which provide good access to grass-roots level for purposes of disaster reduction.

Applied research and development: Efforts are under way to compile disaster-related data.

Recommendations for National Planning Framework

- The main intent is to create a comprehensive plan that links "natural disaster reduction and sustainable development" and also ensures "continuous interaction between Government, NGOs, and the private sector... aimed at the mastering of resources to meet an emergency."
- Existing building codes, development regulations, and environmental-protection schemes add up to helpful, basic prevention and mitigation, especially because they are strongly enforced. They are a kind of coordinated, institutional response, but organization with a direct focus on natural disasters is lacking.
- A chief difficulty, delegates said, is that currently "no meetings are coordinated on regular basis, as disaster management is dealt with on an ad hoc basis." They added that there is a lack of both short-term contingency plans and long-term planning to influence national development patterns.
- To remedy that shortcoming, steps will be taken to establish a permanent committee to focus on disaster management, and the UN Disaster Management Training Programme for Africa will be invited to conduct a workshop in the Seychelles, delegates said. In the face of the most daunting potential hazard — tropical cyclones — "the meteorological office needs to be strengthened and to become a national weather service."
- Other goals of a disaster-management plan will be to define the role of each ministry in case of crisis; to carry out and maintain an inventory of resources; to establish a distribution network; to arrange for transport and logistics; to hold regular meetings of officials and agencies responsible for mitigating and responding to disasters; and to obtain equipment, including better facilities for the meteorological office.

South Africa

Area: 1,220,000 sq. km.

Population: 40 million

Population Growth Rate: 2.1%

GNP/Capita: US$2,540 (1991)

Main Natural Hazards: Drought, floods, crop pestilence

Chief Environmental Problems: Desertification, erosion, deforestation, overgrazing

Disaster Reduction Efforts to Date: Coordination of disaster management assigned to Department of Constitutional Development; other responsibilities vested in government ministries and provincial and local agencies; warning systems for droughts and floods; research and modelling projects for drought, flooding, and desertification; water-conservation programmes

Objectives of Workshop: Disaster-management plan "involving all key stakeholders" and including prevention of land degradation that increases natural hazards

Synopsis of country paper

While the country is large and has several climate zones, vast regions are semi-arid and suffer from undependable rainfall. The national average of just over 500 mm precipitation per year is well below the global average of 860.

South Africa's large population, the rapid shift of inhabitants from rural to urban areas, and recurring **droughts** have aggravated land decline. Farming and grazing on marginal soils causes damage that is worsened by drought, and in many regions vegetation has been unable to recover. Some 400 million tons of soil are lost annually to **erosion**. Because of overgrazing, a great deal of pastureland has become semi-arid shrubland, and elsewhere **desertification** is increasing. Overstressed rural populations also denude forests for fuelwood.

In urban areas, squatter settlements strain sanitation and water supplies, and informal housing is sometimes located in floodpaths. It is expected that two-thirds of the South African population will be urban by the year 2010. Poverty is a spur for this migration to the cities; currently, 18 million people are estimated to be living at below subsistence level, two-thirds of them in rural areas.

Agricultural production varies significantly based on rainfall. "In good seasons," the delegation's initial report states, "South Africa is an exporter of food such as maize, but dry spells periodically reverse this situation. Even a moderate climatic change could diminish or increase the nation's ability to feed its people." The Government combats this vulnerability to drought and the seasonal character of rainfall with an extensive system of dams, catchments, and water-transfer schemes.

Natural disaster profile

Droughts between 1984 and 1994 caused no deaths but affected 42 million people and caused economic damage of US$3.1 billion. **Floods** and other hydrometeorological disasters from 1974-1994 killed 842, affected 68,000, caused $720 million in property damage, and led to economic losses of $120 million. **Pest and insect infestations** resulted in economic damage of $26 million between 1984 and 1994. No separate data was given for **landslides**, but it was noted that "there are increasing numbers of people settling in landslide-prone areas."

The country has a number of broad-based, technologically sophisticated studies under way to

determine the extent and character of drought, desertification, and **locust plagues**, and to provide early warning of coming trouble. Satellites, "biomodelling," and climate mapping are used. A study in South Africa's Kruger National Park aims "at assessing minimum instream flow requirements with regard to both water quantity and quality, of the bio-diversity in the water environment... The ultimate aim is to establish the ecological requirements which should be catered for during periods of water shortages."

National, provincial, and community agriculture and civil protection units are involved in disaster-management activities, and responsibilities also are assigned to the departments of Water Affairs and Forestry, Welfare, and Health. Funding comes from existing departmental budgets with additional ad hoc financing from the national Cabinet when necessary.

National building codes are updated regularly and a National Flood Management Policy seeks to identify "flood-prone areas unsuitable for development."

One problem with warning systems for droughts, floods, and **cyclones**, according to the report, is that "previously racially based dispensation" made them "primarily available in white and urban areas."

Summary of presentations and discussions

Successes: Workshop participants said there is an impressive partnership for drought management between the Government and the commercial sector "based on a commitment to conservation of natural resources;" they cited an "open eye on technological/epidemic disasters," a good capacity for establishing sub-regional and central strategic reserves of food, and effective strategic planning.

Challenges: The difficult task of carrying out disaster reduction in the face of **high rates of poverty and urbanization** was discussed. Members of the workshop said there is a need "to extend partnerships into communal areas" and pointed to a "more reactive than proactive approach," with "funds spent on transporting water rather than improving catchments and sources." Problems also were noted with soil acidification (caused by coal mining) and chemical spills which can affect fisheries, tourism, and cause wider environmental damage. The country's fisheries were termed "very vulnerable."

Resource mobilization strategy

Review of the country's internal abilities to carry out disaster reduction covered the following areas:

Intragovernmental cooperation: It was felt that ad hoc responses should be replaced by a more "proactive" approach, and that the newly established democratic Government should pave the way for a national disaster policy and plan. Community governments were deemed well positioned to take on disaster management at the local level. It was noted that the Agriculture, Forestry, and Water departments are coordinating their mitigation efforts.

Private sector: It was suggested that a "national forum on drought" be established, and that non-governmental organizations such as the Red Cross, Operation Hunger, and the Rural Development Forum be drawn more fully into disaster management programmes.

Community empowerment: The national Rural Development Forum, established for drought response, was commended for "concentrating on building community capacity." Also, reconstruction and development programmes were seen as helping communities to cope with natural disasters.

Applied research and development: It was suggested that research programmes be redirected to focus more closely on disaster management.

Recommendations for National Planning Framework

- Delegates from South Africa decided that the country's prime objective should be "to develop an integrated disaster management plan involving all key stakeholders, all government departments at national, provincial, and local levels, the private sector, community based organizations, and other non-governmental organizations."
- Delegates said it is important "to promote community involvement through public awareness campaigns and education," and added that research should be increased and the overall disaster-management plan used to adjust Government approaches to economic development.
- A major goal is to improve coordination, as numerous government departments and agencies now pursue activities related to disaster reduction. Resources should be decentralized where possible, the delegates said, information should be spread more effectively, and legislation reviewed to make sure that natural disasters are taken into account.
- They added that certain shortcomings should be addressed in relation to specific hazards. Early warning systems for drought need to be made universally available — "some geographical areas are not linked to the system" — and extended equally to white and black settlements. A "bias towards commercial farmers" has to be rectified, and drought warnings also must be presented "in a comprehensible manner to vulnerable communities."
- To cope with floods, intervention programmes should be expanded, mapping carried out for a number of vulnerable locations, and storm drainage systems improved in many communities. For landslides, a growing threat, warning systems and information programmes are needed. The delegates also said there are insufficient facilities for fighting veld fires in some disadvantaged communities.

Swaziland

Area: 17,364 sq. km.

Population: 860,000

Population Growth Rate: 2.7%

GNP/Capita: US$1,130 (1991)

Main Natural Hazards: Drought, tropical cyclones

Chief Environmental Problems: Erosion, overgrazing

Disaster Reduction Efforts to Date: National Disaster Task Force established under authority of the Minister of Home Affairs; legislative act on drought preparedness under consideration; drought Early Warning Unit operated by Ministry of Agriculture and Cooperatives

Objectives of Workshop: Creation of a statutory agency for disaster reduction; establishment of a comprehensive disaster-management plan

Synopsis of country paper

This small country in southeastern Africa, which achieved independence in 1968, has four main geographical regions — running from west to east, the highveld, middleveld, lowveld, and the Lubombo Plateau. The population is spread relatively evenly, although it is greatest in the middleveld and the lowveld, which also hold nearly 80 per cent of the arable land.

According to the United Nations Development Programme, 72 per cent of Swaziland's population is rural, 74 per cent is engaged in agriculture, and 48 per cent lives below "absolute poverty" thresholds. The delegation's incoming report comments that "many households in Swaziland are poor and may be classified as being **chronically food insecure**."

Drought and **grazing pressure** have denuded grassland. The report indicates that "the severe drought experienced by the country in 1991-92 requires a review of Government development policies to address appropriately the issue of vulnerability to drought among certain sections of Swaziland's population." It adds that one necessity is "proper management of grazing lands to ensure availability of grazing on a sustained basis," and "the promotion of feeding lots with a view to reducing cattle pressure on the grazing resources."

The report also calls for investments in irrigation "to ensure and protect adequate production of basic food crops," diversification of crops, and greater emphasis on drought-resistant varieties such as sorghum. In addition, the Government, in conjunction with the World Food Programme, has "agreed in principle to undertake projects involving the community which are aimed at rehabilitating natural resources such as soil and water."

Natural disaster profile

Severe **droughts** were recorded in 1982-83 and 1991-92.

There also was a **tropical cyclone**, Domoina, which struck in 1983. "Most roads and bridges were destroyed and communication was badly disrupted," according to the report delivered to the workshop. "The rains were so heavy that some crop fields were washed away and fertilizer salts were beyond root growth. The result was a poor harvest. Houses were washed away and some families left destitute." The damage was such that "the rehabilitation of roads and irrigation structures, especially for small-scale farmers, had not been completed at the time when the drought of 1991-92 caused its havoc."

Recovery from this cycle of events has been difficult; poverty limited the ability of many inhabitants to recuperate losses from the 1982-83 failure of rains; further damage from the cyclone made matters more difficult, and then the 1991-92 drought arrived, which was "the most severe... in living memory."

Land degradation has been one result. Another has been widening negative repercussions in the economy. The initial report to the workshop describes a situation in which "cotton farmers have not been able to service their loans, and thus huge sums of money are owed to the lending institutions... Farmers who under normal circumstances have the means to acquire seeds, fertilizers and pesticides in the lowveld, dry middleveld, and Lubombo Plateau lost the entire crop during the 1993-94 season. This resulted in the farmers' inability to generate sufficient revenue to purchase inputs for the subsequent season."

Less debilitating threats to the country are occasional outbreaks of red locust and armyworm. These "have never reached epidemic proportions and were easily put under control," according to the delegation's report. An agency within the Ministry of Agriculture and Cooperatives monitors and responds to such incidents of **crop pestilence**.

Summary of presentations and discussions

Successes: Workshop participants noted with approval that a national development strategy launched in 1993 "includes **labour-intensive programmes for food security**, environmental rehabilitation, infrastructure, and habitat/sanitation."

Challenges: It was pointed out that the country's natural disaster preparedness act is still only in draft form. Members of the workshop worried that there may be "insufficient political commitment."

Resource mobilization strategy

Discussion of domestic resources available for promoting disaster reduction in Swaziland led to comments on the following topics:

Intra-governmental cooperation: The National Disaster Task Force consists of Permanent Secretaries of relevant ministries. Still, to date there has been "minimal" Government cooperation — in particular, there is a lack of legislation. Workshop participants said such laws and statutes are needed to "harness coordination, resource mobilization, and cooperation."

Private sector: The involvement of the "profitable sector" was noted, along with the existence of a National Maize Corporation and the participation in water distribution of non-governmental organizations.

Community empowerment: Communities need education on disaster management and especially on preventing environmental degradation such as soil erosion, workshop members said. They must be "empowered to make decisions on income-generating schemes." Communities also should be included in the national disaster management structure now being set up.

Applied research and development: It was suggested that work be done on "mapping strategies on educating the masses on early warning systems, crop diversification, and conservation of natural resources."

Recommendations for National Planning Framework

- The 1991-92 drought catastrophe has made it clear that the country needs a much more extensive and legally formalized system for responding to natural disasters, delegates said. The main focus must be on drought.

- Principal objectives are passage of a legislative act on drought management, which is still in draft form, and creation of a permanent agency to focus on disaster reduction. The agency should have the ability "to gain resources when necessary," delegates said, adding that "there is need for a budget provision to cater for emergencies, long-term goals, and personnel."

- Currently, delegates indicated, there is "no intra-ministerial cooperation" and "no training at both the district and community level." Other gaps are an understaffed Secretariat and no clear budget provision for disaster management.

- The intent is for a permanent agency — currently represented by the National Disaster Task Force, which still has not been formally enshrined in legislation — to be installed in the Deputy Prime Minister's Office. Its duties should include negotiating a "memorandum of understanding" between the Government, the private sector, non-governmental organizations, and donors on responsibilities and procedures relating to natural disasters; identifying populations most vulnerable to disasters; ensuring good information flows; investigating storage requirements at national and regional levels for grain reserves; setting up a policy on "emergency response" that includes prompt declaration of disaster situations; and incorporating disaster-management plans into the Government's approach to economic development.

- In the case economic development, delegates said, "consideration should always be given to diminishing resources which are further affected by cumulative effects of disasters." It is necessary to craft intervention plans "beginning with mitigation, preparedness, relief response, rehabilitation, and reconstruction." Early warning systems also must be improved.

- Subcommittees envisioned under the permanent disaster-management agency would focus on personnel, water, food, transport, budget, health and nutrition, and livestock. Regional committees also would be established.

- The delegation said it intended on its return to Swaziland to persuade the Ministry of Home Affairs to accomplish legislative approval of the drought-preparedness act. It also would request the current National Disaster Task Force "to work out plans for disaster mitigation and preparedness;" suggest that research institutions carry out projects on hazard evaluation, hazard mapping, monitoring, and risk evaluation; and recommend that the early warning unit disseminate information regularly to the public.

Tanzania

Area: 945,000 sq. km

Population: 25.8 million

Population Growth Rate: 3.2%

GNP/Capita: US$120

Main Natural Hazards: Floods, drought

Chief Environmental Problems: Desertification, overgrazing, deforestation, erosion

Disaster Reduction Efforts to Date: Disaster Relief Coordination Committee under Prime Minister's Office; regional, district, and village agencies or committees; relief fund; Food Security Unit (to maintain grain reserves) and Emergency Unit (for responding to crop pestilence) in Ministry of Agriculture; Early Warning Unit for drought

Objectives of Workshop: Comprehensive disaster-management plan

Synopsis of country paper

The United Republic of Tanzania, which includes both its mainland territory and the islands of Zanzibar and Pemba, features terrain rising from sea level to 2,000 metres, and climate conditions ranging from tropical to temperate. Semi-arid regions have undergone repeated droughts, while in other parts of the country prevailing weather and development patterns have inflicted frequent flooding. Nationally, therefore, the country is in the paradoxical position of being **"constantly prone to both droughts and floods,"** delegates pointed out in the report delivered to the workshop.

The population is poor and growing rapidly, leading to "unavoidable increased vulnerability to disasters." Some 90 per cent pursue agriculture or related activities such as fishing and woodcutting. Unfavorable weather in recent years and the fallout from global economic trends have damaged agricultural output and increased poverty. They and growing population pressure have caused serious problems with **overgrazing, deforestation, advancing deserts**, and **erosion.**

The Government has responded with programmes for flood forecasting and drought monitoring, irrigation and afforestation, and efforts to combat desert encroachment. Success has been mixed. Flood forecasting has been hindered by inadequate technical equipment, water shortages have limited some irrigation projects, and tree-planting schemes have worked better at the national level and through incentives provided to individuals than through community programmes. The battle against desertification, the report admits, "has not made much headway." On the other hand, drought forecasting and monitoring have been timely and efficient and irrigation schemes in general have been successful.

A National Plan for Disaster Reduction has been established, and has attempted to focus both on country-wide projects and community-level work. Some research is under way, but the report notes that hazard assessment and surveys of population vulnerability must be more comprehensively done.

Natural disaster profile

From 1970 through 1994 there were 28 **floods**, 15 **droughts**, six **epidemics**, five episodes of **crop pestilence**, four **severe storms**, and four **landslides**. Delegates termed seven of these natural disasters "major."

The most damaging were floods and droughts. Floods killed 69 and affected 938,000; droughts caused 12 fatalities and affected 1,627,000. Epidemics — some occurring after floods — were the most deadly. They killed 720.

Floods in 1990 and 1993, according to the report, destroyed 5,143 houses and 25,303 hectares of crops. They damaged 708 kilometres of roads, 26 bridges, 358 culverts, 21 classrooms, 71 shallow wells, and three deep wells. They also caused severe erosion and landslides — events that required the relocation of 95 villages. Relief and reconstruction costs from these floods came to US$8.6 million.

Droughts have affected greater populations, and responses have been directed largely towards land-use programmes, irrigation schemes, and warning systems.

Expanding deserts and a shortage of resources to combat the problem are a particular concern. Hindering efforts to carry out soil and water conservation is not only a shortage of money but a "lack of real appreciation of its importance by the people." What is needed is "an indication of awareness by the people of the need to do something involving the whole exercise of disaster mitigation and preparedness." The report does note, however, increased participation in disaster-reduction activities by the private sector and by non-governmental organizations.

Summary of presentations and discussions

Successes: Workshop participants were impressed with the country's broad national strategy for disaster reduction, which is based on laws and legislative acts, includes programmes for conservation, economic development, and forecasting, and incorporates technical projects and an early warning system. They noted that hazards have been ranked according to priority, and that the Ministry of Health has set up a crises-management unit.

Challenges: More effective flood forecasting and anti-desertification programmes are needed, workshop participants said. They remarked on an "inequality of assistance" provided to refugees as compared to the national population, and said national resources tend to be depleted "while international assistance is activated." They also were concerned that epidemics seem to cause more deaths than any other form of disaster.

Resource mobilization strategy

Possibilities for mobilizing internal resources to help in disaster reduction were reviewed. Discussion centred on the following topics:

Intra-governmental cooperation: Structures already exist at national, regional, district, and local levels. There is a need to categorize resources according to their use for relief or risk and vulnerability assessment. Monitoring mechanisms are in place, and resources for mitigation activities have been included in the national budget.

Private sector: It was noted that non-governmental organizations have a role to play in disaster-reduction activities.

Community empowerment: Efforts are being made to sensitize communities to the importance of preparedness and mitigation, and to encourage a self-reliant approach that includes local decision making, the use of traditional coping mechanisms, and the adoption of non-agricultural activities.

Applied research and development: Effort should be made to include data bases in research programmes, workshop participants said. Also, more mapping and vulnerability assessment is needed.

Recommendations for National Planning Framework

- The chief aims are to prepare a comprehensive disaster-management plan, to review and update legislation to support such a plan, and to establish effective data and information systems.
- Another, more difficult intention is to increase resources and investment in disaster reduction. Internal and external resources will have to be augmented, delegates decided. They hope to fashion a policy that will attract more funds, especially for preparedness and mitigation.
- Further programmes to diversify rural employment also can boost disaster preparedness, but will be expensive. Delegates referred to these as "income-generating programmes" and "labour-intensive programmes" whose result would be to improve the financial security of rural families and to accomplish work to soften the effects of droughts and floods. Labour-intensive projects would focus on such goals as afforestation and soil conservation.
- The delegates' outgoing report also targeted several other shortcomings: continuing poverty which leaves large populations vulnerable; inadequate communications and logistics; and "inadequate appreciation of disaster-management techniques." They said further training will be required, and more effective efforts will be needed in helping rural inhabitants understand the benefits of mitigation measures.
- Elements listed by the delegation to be included in a comprehensive disaster-management plan were review of the status of existing programmes; definition of objectives and policy; definition of investment programmes and resource requirements; setting up of an implementation strategy; review of institutional capacity-building needs; and expanded monitoring and evaluation programmes.