



China

Disaster Forecasting, Reduction and Mitigation

Disaster Context

With its vast area, complex climatic and geological conditions and large population, China is vulnerable to disasters of every kind: drought, floods, earthquakes, landslides and typhoons. China's huge population is mainly concentrated in disaster-prone areas, making the impact of such disasters very severe, in terms of the destruction of livelihoods, loss of life and economic losses. As an annual average, almost 200 million people are affected by disasters and several thousands are killed. Every year, 3 million people need to be resettled, more than 40 million hectares of crops are affected and about 3 million houses collapse. Annual economic losses caused by natural disasters have increased from 48 billion Yuan in the 1950s to 100 billion Yuan in the 1990s (at 1990 rates).

Project Title

Emergency Assistance, Relief, Rehabilitation, Disaster Forecasting, Reduction/Mitigation

Sectors

- Capacity building through training
- Public awareness campaigns
- Risk and vulnerability assessment
- Legislation
- Rehabilitation and reconstruction programmes
- Support for mitigation programmes,
- Co-ordination and other fields of capacity building

Funding

- US\$ 19.9 million for programmes during the past ten years, including cost-sharing donations from bilateral donors.

Partnerships

Bilateral donors, NGOs, UN agencies, Ministry of Civil Affairs and MOFTEC (China).

Programme Activities

UNDP has always supported government efforts both in emergency relief and disaster reduction/mitigation. Its assistance falls into three categories: emergency relief, rehabilitation and capacity building/technical assistance.

UNDP is at the hub of natural disaster response in China: information flows between the government, UN agencies and donors via UNDP; through its close contact with the government and its mandate to co-ordinate international and UN assistance, UNDP is well aware of the country's needs when disaster strikes; it chairs the UN Disaster Management Team; and, at the government's request, co-ordinates emergency relief appeals.

Active in China for the past 20 years, UNDP's disaster mitigation strategy is based on improving the capacity for response of a long chain of inter-linking activities, from forecasting, preparation, awareness raising and monitoring, to relief, rehabilitation and risk reduction. UNDP also focuses on improving the lives of the poorest, often the most vulnerable to the effects of natural disasters.

Since 1990, UNDP has been active in the following projects/programmes:

Emergency relief

Often at the request of the government, UNDP has co-ordinated international aid from donors and UN agencies, and distributed emergency or relief assistance (including food grain, blankets, clothing, medical supplies, materials for temporary shelters, and water purifiers) to victims of the following disasters:

- Flood victims in Hunan, Sichuan and Shaanxi provinces. Aid totalled US\$ 251,810 (UNDP's contribution: US\$ 50,000).
- Victims affected by typhoons in coastal regions of east and Southeast China (1,400 killed and many injured). Aid totalled US\$

220,000 (including US\$ 50,000 from UNDP).

- Floods in Anhui, Jiangsu and Henan (July 1991). Aid totalled US\$7.4 million.
- Dam burst in Qinghai province (1993). Aid totalled US\$ 300,000 (UNDP's contribution: US\$ 50,000)
- Floods affecting southern China (June 1994). Aid totalled US\$ 1 million (UNDP's contribution: US\$ 50,000)
- Earthquake (magnitude 7.0 on the Richter scale, in February 1997) struck Lijiang in Yunnan province. Aid totalled US\$ 1 million.
- Floods in southern China. Aid totalled US\$ 1 million.
- Earthquake in Zhangbei. Aid totalled US\$ 330,000. In addition, UNDP provided funds for logistic support and relief co-ordination totalling US\$ 40,373.
- Based on government reports on the floods in southern China, UNDP co-ordinated emergency relief and provided logistic support. As the situation worsened, the project was revised in October 1998 to include extra training for disaster relief managers and prepare for an international seminar on disaster mitigation.

Rehabilitation

- In October 1991, UNDP mobilised US\$ 8.5 million for the rehabilitation of flood-affected schools and hospitals in poor areas of Anhui.
- Flash floods and landslides in July 1992 in Fujian and Jiangxi provinces. UNDP provided US\$ 500,000 for improved disaster response capacity, alternative strategies for rebuilding houses, and reconstruction of schools and clinics.
- Emergency rehabilitation of flood-damaged primary and lower secondary schools in Jiangxi.
- Temporary shelters were constructed for flood victims in northern China and, to help victims in southern China survive the winter (when house building is impossible), padded tents were purchased.

Capacity building/technical assistance

- UNDP assisted the China National Committee for the Implementation of the Decade for Natural Disaster Reduction

(CNCIDNDR) prepare a National Disaster Reduction Plan, which was officially endorsed by the State Council in April 1998.

- After an earthquake shook Xinjiang, UNDP provided US\$ 20,000 to support central and local governments' disaster mitigation efforts; provide local authorities with technical assistance to set up information-collecting observation stations; and to launch public awareness-raising activities in earthquake-prone Kashgar.
- Floods in southern China. In this project, UNDP co-ordinated emergency relief and provided the logistic support, as well as supporting two training centres.
- Project to support the government's re-settlement strategy/ programme for the flood-diversion areas in China (SPPD). Support will include: a) assessing the risks to settlements in flood-diversion areas; b) examining assistance required in flood preparedness, prevention, mitigation and management, and proposing alternative strategies to mitigate settlements' flood vulnerability; c) recommending specific alternatives to reduce the impact of floods in the diversion areas and ensure rapid recovery from similar disasters in future; and d) recommending any other follow-up actions that should be undertaken.
- Funded by voluntary contributions, the Global Programme for the Integration of Public Administration and the Science of Disasters aims to strengthen the relations between government officials and disaster scientists, so that scientific and technical information can be used by the officials. Although initial funding was exhausted by the end of 1997, follow-up activities extended until recently. For example, in February 1998, an international workshop on the Forecasting of Natural Disasters by Geo-magnetic Methods attracted scientists from 14 disaster-prone countries worldwide. A follow up national workshop was held for national participants to implement this technique at local levels throughout China.



Costa Rica

Multi-sectoral plan to alleviate the effects of El Niño

Disaster Context

Due to its geographical situation, Costa Rica is frequently affected by natural disasters, such as floods, drought and the effects of warmer ocean temperatures.

Since 1998, the waters off the Pacific coast of Costa Rica have been warmer than at any time in the last 47 years, due to an event known as ENSO (El Niño Southern Oscillation). The ENSO phenomenon occurs when the temperature of the surface waters of the Pacific Ocean is abnormally high, and these warmer waters accumulate in shallower areas of the ocean. This warming of the water temperature has caused changes in the regularity of the rainy seasons and an increase in the average monthly temperature in certain regions of the country.

Floods have affected the Vertiente del Caribe, and the drought has caused forest fires in the regions around Guanacaste.

Project Title

Support to the operationalisation of a multi-sectoral plan for the alleviation of the effects caused by ENSO.

Sectors

- Alleviation, mitigation and prevention programmes
- Management development

Funding

UNDP allocated US\$ 75,000 from emergency funds.

Partnerships

- Ministry of Agriculture
- Regional Advisory Board on Agricultural Co-operation (CORECA)
- National Meteorological Institute
- National Emergency Commission

- Regional Committee of Hydraulic Resources
- Regional Oceanographic Information System
- Institute of Social Services (public and private)

Programme Activities

Through the project, the following objectives were achieved:

- The National Emergency Commission increased its capacity, through the development of a multi-sectoral plan, to respond effectively to requests from the communities affected by ENSO.
- Information on the "lessons learned" was distributed in a systematic way in order to enhance the knowledge and capacity to confront future effects from ENSO or comparable natural disasters.
- Mechanisms were established and equipment was purchased for the systematisation and follow up of the effects of ENSO.
- An evaluation of damages was made by the Economic Commission for Latin America (ECLAC).

Local capacity building and the use of specific skills available at local level through a participatory approach constitute an important aspect of the project. Existing structures at community level were also fully integrated into the project implementation mechanism.

The project focused its actions on the Peninsula de Guanacaste, the Central Pacific and the Northern Pacific regions. By establishing co-ordination frameworks to complement existing local structures, the programme benefited not only government institutions, but also the local population of these regions.



Costa Rica

Rehabilitation and Development of the communities affected by Hurricane Cesar

Disaster Context

Costa Rica ranks high in the Human Development Index, thanks mainly to a period of relative economic and governmental stability.

However, development levels differ among regions of the country and poverty afflicts 21.6 percent of all households. To stabilise its development at the present level and to consolidate its democratic system, Costa Rica also needs to find a solution to its economic problems. The rising unemployment rate and the increasing abstention during the last elections are only signs of a more difficult development path ahead, which will challenge the stable and democratic political system known for many years.

Human development in certain regions of the country is also threatened by the hurricanes that regularly pound Costa Rica, such as Hurricane Cesar, which severely damaged the southern region of the country in June 1996. UNDP co-ordinated relief assistance during the reconstruction and development of the affected areas.

Project Title

Strategic Framework for the Rehabilitation and Development of the Communities affected by Hurricane Cesar in the Southern Region of the Country.

Sectors

- Capacity building
- Rehabilitation, reconstruction and prevention programmes
- Design and production of training materials
- Support to mitigation programmes

Funding

UNDP allocated US\$ 350,000 from emergency resources to start project operations. Funds were mobilised from bilateral donors (Great Britain, Italy, Denmark, Japan, Luxembourg and Australia) totalling US\$ 574,900. An additional US\$ 700,000 were allocated by the UN system, while the government of Costa Rica contributed a total of US\$ 417,000 and local communities pledged in-kind contributions for approximately US\$ 500,000.

Partnerships

- UNICEF
- IDNDR
- National Emergency Commission (NEC)
- Latin American Network for Disaster Prevention (LA RED)
- Local communities in Costa Rica's southern region

Programme Activities

The project ran from 1996 to 1998. UNDP and an interagency team, in close co-operation with the government, were able to implement for the first time a pilot project for disaster prevention. Some of its most important results were the following:

The elaboration of a prevention strategy, for which close collaboration with local, grass-roots organisations was a key factor

Training materials were developed and put into practice in the disaster areas. Topics covered included risk management and sustainable development, environmental management and strategic planning at the local level. Some 50 percent of participants were women

Local prevention plans were drawn up for eight communities in the Brunca region, and a grass-roots communication plan on disaster prevention and mitigation started its activities.

The National Emergency Commission adopted the "development methodology" elaborated during the implementation of the project.

Through the existing institutional and informal systems in the communities, the project created new rehabilitation structures that strengthened local management capacities to confront natural disasters, such as landslides and floods in the future.



Costa Rica

Rehabilitation of Communities Affected by Hurricane Mitch

Disaster Context

In October 1998, Hurricane Mitch unleashed torrential rainfall on the pacific coast of Costa Rica. Floods and landslides in the southern region (Brunca) and the Central Valley paralysed communications and traffic.

A total of 16,500 people were affected by the hurricane. Parts of the coffee, rice, beans and sugar-cane crops were destroyed, with losses in agricultural production estimated at US\$ 110 million. Damage to the country's infrastructure – roads and bridges – was calculated at US\$ 17 million. In addition, 740 houses, 39 schools and 12 aqueducts were destroyed.

The national economy will undoubtedly be affected by the reduction of food supplies and raw materials imported from other countries of Central America. A foreseen decrease in income from exports, and increase in imports on goods and services, will affect the commercial balance and the country's reserves. Another important effect of the hurricane is the growing influx of immigrants from neighbouring countries.

Project Title

Support to the Rehabilitation of Communities affected by Hurricane Mitch

Sectors

- Rehabilitation and reconstruction
- Aid co-ordination

Funding

UNDP allocated US\$ 100,000 from emergency funds.

Partnerships

- National Emergency Commission (NEC)
- Committee for Emergency Operations
- Ministry of Foreign Affairs

Programme Activities

The project focused on the development of effective and efficient aid co-ordination structures, based on a multi-sectoral approach.

With the participation of existing local organisations, the Programme assisted in NEC operations to provide emergency supplies to affected populations, brought in specialists to prepare situation reports and damage evaluations, and helped in the planning and management of emergency logistics.

Rehabilitation efforts were concentrated in the Northern Pacific, Central Pacific, Central and Southern regions of Costa Rica. The concerted, harmonious work carried out, as well as the learning experience it presented, greatly benefited local populations in these areas.

To put a multi-sectoral approach in policy planning into operation and to execute designated tasks required a great deal of inter-agency co-ordination, a valuable lesson for the government whose capacity to organise multi-disciplinary approaches in the future has been enhanced.



Djibouti

Social Rehabilitation and Reintegration Programme

Disaster Context

The situation in the Horn of Africa is critical and ever changing, and Djibouti has always been directly affected by the events there. The presence of tens of thousands of refugees and displaced people from neighbouring countries, the extremes of local climate, cyclical droughts, desertification, torrential rains and floods, deteriorating natural environment, absence of agriculture, food insecurity, earthquakes, epidemics and the limited financial capacity of the country -all render Djibouti extremely vulnerable to crisis and disasters, and hamper development

As if the litany of woes that afflict the country were not enough, three years of internal strife has disrupted people's lives to the point where basic needs and local economies in rural areas have been severely interrupted, especially in the districts of Tadjourah, Dikhil and Obock. Schools, hospitals and roads in these districts are in urgent need of reconstruction and damage to the natural environment is immense.

Four years after the peace accord was signed, recovery seems to be even more beset with difficulties. In some areas, basic needs of the population are not being met and the amount of pasture land available to the rural population for their livestock is shrinking.

The combined effects of war and natural hazards have greatly increased the population's vulnerability. But, the country's institutions do not have the required capacity to respond to Djibouti's overwhelming problems.

The current conflict between Djibouti's neighbours, Ethiopia and Eritrea may make a difficult situation even worse. An influx of refugees fleeing the war will place an unbearable strain on the already precarious conditions of the local population, and could even act as a flashpoint for another conflict in Djibouti itself, which would have a truly

catastrophic impact on the country unless the government can respond with a preventive development programme.

Project Title

- Social Rehabilitation and Reintegration in Areas affected by War

Sectors

- Capacity building
- Training of Djibouti's citizens
- Area-based development
- Community empowerment

Funding

UNDP has allocated US\$ 1,250,000 to the programme and the Government of Djibouti US\$ 400,000. Other partners are expected to contribute resources for the programme.

Partnerships

- National Rehabilitation Committee
- Sector ministries and departments
- Local communities and NGOs
- UN agencies
- Bilateral donors
- Multilateral donors

Programme Activities

UNDP has long been involved in the fight against desertification and drought in Djibouti. However, the first initiative focusing specifically on disaster management was adopted at a DMTP workshop held in 1993. The workshop not only sensitised the leaders and the technicians on the issues of disasters, but also brought in new concepts and ways of integrating disaster management strategies into development planning. That was the very first step in planning for disaster mitigation and management.

The actual programme is one of the first in Djibouti that takes into consideration the

regions and regional development. The programme's overall objective is to consolidate peace and reduce the risk of conflicts by:

- Rehabilitating and reinforcing the potential for agricultural production;
- Rehabilitating and reconstructing social infrastructures
- Strengthening local capacities.

The programme also aims to provide the technical and financial assistance necessary to alleviate poverty and reduce the population's vulnerability through an approach based on encouraging effective participation.

By promoting dialogue among local organisations and structures, priorities have been identified and projects implemented in a completely participatory way.

The programme has funded projects emanating from the rural communities. An important step in crisis prevention was the formulation of these projects on the basis of a dialogue with the beneficiaries. The projects address agricultural production and environmental management, and the construction of health centres and drinking water systems to prevent diseases and epidemics. Micro-credit schemes and housing are also envisaged.

The programme is expected to grow and to extend its activities to regions not directly affected by war. It will also deal with the issues of decentralisation and local governance. The dynamic created by the mechanisms and structures set in place for participatory dialogue are turning out to be an excellent vehicle for regional development and planning, decentralisation and conflict prevention.



Dominican Republic

Emergency Rehabilitation Programme after Hurricane "Georges"

Disaster Context

In September 1998, Hurricane Georges ripped through the entire territory of the Dominican Republic, leaving in its wake a trail of death and destruction. This major disaster affected, directly or indirectly, most of the Republic's 8.25 million inhabitants and, as so often happens, hit the poorest hardest. The hurricane killed 300 people and thousands more lost their homes and sought refuge in temporary shelters around the country. Vegetation and crops suffered irreparable damage, and the yields of basic foodstuffs, such as rice, banana and cassava, declined drastically. The electricity and water distribution and telecommunications systems were severely affected, and many bridges were either destroyed or damaged. ECLAC has estimated those total economic damages, direct and indirect, amount to US\$ 2,100 million.

Project Title

UNDP/UN Emergency Rehabilitation Programme after Hurricane Georges

Sectors

- Emergency relief
- Housing construction
- Capacity building, including equipment to the Civil Defence and governmental institutions
- Training and supervising in safe and low-cost housing construction
- Training and creation of income-generating activities, particularly for women
- Training on disaster preparedness and prevention

Funding

The programme amounts to US\$ 680,000, co-financed by various UN agencies and governments, including a UNDP contribution of US\$290,000. The programme has also received in-kind support from the National Planning Office, WFP, and from local communities, institutions and authorities

Partnerships

- Other UN agencies
- NGOs
- The Dominican Government
- Local authorities and neighbourhood organisations
- The Catholic Church

Programme Activities

After a preliminary evaluation report of hurricane damage by a UN team, it was decided that the overall objective of the programme should be to support the Dominican Republic's Government make a successful transition from an emergency situation to integrated, sustainable development, which will benefit the most vulnerable who were severely affected by the hurricane. Although the programme should be completed in July 1999, it is hoped that additional contributions will make it possible to intensify and/or extend programme activities.

The programme has concentrated on two areas where UN agencies are already present: Sabana Perdida, a poor suburb of the capital, Santo Domingo, and the south-western part of the country where local councils, set up with the assistance of UNDP sustainable human development project, have been of great as-

sistance in getting disaster programme activities carried out effectively in the area.

Housing reconstruction and training activities are also under way in Sabana Perdida, with the local council providing labour and administrative support. They also select the families whose houses will be rebuilt – a difficult job, although the suburb's 40,000 inhabitants will all benefit in some way from the programme.

The southwestern region is home to thousands of sugar-cane workers and their families. Many come from Haiti, living in poor conditions and with little access to basic social services. Programme activities here are concentrating on house construction, training and the implementation of income-generating activities for women. So far, the programme has assisted nearly 10,000 people.

Water supply in parts of the country was severely disrupted by the hurricane. In these areas water tanks are being installed, which will offer almost 60,000 people access to cheaper, safe drinking water.

A comprehensive evaluation of the damages caused by the hurricane was carried out in October 1998 by a multidisciplinary ECLAC team and made public in early 1999. The evaluation concluded that a coherent national development programme should be formulated and outlined project profiles of interest to the donor community.

The ongoing UN/UNDP disaster programme has already achieved remarkable results. A key factor in this success has been the very strong community support to project activities. Equally important was the high level of participation and funding by both national and international organisations.

Assistance in the form of emergency supplies, technical assistance, construction materials and water equipment has made possible the implementation of an integrated emergency/rehabilitation programme, whose overall aim is to facilitate a smooth and sustainable transition from emergency to development. Through effective, direct involvement of the beneficiaries, it has benefited thousands of the poorest Dominican families affected by the hurricane.

Finally, it has strengthened sustainability by allowing some of the most vulnerable population groups to partake in efficient disaster pre-

paredness training. In the case of housing construction, new and better techniques are being used to make houses more resistant to natural disasters, such as hurricanes and floods. In the coming months, and before the start of the hurricane season in June, the programme will pay special attention to community-level preparedness activities on how to manage and mitigate future disaster situations.



Ecuador

Rehabilitation and Reconstruction of La Josefina Communities

Disaster Context

In March 1993, a major landslide occurred in the Andean region of Ecuador, some 450 km south of the capital, Quito. Twenty million cubic metres of soil and rocks dammed the Paute and Jadan rivers, flooding homes, roads and industrial facilities upstream, and threatening numerous communities and the country's major hydroelectric power plant downstream. The dam burst 33 days later discharging approximately 191 million cubic metres of water in 15 hours.

The losses inflicted by this disaster were considerable: over 100 people died, 5,630 people were directly affected, and 582,700 indirectly. Close to 750 buildings, 4,000 acres of farmed land, 10 km of roads and a thermoelectric power plant were destroyed. Total direct economic losses were estimated at US\$ 150 million.

Project Title

Assistance to the victims of La Josefina landslide and floods

Sectors

- Rehabilitation and reconstruction programmes
- Capacity building through training

Funding

UNDP allocated US\$ 50,000, and the governments of the United Kingdom and the Netherlands contributed US\$ 34,236 and US\$ 26,512 respectively. The Archdiocese of Cuenca donated counterpart funds.

Partnerships

- Habitat
- WHO/PAHO
- OCHA Geneva

Programme Activities

Aim: Support the national government in its efforts to rehabilitate the affected area.

Objectives:

- Build 100 homes with the involvement of the beneficiary families
- Establish and equip a workshop for the production of wooden homes.
- Build a community centre in Zullín

Duration: 8 months (October 1993 – May 1994)

The project was executed with the participation of the beneficiary communities. Houses were built on land provided by the government through the Archdiocese of Cuenca.

The direct beneficiaries of the project were:

- 100 families in the communities of Bulzhún, Carmen de Bulcay and Caguazhún Bajo
- The community of Zullín

The establishment and equipment of a structural carpentry workshop continues to provide the members of the affected communities with the opportunity to receive training and acquire new skills.



Ecuador

Temporary Shelter and Housing in Cotopaxi

Disaster Context

In March 1996, an earthquake, registering 5.7 magnitude on the Richter scale, affected the Central Andean Region of Ecuador.

Project Title

Construction of Temporary Shelter and Housing for the Victims of the Earthquake that affected the Province of Cotopaxi

Sectors

- Rehabilitation and reconstruction programmes
- Capacity building through training

Funding

UNDP allocated US\$ 50,000 (SPR)

Partnerships

- Civil defence
- Armed forces
- Former OCHA Regional Office for Latin America

Programme Activities

Aim: Provide shelter to the people left homeless in rural communities by the earthquake.

Objectives:

- Build 5 communal shelters and 73 homes.
- Train members of the affected communities in seismic-resistant building techniques

Duration: 5 months (April – September 1996)

The project was executed with the participation of the beneficiary communities.

The direct beneficiaries were:

- 73 families in the community of Rumipungo
- Communities of Tigua Chimbacucho, Tigua Rumichaca, Isinlibí, Cuturibí Grande, and Cachi Alto.

The introduction of seismic-resistant building techniques in earthquake-prone regions reduces their vulnerability to future events.



Ecuador

Disaster Prevention and Preparedness Programme Guagua Pichincha Volcano

Disaster Context

Ecuador's capital, Quito, is located in a long, narrow valley oriented north-south and surrounded by high mountains. West of the city, the Pichincha Volcano rises to 4,760 m. Pichincha's secondary, active volcano, Guagua Pichincha, caused concern when an increased, abnormal seismic and volcanic activity was observed.

In the past, Quito has been affected by eruptions of Guagua Pichincha, the most important occurring in 1566, 1575, 1582 and 1660.

According to historical analysis, Guagua Pichincha's eruption would probably shower Quito with ash, and parts of the city could be affected by ash-induced mudflows. Pyroclastic flows could reach the town closest to the volcano, Lloa, west of Quito, while the towns of Mindo and Nono, northwest of Quito, could be exposed to mudflows.

Project Title

Disaster Prevention and Preparedness Project to reduce the Possible Effects of an Eruption of the Guagua Pichincha Volcano.

Sectors

- Capacity building through training
- Public awareness campaigns
- Hazard monitoring/maps/early warning systems
- Risk and vulnerability assessment
- Development of training materials
- Co-ordination

Funding

UNDP allocated US\$ 99,475, and in-kind contributions were made by the Metropolitan Municipality of Quito and the National Polytechnic School

Partnerships

- Metropolitan Municipality of Quito
- Geophysical Institute of the National Polytechnic School
- Civil Defence
- Centro de Investigaciones CIUDAD
- UNICEF

Programme Activities

Aim:

- Natural disaster prevention through public awareness and education for communities living under imminent risk.

Objectives:

- Information, awareness and training in emergency procedures for the population living in high-risk areas of Quito
- Institutional strengthening of the Geophysical Institute and the Municipality of Quito in disaster prevention and management of volcanic emergencies
- Development of computer simulations and hazard maps for ash-induced mudflows for the city of Quito

Duration: 1 year (November 1998 – October 1999)

UNDP Ecuador has been very active in and supportive of disaster reduction and response activities in the past decade. The presence in Quito of the regional office of the UNDP Disaster Reduction and Recovery Programme (DRRP) has proved beneficial for disaster mitigation and preparedness activities and, in the aftermath of disasters, for the assessment and co-ordination of humanitarian assistance.

Since 1991, UNDP has assisted the Quito municipality in a number of institutional strengthening and community development projects.

This project aims to determine the areas most vulnerable to Guagua Pichincha's volcanic activity and to implement a series of emergency preparedness activities at grass-roots level with the involvement of disaster management agencies.

The direct recipients of the project are:

- People living in high-risk areas in Quito, Lloa, Mindo and Nono
- The Metropolitan Municipality of Quito
- The National Polytechnic School and its Geophysical Institute

As a result of this project, the Metropolitan Municipality of Quito will be better prepared to address risk management and vulnerability reduction efforts.

The National Polytechnic School and its Geophysical Institute will be better equipped with mudflow simulation models and seismic monitoring equipment to confront present and future volcanic crises.

The population of Quito, in general, will be more aware of volcanic hazards and better prepared to confront a possible eruption.



Ecuador

Drought Emergency Plan

Disaster Context

The province of Loja is located in southwestern Ecuador, close to the Peruvian border. Over half of its 350,000 inhabitants live in rural areas and agriculture and cattle raising are the province's main economic activities. More than 80 percent of the land is mountainous or hilly and is threatened by desertification advancing from the south.

Soil erosion is accelerating due to the province's geological characteristics, a predominantly dry climate but with periods of heavy precipitation, steep slopes, overgrazing and deforestation. This has resulted in an increasing deterioration of the quality and the quantity of water supplies, leading to health and sanitation problems and a decrease in economic activities.

During 1995 and 1996, dryer than normal conditions triggered a severe drought which aggravated population's hardship conditions. Ecuador's President declared a state of emergency in Loja province and appealed for international assistance.

Project Title

Drought Emergency Plan for Loja.

Sectors

- Rehabilitation and reconstruction programmes
- Co-ordination

Funding

UNDP allocated US\$ 200,000, Norway contributed an in-kind donation of US\$ 90,000 (through OCHA), and a WFP funded a US\$

200,000 food-for-work project. Counterpart funds were provided by the Provincial Council of Loja, PREDESUR and the Ministries of Agriculture, and Housing and Urban Development, and the communities.

Partnerships

- Provincial Council of Loja
- PREDESUR
- Ministries of Agriculture and of Housing and Urban Development
- WFP
- Former OCHA Regional Office for Latin America

Programme Activities

Aim: Help improve the situation of the rural population in areas most affected by the drought in Loja.

Objectives:

- Support distribution of water in 50 communities.
- Provide physical infrastructure necessary for permanent provision of safe drinking water and irrigation.

Duration: 20 months (August 1997 – May 1999)

The project served to establish effective co-ordination mechanisms and appropriate technologies with a participatory approach that took into consideration the opinions of all those involved.

The direct recipients of the project were people living in 50 rural communities affected by drought in 7 jurisdictions of the province of Loja.

The access to safe water is one of the basic conditions for the improvement of health, sanitation and, in general, an improved quality of life.



Haiti

Strengthening National Capacities for Disaster Prevention and Management

Disaster Context

Like other Caribbean countries, Haiti is exposed to hurricanes and tropical storms on a yearly basis. It was severely affected by Hurricane Georges, which struck the country in September 1998. The hurricane swept across Haiti's central plateau and the northwestern region of the country, causing nation-wide destruction. Wind speeds reached 130 km/h, although they slackened as they hit the mountains, which separate Haiti from the Dominican Republic, where the hurricane unleashed torrential rainfall, which caused rivers to swell and flood. Flash floods were responsible for most of the deaths and destruction.

According to international agencies in Haiti, the Directorate of Civil Protection responded to the emergency effectively, using its own resources to organise and deliver shelters and to purchase food stocks. Local groups and NGOs mobilised relief supplies and assistance to affected communities, while international organisations and NGOs were active in providing logistical support and primary relief. However, the need for an integrated disaster prevention and reduction plan was made evident, along with a disaster management system with legal support, clear-cut procedures and division of labour, user-friendly rapid action guidelines and training for national agencies and local authorities

Project Title

Strengthening of the National Capacity for Disaster Prevention and Management

Sectors

- Training

Human resource development is one of the main components of this project and will be attained through an integrated training pro-

gramme comprising the Civil Defence, the main government agencies involved, local authorities, the UN system in country and the main multi- and bilateral agencies.

Funding

UNDP allocated US\$162,800

Partnerships

- Direction de Protection Civile
- Local governments
- PAHO/WHO
- UN country team
- ECHO/European Union
- Organisation of American States

Programme Activities

- Revised legal framework and support for the Direction de Protection Civile (DCP)
- Agreements with the most relevant ministries to assign people and resources to the DCP in emergency situations and for preparedness purposes
- Procedures, manuals and guidelines to facilitate operations
- Needs assessment for information management systems including dissemination/public awareness campaigns;
- Medium- and long-term capacity building programmes
- A National Disaster Prevention and Reduction Plan



Jordan

Capacity Building for Disaster Management

Disaster Context

Jordan is a disaster-prone country, particularly susceptible to earthquakes, droughts and floods. Earthquakes occur in the Jordan Valley Rift area, especially around the Dead Sea. The Jordan Valley is part of the great rift extending to North Africa and it is expected that it will be more exposed to earthquakes in the coming decades. Natural disasters are a major human and developmental issue in the region.

The country is also exposed to a wide range of transportation and industrial hazards.

Given Jordan's vulnerability to both natural and human-induced disasters, UNDP and the Government of Jordan recognised the necessity of improving the country's relief, disaster mitigation and disaster management capacities, including training.

Project Title

Capacity Building for Disaster Management Training Centre

Sectors

- Capacity building
- Human resource development
- Upgrading capacities in the areas of preparedness, mitigation, planning, response and recovery management
- Co-ordination among concerned partners
- Information management
- Public awareness campaigns

Funding

UNDP has allocated US\$ 197,000; the Government of Jordan has committed in-kind contributions amounting to US\$ 211,000.

Partnerships

- Ministry of Planning
- Jordan Hashemite Charity Organisation (JHCO)

- Disaster Management Training Centre (affiliated to the JHCO)

Programme Activities

Current activities aim at enhancing and developing the Disaster Management Training Centre to build national capacity in the field of disaster management in Jordan, as well as at regional level.

By the end of the project implementation, it is expected that Jordan will have gained the necessary capacity and know-how to enable it to mitigate, manage and respond to disaster situations.

The objectives of the project include:

- A comprehensive module for a national and regional Disaster Management Training Centre
- Developing national capacities necessary to update the disaster mitigation and management plans
- Enhanced early warning and mitigation systems
- Database of technical information relevant to the management of different disaster scenarios in Jordan and in the region
- A comprehensive national disaster mitigation and management training programme
- Curricula for disaster management courses for offering diplomas in disaster management and relevant fields; assistance in identifying and co-ordinating with local and international universities offering degree programmes and preparing a specialised library in the field of disaster management, as well as staff training to increase preparedness, emergency response and public awareness



Kenya

Disaster Management: Drought and Floods

Disaster Context

Over the last 20 years, the rains have frequently failed in Kenya's arid and semi-arid lands (ASAL). A complete or partial failure of long or short rains has occurred four times (1976-78; 1982-84; 1992-94 and 1996-97) in ASAL regions. Flooding is also possible when the rains do come to these districts, although the phenomenon is less frequent than rain failure.

Kenya's short-rain season in 1997 brought the heaviest rainfall in 40 years. The ASAL districts were affected by floods in 1970, 1974, 1984 and 1991-92, although they were not comparable to the 1997/98 floods.

Four or five times a decade, drought and/or heavy rainfall are likely to cause increased morbidity and mortality rates of people and livestock in ASAL. Pastoralists, the largest land users in the region, have often been forced to migrate with camels and cattle to traditional grazing areas in other districts or neighbouring countries, leaving sheep and goats behind during drought. This has caused acute shortage of traditional food (milk, bread and meat) for family members left behind (mainly children and women), leading to widespread under-nutrition accompanied by high rates of malnutrition. In addition, health-related problems associated with the lowered resistance to disease arising from populations' declining nutrition status are increasing, as are problems related to the use of contaminated water from water pans which are drying up.

The failure of the short rains in 1995 and long rains in 1996 not only inhibited vegetation regeneration, but failed to replenish water pans and dams, causing diminished levels of natural water sources and boreholes on which human and livestock depend in ASAL districts. The drought severely affected approximately 1.41 million people.

The 1997-98 floods affected populations who had just begun the long process of recovering

from the severe drought of 1995-96. In ASAL, the floods led to the loss of 80 percent of livestock and caused widespread damage to infrastructure (roads, bridges and human settlements)

Project Titles

- Drought and Emergency Management
- Support to Flood Disaster Emergency Relief Operations

Sectors

- Emergency relief
- Disaster management
- Capacity building

Funding

UN allocated US\$ 400,000 for the two projects. Contributions were also received from bilateral donors for emergency relief operations

Partnerships

- Government of Kenya
- WFP
- UNICEF
- WHO
- World Bank
- USAID

Programme Activities

Drought and Emergency Management

UNDP co-ordinated joint assessment missions with the government, UN agencies, bilateral donors and NGOs to drought-affected districts. UNDP provided support for the purchase of stand-by mobile pump generating sets and restocking of goats was also provided. Women's groups worked on cash/food-for-work programmes to dig water pans, desilt and

protect dams for sustainable disaster management. As part of the process of supporting District Dimensions of Development Committees, fax machines were purchased to improve communication with the affected districts and the National Office and facilitate better information sharing, timely inflow of data from the districts and networking among districts and agencies.

Support to Flood Emergency Relief Operations

UNDP provided aviation fuel to help the Office of the President respond effectively to the flood emergency in two operations.

Relief airlift and airdrop of emergency supplies (food, medicines, water purifying tablets and equipment, high energy biscuits, blankets, plastic sheeting, etc.) and personnel to affected areas.

Airlifting of UNICEF and government teams to conduct flood damage assessment missions to flood-affected districts in the northeastern and coast Provinces. This included training of government officials in rapid assessment procedures.

Submersible pumps for damaged boreholes were also purchased and seeds distributed to farmers in 14 districts.

UNDP co-ordinated a continuous monitoring of emergency relief operations in collaboration with the government and UN agencies, as well as facilitating the evaluation of the emergency relief operations at the end of the project period.



Kyrgyzstan

Disaster Reduction Programme

Disaster Context

The Kyrgyz Republic is a landlocked mountainous state in Central Asia. Its territory is 198.5 thousand square kilometres, and population is about 4.6 million (1997). Since independence in 1991, the Kyrgyz economy has been seriously affected by loss of fiscal transfers and export markets in the former Soviet Union. With GDP per capita dropping from \$850 in 1993 to \$390 in 1998, the Kyrgyz Republic is now one of the poorest states of the CIS. With increasing consumer prices, poverty is spreading. It is estimated that some 50 per cent of the population live under the nominal poverty line. Nevertheless, since independence, Kyrgyzstan has shown a strong political commitment resulting in a complex stabilisation and transformation programme focusing on macroeconomic stabilisation, structural reforms and social stability.

The Kyrgyz Republic is a highly disaster prone country. This can be accounted for by its complex geo-climatic conditions as well as the economic difficulties of the transition period that lead to higher risks of technological disasters.

The most dangerous in prevalence, recurrence and damage levels are the following natural hazards:

- earthquakes;
- debris-flows and flash floods;
- landslides and rock-falls;
- snow avalanches;
- Spring frosts and snowfalls.

The list of the most destructive natural disasters that have occurred in the country over the last five years includes.

- ice-snow avalanche, in spring 1992 in the Lenin Peak area, that destroyed international mountaineering camp and killed 38 people;

- Suusamyр earthquake, which in August 19, 1992 killed 53 people and made homeless over 60,000 people;
- heavy rain-falls, snow-falls and frosts in spring 1993, which caused damage, estimated at \$21,000,000;
- mass scale landslides in 1994 in Osh and Jalal-Abad *oblasts* that killed 115 people and made 27,000 people leave their homes.

These natural hazards along with man-made disasters pose considerable threat to human lives and ongoing social and economic reforms in the country.

Project Title

Strengthening Capacity of the Government in Disaster Mitigation and Preparedness

Sectors

- Capacity Building
- Risk and hazard maps for early warning systems
- Training
- Medical capacity
- Public awareness campaigns

Funding

UNDP has allocated US\$300,000 for the implementation of this project. Additional US\$200,000 is sought from donors. Thus, the total project budget is US\$500,000.

Partnerships

- Ministry of Emergencies and Civil Protection, all Civil Defence branches
 - Institute of Geology of the Kyrgyz National Academy of Sciences
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- Cabinet of Ministers of the Kyrgyz Republic

Programme Activities

The overall objective of the project is to assist the Government of the Kyrgyz Republic in strengthening capacity for disaster mitigation and preparedness. More specifically, the project aims at (i) development of the State Indicative Disaster Reduction Plan (SIDRP) based on a structured policy commitment to generate resources and implement co-ordinated programme of mitigation; (ii) establishment of a Regional (*Oblast*) Disaster Action Plan (RDAP) in one pilot *Oblast* to identify, assess and recommend priority disaster mitigation projects to be implemented by various government, civic and private institutions; (iii) training of key disaster management personnel both at central and local levels; (iv) education and information campaigns targeted at a wide audience to increase public awareness concerning practical ways of reducing disaster risks; and (v) strengthening the institutional and operational capacity and of the Ministry of Emergency and Civil Protection to serve as an effective national co-ordination agency in the field of disaster mitigation and preparedness.

The Disaster Mitigation and Preparedness project has become the first capacity building project of UNDP in the area of disaster management. The project strategy is based on the institutional and operational strengthening of Ministry of Emergencies, consolidation of the resources of other governmental agencies and public institutions involved in disaster reduction, as well as building capacity strengthening of local authorities and communities for disaster preparedness in the most vulnerable areas of the Republic.

One of the major outputs of the project was the establishment of the Centre for Emergency Management and Co-ordination at the Ministry of Emergencies. The Centre serves as the core mechanism for day to day co-ordination and management of various emergency situations including both natural and technological disasters. The Centre also collects, analyses, processes and disseminates data related to disaster management whereby serving as a tool for communication of disaster information and preparation of disaster forecasts that used in government's decision making.

Furthermore, the project has provided the Ministry of Emergencies and Civil Defence with radio-modem communication equipment. The Central Office of the Ministry and the civil defence offices in all 6 *oblasts* have been linked into one radio-modem communication network, which will allow an effective response in emergency situation. The advantage of having such an equipment is that it provides cost-effective (free of charge) and reliable communication which will remain functional when all other infrastructure is destroyed.

Apart from strengthening of the institutional and operational capacity of the Ministry of Emergency and Civil Defence, the project targets its interventions in the following areas: (i) development of the State Indicative Disaster Reduction Plan; (ii) establishment and implementation of a Disaster Action Plan in pilot *oblast*; and (iii) capacity building activities including training and public awareness campaigns for various target groups including governmental officials both at central and local levels, students and schoolchildren, and general public.

In these directions, a number of outputs have been produced by the project:

- The risk and vulnerability maps (11 maps) for various types of disasters have been developed for the entire territory of the country. These maps will be soon available on the Internet.
- The State Indicative Disaster Reduction Plan has been drafted and is now pending government's approval. It is the first comprehensive national policy document in the field of disaster management.
- The key staff of the Ministry of Emergency and other line agencies have been trained on various aspects of disaster management.
- Training manuals and programme outline on disaster management, preparedness, response and medical aid have been prepared and disseminated among schoolchildren, students and general public.
- Technical support has been provided in the establishment of the GIS laboratory.
- Inventory of rescue equipment and needs analysis have been completed for strengthening rescue operations.



Madagascar

Disaster Management Capacity Building and Preparedness

Disaster Context

Due to its inter-tropical convergence, Madagascar is regularly besieged by natural disasters such as cyclones, severe tropical depressions, floods, drought, desertification, hailstorms, bush and household fires, locust infestations and earthquakes causing widespread loss and destruction.

Madagascar's current fragile physical, social and economic environment as characterised by widespread poverty, low standards of living and high levels of vulnerability have largely contributed to the severe impacts of disasters.

Over the years, disasters have inflicted a heavy cost in human and economic terms. The Malagasy economy has been weakened and the country's physical infrastructure severely damaged, while the high levels of unemployment have rendered people destitute and unable to build cyclone-resistant houses and the country continues to depend on foreign aid for emergency assistance.

Historically, crop production has long been held back by the frequent occurrences of droughts, floods and cyclones, resulting in universal food insecurities and even famine. Added to this, Southern Madagascar has had prolonged episodes of locust infestations which have adversely hindered cereals and rice production. Uncontrolled timber harvesting, firewood collection and grazing have led to massive deforestation. Outbreaks of diseases have become common due to poor sanitary conditions and lack of safe drinking water. All these hazards, coupled with Madagascar's extreme vulnerabil-

ity, are impeding the country's development process.

Realising the increasing frequency of disaster events and their consequences, the Government of Madagascar sent a request to the UNDP country office for support.

Project Title

Disaster Management Capacity Building and Preparedness in Madagascar (in 1999-2000)

Sectors

- Capacity building through training
- Support in emergency situations
- Support to mitigation programmes
- Public awareness campaigns
- Risk and vulnerability assessment
- Co-ordination and policy

Funding

Over the years, UNDP has provided financial support for various areas of disaster management, from emergency response to institutional assistance and capacity development. UNDP contributed US\$83,000 for Cyclone Gretelle (1996-97), US\$196,000 to combat locust invasions (1997-98), and US\$8,000 for UN co-ordination in disaster preparedness. UNDP also advances money to the National Emergency Council (Conseil National de Secours (CNS)) awaiting future payment from donors and provides logistical support in case of emergency.

Partnerships

- Conseil National de Secours
- Ministry of the Interior
- Comité national de lutte anti-acridienne (National Locust Committee)
- Comité restreint d'intervention sur les cataclysmes
- UN agencies
- Donors

* For example in January 23-24, 1997, cyclone Gretelle hit 6 sub-prefectures of the Southeast coastal region. As a result, 126 people died, 14 were reported missing, 231 were injured and 21'062 persons were displaced.

Programme Activities

The institutional capacity to deal with a combination of hazards and disasters is inadequate. The lack of a comprehensive disaster management policy; the lack of preparedness and contingency plans at all levels of government; lack of technical know how and efficient early warning systems; ineffective data collection methods and insufficient information dissemination mechanisms; the lack of trained personnel; the multiplicity of uncoordinated formal and informal institutions and the lack of financial resources are the major contributing factors to the current adverse impacts of disasters.

UNDP will support a two-fold programme of action, which is to include the preparation of a National Plan of Action for disaster management, and for a national capacity building programme. The following activities are envisaged:

- Strengthening of a national authority for disaster management
- Enhance the development and functioning of early warning systems at all levels of government;
- Training and capacity building;
- Launch a local community sensitisation programme on disaster management;
- Development of a national policy framework;
- Development of a co-ordinated institutional arrangement based on a critical analysis and review of the prevailing institutional structure for disaster management.