Environmental Protection & Disaster Risk Reduction

A Community Leader's Guide

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&
Disaster Risk Reduction

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FOREWORD

We should strive to work in harmony - not destroy - our environment

Our environment is a most precious resource that can reduce *significantly* the impact of disasters. Deforestation and soil erosion are just some causes of environmental degradation, and environmental degradation can lead to disasters.

The good news, however, is that protecting the environment can also be done by communities.

This booklet, *A Community Leaders's Guide to Environmental Protection & Disaster Risk Reduction,* tells us what can be done to protect the environment and in turn reduce the impact of disasters.

It also provides definitions and explanations in community-friendly language, supported by success stories providing inspiration for others to contribute to disaster risk reduction by protecting their local environment.

Sálvano Briceño
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United Nations Inter-Agency Secretariat of
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FOREWORD

This *Community Leader's Guide* is intended to provide information and support to community leaders with a responsibility for managing the welfare of local communities and their natural environment. The guide provides an introduction to the use of Environmental Protection and Disaster Risk Reduction as tools for promoting Sustainable Development, before indicating how these are applicable at the community level. Examples of some of the successes achieved by African communities are used to demonstrate how these principles can be applied.

Disasters occur when hazards damage vulnerable human communities or natural ecosystems beyond their coping capacity, and can occur as a result of both natural and human-induced hazards. Their impact upon human settlements makes them one of the most important challenges for the international community to address. Managing and reducing disaster risk is important to safeguard the welfare of humans and the environment, and, as such, environmental protection goes hand-in-hand with disaster risk management.

Environmental protection is increasingly being recognised as having an important role in the field of Disaster Risk Reduction for disaster that impact upon both the natural and human environment. Disasters are increasing in frequency and severity as a consequence of increased vulnerabilities to hazards and decreased coping capacities. This documents considers how sound environmental protection can help to reduce the vulnerability of both the natural environment and human settlements and enterprises to hazards, as well as bolstering their capacity to absorb the impacts of disaster events.

The Disaster Management Branch within the Division of Environmental Policy Implementation here at UNEP continues to work with UN/ISDR in managing disaster risk. We hope that you find the information contained within this booklet to be of assistance to the efforts of your community in protecting the environment and managing disaster risks, to the mutual benefit of people and the natural environment.

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Division of Environment Policy Implementation (DEPI)
UNEP

1. INTRODUCTION

"While we cannot do away with natural hazards, we can eliminate those that we cause, minimise those that we exacerbate, and reduce our vulnerability to most. Doing this requires healthy and resilient communities and ecosystems. Disaster Risk Reduction is clearly part of a broader strategy of sustainable development – making communities socially, economically and ecologically sustainable"

Abramovitz et al., 2001

Floods (Photo: Care Canada)

1.1 SETTING THE SCENE

Sustainable Development is generally recognised as the optimum way to harmonise humankind's interactions with and dependence on our environment to the ultimate benefit of both. Disaster Risk Reduction and Environmental Protection are two essential components of Sustainable Development.

This booklet has been produced to enable community leaders to better understand the role of environmental protection in Disaster Risk Reduction [DRR], thereby helping them to make a significant contribution towards development that can be sustained for the benefit of both present and future generations.

Over the past 40 years, natural hazards, such as earthquakes, droughts, floods, storms and tropical cyclones, wildfires and volcanic eruptions have caused major losses of human lives in Africa. Further, they often result in the destruction of economic and social infrastructure, as well as damaging the natural environment (UN/ISDR, 2002).

1.2 Disaster Risk Reduction

The probability of a disaster occurring can be influenced by a number of factors that either aggravate the situation or lessen the severity of its occurrence. These factors determine the vulnerability of an ecosystem or a community. Increasing the capacity of communities to prevent, withstand and recover from a disaster plays a major role in reducing the severity of its impact.

The United Nations International Strategy for Disaster Reduction (UN/ISDR) defines Risk as a function of Hazard, Vulnerability and Capacity. [See text box below.] The risk of a disaster occurring is based on physical, economic and environmental factors, all of which need to be monitored and evaluated continuously.

Mathematical Expression of Risk

Risk (R) = Hazard (H) x Vulnerability (V) / Capacity (C)

Where Hazard is a potentially damaging physical event, phenomenon and/or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation, vulnerability is a set of conditions and processes resulting from physical, social, economical and environmental factors, which increase the susceptibility of a community to the impact of hazards. Coping Capacity is the manner in which people and organisations use existing resources to achieve various beneficial ends during unusual, abnormal and adverse conditions of a disaster event or process.

Disaster Risk Reduction can be described as those activities undertaken by a community to "minimise exposure to hazards through the development and reliance on individual and social capabilities and institutional capacities that can withstand potential loss or damage." (UN/ISDR, 2002).

Environmental protection and planning reduces our vulnerability to disaster and it increases our capacity to recover from a disaster after it has occurred. If the appropriate measures are implemented timeously they can reduce or even eliminate the risk of a disaster occurring in the first place.

1.3 Environmental Protection

The environment is made up of the earth, water, atmosphere and biosphere. We live within this natural environment and are an integral part of it. Our social and economic activities impact on the environment and can change the manner in which its components interact with each other.

These changes can result in environmental degradation and contribute to an increase in the frequency and intensity of natural disasters and the vulnerability of the environment to them. One of the purposes of environmental protection is to minimise, or at least manage, the negative impacts we, humans, make on the environment.

The role of environmental protection is highlighted in one of the principles of the "Yokohama Strategy and Plan of Action for a Safer World".

> *"Environmental protection as a component of sustainable development consistent with poverty alleviation is imperative with the prevention and mitigation of disasters."*

Adopting sound environmental protection measures will ensure that "we can meet our present needs without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987).

Environmental protection requires the adaptation of indigenous skills and the learning of new ways to avoid increasing dependence on outside support. It illustrates the paradox that learning new methods and adapting old ways can be a key to securing the future of indigenous cultures.

It is the efforts of communities under the guidance of their leaders and the input of dedicated and inspired individuals that have been most effective in using environmental protection measures to reduce the risk and consequences of disasters and to better coordinate relief activities. In Africa, there are many examples of successful projects that include community participation and illustrate the benefits of environmental protection and disaster risk reduction.

Some of these success stories are summarised in this booklet. They clearly illustrate how leaders and communities can and do contribute to disaster risk reduction by protecting their environment.

2. HAZARDS, ENVIRONMENTAL DEGRADATION AND DISASTERS

Communities must adopt the notion that disaster impacts can be reduced and therefore not only wait for disasters to be managed. In some cases, it might be possible to reduce hazards themselves. If not, then it would certainly be possible to reduce human vulnerability to those hazards.

UN/ISDR, 2002

2.1 Hazards and Disasters in Africa

Many of the disasters caused by the hazards described below are unavoidable. However, the severity of the impact of such events is influenced by the choices that we make about how we interact with our environment.

The primary geological, climate-related, biological and technological hazards often give rise to secondary hazards. In many cases, these secondary hazards are a greater threat to a community than are the primary hazards. For example, tropical cyclones along the east coast of Africa can trigger storm surges, flash coastal and river floods and landslides. Similarly, landslides, fires, tsunamis and floods generated by an earthquake often cause worse damage than experienced during the quake tremors. In an urban environment, pollution, overcrowding and limited or even no sanitary and medical services can lead to epidemics, chronic illness and an unrelenting cycle of crime and poverty.

Examples of Recent Major Disasters in Africa

Extreme droughts have resulted in exceptional food emergencies in Burkina Faso, Chad, Ethiopia, Kenya, Niger, Rwanda, Somalia, Sudan, Tanzania and Uganda. In 2001, floods and cyclone Dera submerged 79 000 ha of planted land, severely affecting the livelihoods of nearly 120 000 farm families and 2 000 fishing families in Mozambique. In North Africa (Egypt and Algeria), 22 earthquakes killed 14 405 people and affected another 106 150 people between 1980 and 1998. In January 2002, lava flowing from Mount Nyiragongo destroyed half of the city of Goma in the eastern Democratic Republic of Congo: more than 400 000 people fled to take refuge in neighbouring villages and in Rwanda. Explosive emissions of toxic gases from Lake Nyos and Lake Mounoun, both volcanic crater lakes in the mountainous west of Cameroon, killed thousands of people in 1986.

Geological Hazards

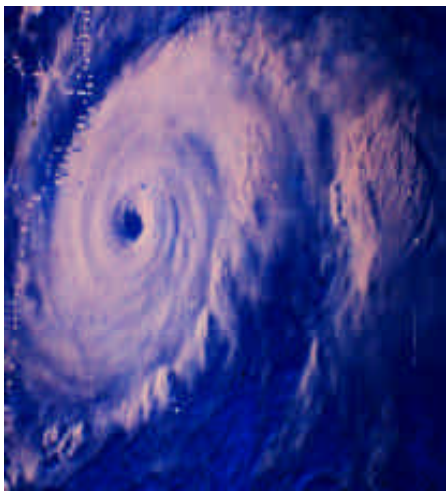
These are natural earth processes that include earthquakes, volcanic activity, and mass movements of the earth such as landslides, rock falls, subsidence and sinkholes. Countries in seismically active areas and with high urban growth rates are the most at risk from earthquakes and geological fault-related activity. Cities in North and East Africa which are experiencing rapid informal urbanisation are the most vulnerable to seismic risk.

Volcanic activity

Earthquakes in East Africa arise from movement along the geological faults in the East African Rift System. This is an area where volcanic activity is likely, as it also is in Cameroon.

Climate-related Hazards

Global atmospheric and ocean processes affect the different ecosystems in Africa. African countries have the highest vulnerability to drought in the world and are extremely vulnerable to climate change and variability with the related increased risk of drought, famine and/or flood. Floods have the greatest impact on low-lying areas, river valleys and coastal zones. They are often a result of tropical cyclones that cause havoc, especially along the east coast of Africa.


Cyclone (Photo NOAA)

The predicted consequences of global climate change – prolonged droughts, desertification, flooding and sea level rise – may well worsen the situation for Africa's people. Deforestation, inappropriate coastal development and poor land management will further aggravate the effects of climate variability and change.

Biological Hazards

Biological hazards in Africa have enormous impact on people's physical, social and economic well-being and are responsible for significant loss of lives and livelihoods. Diseases such as HIV/AIDS and tuberculosis, together with parasitic infections such as malaria and bilharzia, are amongst the biggest killers in Africa, while animal sicknesses (e.g., foot and mouth disease) have resulted in huge livestock losses across the continent.

Anophele (Photo: WHO)

Technological Hazards

These are hazards originating from technological and industrial sites and accidents, dangerous and unlawful procedures, infrastructure failures, improper waste management and in some instance natural emissions of toxic gas. Some examples include industrial pollution, toxic wastes, oil spills, contaminated water supplies and industrial accidents.

Le delta du Niger pollué (Photo: GTZ)

Alien Vegetation

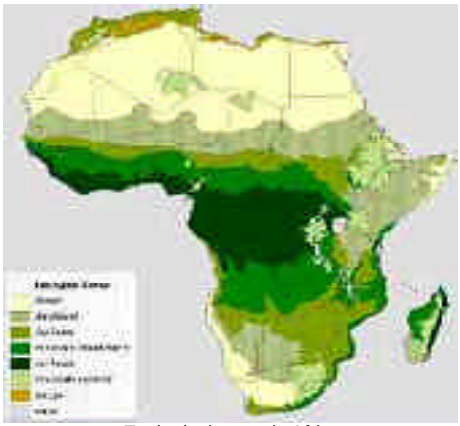
Certain plant species introduced from other parts of the world pose a significant threat to livelihoods in many parts of Africa and in some areas directly impact the risk and severity of disasters. Species such as Acacia cyclops and Acacia saligna can:

- Increase the risk of bush fires due to their combustible nature;
- Increase erosion following fires in heavily invaded areas;
- Increase the impacts of flooding, especially after fires;
- Reduce available water due to their excessive absorption of groundwater, which results in loss of productive land and livestock.

Dense mats of aquatic plants such as water hyacinth (*Eichornia cassipes*) can also have serious impacts on the people living near infested water bodies, such as:

- Reduced quality of drinking water.
- Increased siltation and flood damage.
- Promotion of waterborne, water-based and water-related diseases such as malaria, bilharzia and encephalitis.
- Reduced areas for fishing and water transport.
- Clogging of irrigation channels and pumps.

2.2 Environmental Degradation



Ecological zones in Africa

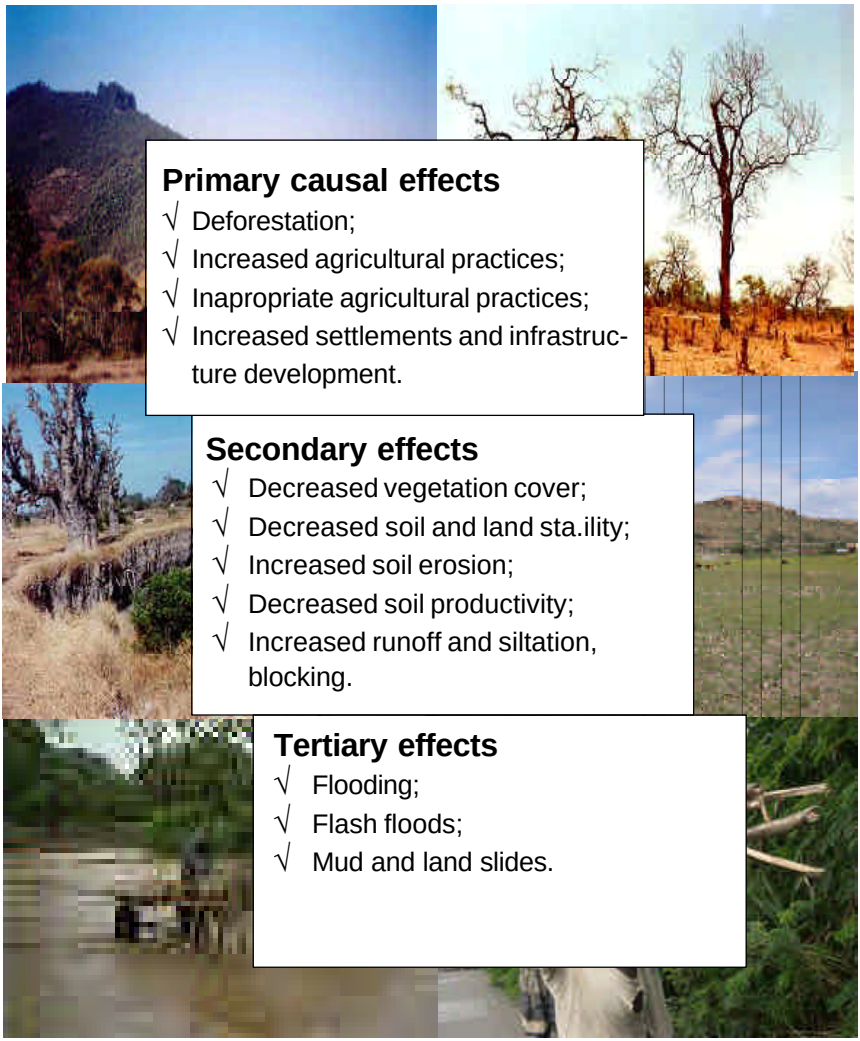
Environmental degradation is largely caused by man's activities but can also be a consequence of natural hazards. The result is that the natural processes of the ecosystems are altered and possibly damaged irreparably. The effects of environmental degradation are varied and often contribute to an increase in vulnerability, and in the frequency and intensity of natural hazards. Understanding and knowing about our local environment is important, as poverty is closely linked to environmental degradation.

When the environment becomes degraded, all forms of life are threatened. We need to ensure that our activities do not damage the diversity and integrity of nature, and that resources are used in a sustainable manner. Effective management of the environment is essential if we are to reduce the impacts of natural disasters and the risks associated with environmental degradation in Africa.

An area with a thriving and diverse ecosystem is a better position to absorb the impact of a natural disaster than a degraded environment, and it can recover more easily.

Human activities can result in land degradation, desertification, deforestation, loss of biodiversity, land, water and air pollution and increased number of wild land fires. These factors have significant impact on the potential for sustainable development and quality of life.

Unless positive steps are taken to lessen humankind's impact, it is inevitable that overexploitation of the environment in Africa will continue. Improved management of the environment is essential, so that the human vulnerability/environmental degradation circle can be broken.



The ripple effects and the increasing severity of the consequences of environmental degradation are illustrated above. Why poverty is closely linked to environmental degradation, and vice versa, is clearly evident.

The prevention of environmental degradation has many benefits for communities, the African continent and the international community. In the next chapter, the linkages between environmental protection and disaster reduction are examined.

The value of proper forest utilisation in Madagascar

Income earned using slash-and-burn agriculture over a ten-year period has been estimated at only about US$12 000 with severe environmental degradation.

Selling the timber on the global market using commercial forestry would realise about US$90 Million over a ten-year period, with only the multinational companies reaping the financial benefits. For the Malagasy, the consequence would be the ultimate loss of the forest, with little hope for sustainable development.

In Masoala National Park alone, over a ten-year period, the income generated from sustainable harvesting and proper utilisation of the forest products by local villagers could be as much as US$200 000, with the financial, environmental and social benefits being retained by the people of Madagascar.

3. DISASTER RISK REDUCTION

"The idea of 'Right Livelihood' embodies the principle that each person should follow an honest occupation which fully respects other people and the natural world. It means being responsible for the consequences of our actions and taking only a fair share of the earth's resources."

Right Livelihood Award, 2004

Sea or water pollution could be a hazard to people and the natural world (Photo GTZ)

3.1 An Outline of the Disaster Risk Provention Philosophy

Disaster Risk reduction is everyone's responsibility and involves many areas of activity. Here we focus on four areas:

1. Risk Analysis and Assessment.
2. Developing an Awareness of Risk.
3. Developing Early Warning Systems.
4. Disaster Risk Management.

Risk Analysis and Assessment

The assessment of risk generally begins with the identification of the hazards involved. Environmental degradation is one of the major forms of hazard and often arises through processes induced by human behaviour -sometimes combined with naturally occurring hazards.

Assessing this kind of hazard usually involves well-established procedures that include the collection and analysis of geographical, atmospheric, biosphere and other environmental data. The complementary evaluation of the social, economic and environmental vulnerabilities and coping capacities poses many challenges, and must involve the active participation of the communities at risk.

Example of Risk mapping (Photo: Chip Snaddon)

It is important that communities understand the role of environmental protection in risk assessment to enable them to contribute fully towards the process, and to be able to develop local and regional disaster preparedness plans.

The risk-assessment process depends upon an evaluation of "acceptable levels of risk". This is "risk perception", and it is the process whereby the own awareness, ideas and preconceptions of local people about risks confronting them are taken into account. In many cases of large-scale or slow-onset environmental degradation, such as global climate change, deforestation and the loss of biodiversity, the local communities may not be aware of the risk or may even deny its existence completely.

Disaster Risk Education and Awareness

If the local community is actively involved in the risk assessment process, it is an opportunity to raise their awareness about the potential hazards. Some of these hazards may be familiar, others not. However, once a community recognises a hazard it is then possible to bring about a change in their perception, which will contribute towards disaster risk reduction.

Awareness at community level is necessary to achieve consensus and obtain commitment from local public authorities about disaster risk reduction policies. These could have controversial consequences, such

Awareness at community level helps to achieve consensus about disaster risk reduction (Photo GTZ)

as a re-allocation of funds from visible development projects to less obvious projects, which will nevertheless limit the impact of intangible longer-term threats. To achieve such objectives will require a public education process to increase awareness about the causes and consequences.

Early Warning Systems

Early warning is "a process that provides timely information so that communities are not only informed, but sufficiently impressed, that they take preparedness actions before and during the anticipated hazardous event. It depends on practical relationships between science and technology, and the understanding of social and economic implications of disasters in the context of sustainable development." (Declaration of the Potsdam Early Warning Conference, 11 September 1998)

The purpose of obtaining early warnings of impending disasters is to enable communities at risk to act timeously and appropriately so as to reduce the possibility of injury, loss of life and damage to property and the environment. Early warning is a critical component of disaster risk reduction. There are three key steps in developing an early warning system at community level, which are:

- **Forecast and Prediction** – evaluating the results of monitoring key indicators to determine whether the environment is warning us of an impending disaster.
- **Using and Announcing the Warning** – Community leaders notify their people, their neighbouring communitiesand, if necessary, regional government of the possible consequences of the identified risk. In the case of a slow onset event, appropriate changes in community practices need to be considered and implemented (prevention opportunity).
- **Reaction** - Community leaders and their people, having been forewarned and understanding the situation they face, can implement the necessary prevention or protective measures.

The 1998 Potsdam Conference recognised that "early warning is effective only to the extent that policy makers at national levels of authority have the will, and make a sustained commitment of resources that will establish protective measures". The decision, both to issue an early warning or not, and to act upon it, is political in character. Those who have the necessary authority to make such decisions carry the political responsibility for the consequences of those decisions.

Disaster Risk Management - Mitigation Preparation, Response and Recovery

Until recently, disaster management has been reactive and focused on crisis management and the emergency assistance (relief) needed only after a disastrous event has occurred. Disaster risk reduction now takes a proactive longer-term view. Its purpose is to assist communities to prepare for and reduce the impacts of disasters that cannot be avoided, such as floods, earthquakes and volcanoes.

For the disasters that cannot be prevented, there are four aspects of disaster management:

- Mitigation;
- Preparedness;
- Response;
- Recovery.

Disaster mitigation includes structure and non structure measures undertaken to limit the impact of potential disasters - for example, public awareness and flood forecasting are considered as non structural measures, while dikes and barrage construction is structural measure for mitigating flood impact.

Disaster preparedness helps communities reduce the likelihood or severity of impact of certain disasters, particularly slow onset disasters, many of which arise from environmental degradation. Examples are desertification, famine, flooding, wild fire, disease and epidemics. It deals proactively with the risks identified and results in increased community resilience and capacity to overcome the impacts of a disaster.

In the immediate aftermath of a disaster, many of the stricken communities will be in a state of shock and often not able to think beyond their immediate needs. A community that has discussed and thought through the problem in advance will know what it needs and how to respond. It will also know when it should call upon outside assistance and how to effectively manage it. The leaders of such communities are in a better position to co-ordinate outside assistance with local relief operations in restoring community well-being.

Without this preparedness and associated resilience, disaster relief can entrench dependence on international relief agencies. With proactive disaster preparedness plans in place and strong leadership, communities

Disaster preparedness helps communities to reduce the likelihood or severity of impact of certain disasters (Photo IFRC)

can manage the aid that follows a disaster and initiate important medium and long-term developments in their areas during the recovery phase. *In every crisis there is an opportunity*.

3.2 Sustainable Development, the Environment and Disaster Risk Reduction

The three pillars of sustainable development are:

- Socio-cultural equity and quality (Social capital);
- Economic growth (Economic and Financial capital);
- Environmental protection (Natural capital).

Sustainable development means communities must take social, economic and environmental issues into account in all decisions and planning.

A community's wealth is measured by its total capital - the sum of its social, economic and natural capital. For development to be sustainable, the total capital must increase with time. Through training and education, economic capital can be used to increase social and natural capital.

Natural capital can also create economic capital (e.g., tourists visiting national parks and spending money). Natural capital can also be transformed into economic capital (e.g. mineral or oil production, or when a hardwood tree is used to make a wood-carved sculpture and the sculpture is sold). When the natural environment is degraded, this reduces the value of the natural capital available.

Description of Capital

Social Capital – consists of the people and their skills (Human Capital) as well as the systems of democratic governance, social services and the quality of government departments and other community organisations.

Economic Capital – consists of the built infrastructure (buildings, roads, ports, railways, wastewater treatment works etc.) as well as the Financial Capital (money) available to the community.

Natural Capital – consists of all the goods provided by the earth such as soil, water, plants, forests, wildlife, fish, minerals, oil and gas. Natural Capital also includes the many services provided by the natural environment such as forests providing oxygen, wetlands filtering water, and dunes providing wind shelter and flood protection.

Disasters can also result in a loss of social, economic and natural capital. Repeated exposures to disasters from which a community does not recover will lead to a downward spiral of poverty. Disaster risk reduction aims to break this cycle.

Every step in the disaster risk reduction framework can be considered as an opportunity for sustainable development. Risk management and environmental management initiatives should not be seen to compete with other developmental objectives. Rather, they are an integral part of sustainable development.

Although the post-disaster reconstruction period often provides an opportune time to introduce disaster reduction measures through proper environmental protection into the planning for sustainable development, no opportunity should be lost to reduce or mitigate risks long before disaster strikes.

A community that understands its symbiotic relationship with the environment understands how to transform the goods and services that it

offers into sustainable economic activity. This makes it a resilient community that is alert to the early warning signs of slow onset disasters and is responsive to the need to change in order to avert an escalation of risk. It will have appropriate plans in place if a disaster strikes and in this event the community and the environment will be able to recover faster.

Promoting the sustainable use of natural resources, maintaining natural ecosystems in good condition and responding to early warning signs of environmental degradation is critical to developing communal coping capacities that will reduce the severity or frequency of natural disasters, limit vulnerability to the impacts and the occurrence of secondary and tertiary effects.

Coping capacity is

- The ability to cope with and recover from shocks and stresses.
- Economic effectiveness or the use of minimal inputs to generate a given amount of outputs.
- Ecological integrity, ensuring that livelihood activities do not irreversibly degrade natu ral resources within a given ecosystem.
- Social equity, which suggests that promotion of livelihood opportunities for one group should not foreclose opportunities of other groups, either now or in the future.

[UNEP, 2002]

Examples of natural capital provided by different environments

Natural Systems	Good	Services
Wetlands, e.g., Okavango Swamps.	Water, food and useful plants.	Help to purify water, act as a sponge to store water and reduce the risk of flooding; Ecotourism opportunities.
Coastal dunes and mangroves, e.g., the coast of Nigeria.	Wood	Protect the coast during storms; Ecotourism opportunities.
Natural vegetation, e.g., Savannah and Forest of Kenya, Tanzania, Congo, Uganda.	Food (fruit, berries, wild animals), raw materials (wood), building materials (wood, thatch, clay, stone), medicinal plants	Stabilizes the soil and prevents soil erosion; Forests produce oxygen and absorb carbon dioxide for the continent and the planet; Ecotourism opportunities.
Mountains	Water, useful plants.	Act as catchments, storage areas for water; Ecotourism opportunities.

3.3 Environmental Protection

Environmental protection is mainly aimed at protecting the natural functioning of ecosystems and the sustainable use of natural resources.

Many communities in Africa depend on natural resources, and small-scale cultivation or livestock farming for their livelihoods. This means that they are vulnerable to changes in the environment, the impacts of extreme natural events and poor land use or resource management. Simply stated, many Africans communities are vulnerable to the impact of disasters that are caused by environmental degradation.

The recent increase in migration of destitute people to urban areas is driven by the relentless cycle of environmental degradation and resultant poverty in the rural areas. This places enormous demands on the limited financial resources available to the affected municipalities and is one of the reasons why the provision of basic housing and services is lagging behind in many urban areas. As a result large, unplanned informal settlements grow around many large cities and towns with the consequent degradation of the urban environment.

Wherever we live, the natural environment is determined by the climate, the soils and the topography. Plants and animals comprise a natural "community" and the conditions define a habitat. If a habitat is degraded, fewer kinds or species of plants and animals can thrive in it and biodiversity is lost.

Loss of biodiversity results in an increasingly unstable environment and eventual destruction of the ecosystem. This in turn reduces the quality of the ecosystem resources, which adversely affects a community's livelihood options.

Disaster risk reduction and environmental protection support and complement each other since both aim to promote sustainable development. The goals, socio-economic benefits, tools and approaches are compared in the following table and show how environmental protection can be integrated into a Disaster Risk Reduction Plan to achieve sustainable development.

Consequences of Environmental Degradation

Deforestation. This results in the loss of wood for cooking (energy) and building materials, plants and animals (for food and medicine) and also exposes the land to the risk of soil erosion.

Land degradation. Soil erosion reduces the quality and quantity of the soil and increases desertification. Other impacts are declining agricultural yields, increased risk of flooding, increased competition for resources and potential for conflict.

Air pollution. Concentrations of population, industry and vehicles in urban areas and increase in wood burning fires in rural areas are increasing air pollution, which in turn increases health risk and risk of food shortage.

Desertification. This impacts on food production and increases migration off the land to urban areas where many people live in unhealthy and poor conditions without the necessary skills to earn a good living.

Coastal degradation. This results in vegetation loss and soil erosion and increases vulnerability to devastating damage to property and loss of life during high seas and cyclones.

Poor water resource development and management. This can result in high algal growth in lakes and dams, contamination of groundwater and the loss of aquatic habitats and biodiversity. These constrain food production and industrial activities, and contribute significantly to the burden of disease, and the risk of famine.

Informal settlements. Informal sttlements in urban areas are closely linked to poverty and environmental degradation in rural areas. Living conditions are poor and increase the risk of epidemic and grinding poverty.

	Disaster Risk Reduction	Environmental Protection
Goals	Sustainable Development	Sustainable Development
Socio-economic benefits	Reduces risk of injury and loss of life, disruption of social systems, damage/ destruction to crops/ livestock, buildings and infrastructure (i.e. minimize loss of social and economic capital); Increases community resilience to disasters; Reduces dependence on aid.	Protects natural environmental assets (i.e. minimise loss of natural capital); allows natural systems to function; limits risk and impact of disasters to communities.
Preventative measures, tools and approaches	Risk Knowledge Development : Participatory Processes; Public Commitment • Policy; • Legislation. Risk Analysis and Assessment: Risk Awareness; Early Warning Systems; Disaster Risk Reduction: Plans (Preparedness & Prevention); Disaster Management Plan (Response); Disaster Relief Plan (Recovery); Community-Based Disaster Management.	Environmental Knowledge Development: Participatory Processes; Public Commitment • Policy; • Legislation. Environmental Impact Assessment: Environmental Awareness; Environmental Monitoring; Land Use Planning (Preparedness & Prevention); Environmental Management Plan (Response); Conservation and Management Plans (Recovery and Prevention); Community-Based Natural Resource Management .

4. THE BENEFITS OF AN HOLISTIC APPROACH TO ENVIRONMENTAL PROTECTION

While most natural hazards may be inevitable, disasters are not. By seeking to understand and to anticipate future hazards by study of the past and monitoring of present situations, a community or public authority is poised to minimize the risk of a disaster. It is a measure of people's wisdom and a society's values if a community is able to learn from the experiences of others, rather than to suffer its own.

From "Living with Risk" (UN/ISDR, 2002)

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4.1 INDIVIDUALS

The concept of "Ubuntu" is prevalent throughout Africa. This means that one is not a full human being if another human being is suffering. It is a philosophy that binds families and communities. It suggests too that an individual is only as strong as the community that supports him/her.

The process of disaster risk reduction and environmental protection underpins this approach and the success stories summarized later in this chapter clearly illustrate the role that responsible leaders can play in uplifting their communities. These stories also illustrate the extraordinary courage and talent of women who have taken the lead and initiated environmental protection measures. The result has been to enhance the livelihoods of individuals, to introduce new skills, to create a sense of hope and active participation in their future.

4.2 COMMUNITIES

Communities are often closely knit and bound by common cultures, family ties and traditional ways. Secure communities are those that have learned to live with the land, as well as from it (UN/ISDR, 2002). To achieve this requires that new ways of addressing old problems are adopted, but this can only come about if there is awareness and acceptance of the consequences and cost of wrongly exploiting the land.

It is not easy to change how a community approaches a problem but there are inspiring community success stories that illustrate the advantages of adopting environmental protection measures. These communities have responded to the need to adapt or revitalise traditional ways.They have learnt new skills, thereby reduced the pressure on their environmental resources, and have adopted better land use practices, which has lead to more sustainable development.

Through sound environmental and resource management and protection, each community has either reduced the risk of a disaster occurring or has increased its capacity to cope with the impact of a disaster. In each instance, the communities have become more resilient and less dependent upon outside assistance.

There are secondary benefits as well. Successful problem solving and increasing economic independence develop self-respect and self-reliance and foster cooperation within the community. This in turn encourages a positive cycle of responsible and good governance.

There are lessons to be learnt from how these communities addressed the challenges of change. Public debate and education at every level of society is needed to achieve the involvement and long-term cooperation of communities to realise the advantages of environmental protection. This cooperation should extend across national borders where two countries share a common resource such as a river.

Each country bears the primary responsibility for protecting its own people, infrastructure and other natural assets from the impacts of natural disasters.

Principle 9 of the Yokohama Strategy and
Plan of Action for a Safer World

4.3 Success Stories

World Wildlife Fund's involvement in Namibia

The *Community Game Guards* project, initiated by WWF-South Africa, is an innovative approach to wildlife conservation based on the ground that indigenous peoples make the best conservationists. This project and other similar community-based projects have been so successful that many species of wildlife have returned to areas of Namibia where they had disappeared as a result of hunting, illegal poaching and harassment by local people.

Due to the successes of the *Community Game Guards* project, two other conservation projects have developed, namely, the NGO initiative *Integrated Rural Development and Nature Conservation (IRDNC)* and *Living in a Finite Environment.* The first aims to improve the effectiveness of the community game guard networks in the Kunene and Caprivi regions. Community-based ecotourism initiatives, including training local community members as game guards, are also encouraged.

Community Gmae guards project, Torra Conservancy, Kunene, Namibia (Photo: WWF)

Cameroon woman wins major international award for disaster reduction

Mrs Tadzong of Cameroon won the prestigious 2003 Sasakawa Award for Disaster Reduction because of her long-term personal commitment and dedication to disaster risk reduction.

Mrs. Tadzong and her team in action

Together with the *Global Centre for Compliance, Hazards and Disaster Management*, Mrs Tadzong has promoted the use of environment-friendly practices that mitigate disaster risks at community level. As a result, Mrs Tadzong and her colleagues have played an important role in helping the poor to sustain their safety and livelihoods through their educational, social and economic activities at community level. She strongly believes that one can reduce the impacts of disasters if preventative steps and actions are taken before they occur. Their projects have included:

- Community-based disaster prevention training (e.g., advising people not to hide under trees or steep slopes when it rains, because of landslide, soil creep and rock fall).
- Advice and support to small farmers to integrate small trees into crop land to maintain soil fertility and prevent land degradation.
- Reduction of hazards through waste management and compost production.

She has succeeded in combining disaster risk reduction, environmental protection and agricultural activities. This award is a great honour for all African women who play such an important role in maintaining the wellbeing of communities before, during and after disasters.

Working for Water - South Africa

Working for Water (WfW) is a South African programme which simultaneously tackles the problems of invading alien plants and unemployment. It is a national government programme to:

- Enhance water security, improve ecological integrity, restore the agricultural potential of land and promote sustainable use of natural resources.
- Invest in the poor sectors of South African society.

In the national parks of South Africa, the single biggest threat to biodiversity comes from invading alien organisms. The WfW programme, together with South African National Parks, works to control invading alien plants, while at the same time stimulating a process of job creation and social transformation in communities close to the parks.

The Ukuvuka Working for Water tackles the problems of invading alien plants (Photo

SOS Sahel community forestry project in Ed Debba, Sudan

Community forestry project has reduced the risk of having to abandon their homes to relocate somewhere else

On the banks of the Nile, near Ed Debba, Sudan, there are numerous environmental problems. These include the encroachment of sand into productive land, uncontrolled tree cutting and overgrazing, and the poor living conditions of the rapidly increasing population. The SOS Sahel Community Forestry Project has successfully addressed many of these problems.

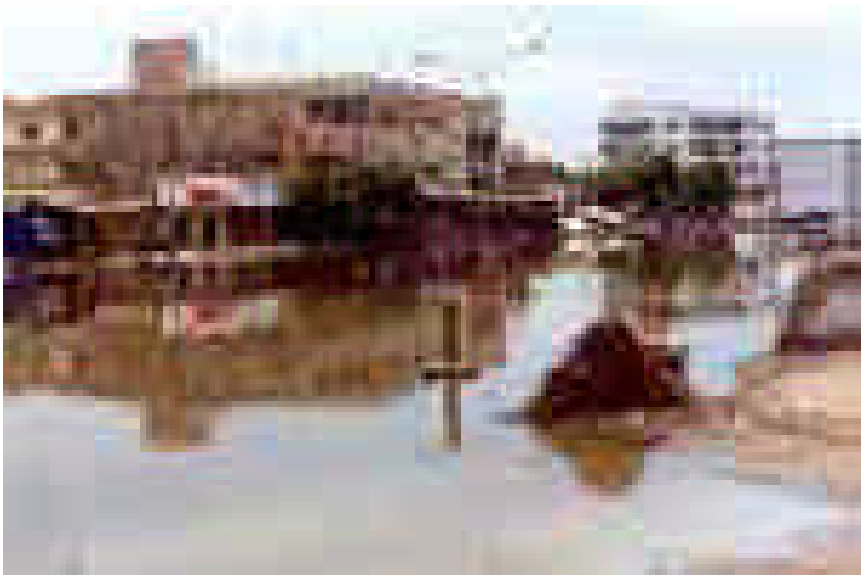
- Sand encroachment has been reduced by establishing vegetated belts and windbreaks and stabilising the dunes.
- Tree cutting and overgrazing have been reduced by harvesting seed pods from trees for fodder and fuel.
- Poor living conditions have been improved by employing women in home-based activities, protecting houses, water points and infrastructure and constructing better houses.

Improved community environmental protection has resulted in better living conditions and the community has reduced the risk of having to abandon their homes to relocate elsewhere. Other villages in the Nile basin are starting to follow these important advances.

Urban upgrade in Senegal

In the small Senegalese town of Rufisque, lack of sanitation posed a health risk. Much of the residential land lies below sea level and the ground water sources of drinking water are easily polluted by sewerage from the pit latrines. Through community participation, aided by international funding and the Rusifique Local Authority, nine low-income communities are well on the way to solving the problem by using horse drawn carts to collect solid waste and low-cost pipes dispose of wastewater and sewerage. Sewerage, wastewater and solid waste all end up in a purification-and-recycling centre where it is treated to form compost for use in the local market gardens.

The local community actively participates in this scheme and women play a prominent role. The safe disposal of solid waste, the elimination of excrement as a source of disease and the reduction of flies and mosquitoes have all improved the urban environment and reduced health risks to the community.



Local authority and community together can resolve the health risks

Women and Rainwater Harvesting in Semi-Arid Areas in Kenya

In Kenya, the inhabitants of Kisamese are mostly Maasai whose main livelihood is livestock, usually in large numbers. As a result, there is a great competition for water for livestock and domestic use. In many instances, women are not allowed to fetch water for domestic use until the animals have been watered. During drier months and especially in cases of severe drought, men often travel long distances in search of water and pasture for the livestock.

Sustainable water management requires active participation of both men and women. Although the Maasai women spend a substantial part of their day in search of and carrying water, they are excluded from decisions on the management of this resource. The Maasai culture has not empowered women to make contributions in this field.

In spite of the water shortage and the environmental damage caused by the infrequent but sometimes very heavy rains, rainwater harvesting has not been exploited among the Maasai, although it has been practised for a long time in Kenya.

It was against this background that UNEP implemented a project to empower women to improve access to water and the capacity of women to manage water while recognizing the complementary roles of both sexes. The project consisted of training workshops in planning, developing and implementing water resources projects focusing on rainwater, practical training on (i) the installation of tanks to collect water from roof tops and rocks and modified manyatta (traditional Maasai dwelling) and (ii) rehabilitating a disused quarry to collect water.

Successful implementation of the project led to increased water availability at school and in the community. As a result, children do not have to take water usually of poor quality to school and women do not have to compete for water with animals. The community accepted women leadership and the women are now able to articulate their needs. The women used the knowledge acquired in fund raising activities such as goat rearing and joint marketing of artifacts contributing to poverty alleviation and improving their capacity to cope with drought which is common in the area. They have also taken responsibility for their primary health by sponsoring two of their group members to attend a primary health care course.

4.4 International Benefits and Responsibilities

The international community has benefited from the use of Africa's resources such as minerals, oil and gas deposits, timber, agricultural products and its unique tourism sites. It has accepted that it has a responsibility to help protect Africa's natural capital in cooperation with local communities. The international community also recognises that poverty reduction, the vulnerability of people to natural disasters, and environmental protection are linked, which recognition forms an important part of the UN Millennium Declaration.

The people of Africa have a responsibility as custodians of the continent to work with each other and the international community to actively protect the natural environment and to ensure sustainable development of non-renewable resources. Adopting a holistic approach to environmental protection and disaster reduction will ensure that environmental protection and disaster risk reduction activities are integrated into all development programmes.

Projects managed under the Ramsar Convention are good examples of projects that can achieve these objectives. The Ramsar Convention is a global environmental treaty whose mission is the "conservation and wise use of wetlands by national action and international cooperation".

Wetlands (Photo Ramsar)

Examples of Ramsar Projects in Africa

Ramsar Project	Environmental Protection	Disaster Risk Reduction Benefit
Niger River Basin	Protect wetlands	Reduce flood risk and improve water quality
Oasis de Tamantit et Sid Ahmed Timmi, Algeria	Protect unique desert oasis ecosystem	Primary source of water supply, safeguarding against famine and drought; it is used in religious activities and is a tourism destination
Lake Chad, Niger	Protect lake habitats and biodiversity	Preserve water supply, reduce desertification and famine. The site is used for fishing, salt production and harvesting of *Spirulina*, hunting, small-scale agriculture and extensive grazing of sheep and camels.
St Lucia System, South Africa	Protect wetlands and biodiversity	Used for ecotourism, education and in religious activities.
Complexe des lacs de Manambolomaty, Madagascar	Protect rare and endangered plants and animals	Provides important sources of essential materials (food, firewood, medicinal plants, etc.). The shores of the lakes are also used for agriculture.

5. SUMMARY AND RECOMMENDATIONS

> *"If we want a strong Africa in the future, we must lay its foundations on our indigenous knowledge in all areas of our lives. We will borrow ideas and skills from others since we live in an interdependent world but if we are in possession of our minds, what we borrow will come to enrich and embellish what we already have and not supplant it."*
>
> *Opoku, 1999*

Appendix A gives a brief outline of international and national initiatives being undertaken in Africa. Appendix B briefly summarises partnerships, aid and funding opportunities for communities.

At the community level, there are five phases common to Environmental Protection and Disaster Risk Reduction that you can follow. Below are examples of the kinds of questions that can be asked to determine how best your community could implement environmental protection and disaster risk reduction measures in each of these phases.

your community could implement environmental protection and disaster risk reduction measures

5.1 Knowledge Development

Key Questions:

1. Is awareness about the importance of disaster risk reduction and environmental protection taught in schools and to adult education groups in your community?
2. Is your community aware of the value of the resources that it receives from the natural environment?
3. Are you encouraging people to determine where are the areas at risk and those areas that require environmental protection?
4. Have you documented existing knowledge about areas at risk and identified possible shortcomings in information available?
5. Have you identified potential support and partners from your neighbouring areas and regional authorities?
6. Do you have, or could you prepare educational material on disaster reduction for your children and other community leaders?
7. If you do not have the facilities, do you know whom to ask for assistance?

5.2 Risk and Environmental Assessment and Analysis

Have you identified all the hazards that may affect your community?

1. Is your area at risk from any of the following: earthquakes, volcanoes, landslides, rockfalls and surface collapse?
2. Is your area at risk from any of the following floods, tropical cyclones, hailstorms, drought, wildfires and sandstorms?
3. Is your area at risk from any of the following:human, animal or plant diseases and infestations of alien vegetation?
4. Is your community at risk from any of the following: industrial pollution, dam failure, toxic waste or technological accidents?
5. Is the health of your environment now as good as it was 2, 5, 10 and 20 years ago?

6. From the answer to question 5 above, decide how fast the deterioration is and whether it is occurring at an increasing rate?
7. Are any of the following processes active in your area? Land degradation, desertification, deforestation, loss of biodiversity, land, water and air pollution?
8. Can you map out the areas surrounding you that are most at risk?
9. What would be the worst rapid-onset disaster that could strike your community?
10. What slow-onset disaster is your community at the greatest risk from?
11. Do you know which people in your area are living in the most dangerous areas?
12. Have you discussed with them their vulnerability?
13. Have you taken steps to reduce their risks?
14. What activities cause the greatest damage to your local environment?
15. Have you decided what can be done to reduce the negative impact on the environment of these activities?
16. Are these being implemented? If not, why not?
17. Are women actively encouraged to participate in disaster reduction and environmental protection? If not, why not?

5.3 AWARENESS

Is information being provided to your people to explain the following?

1. What the risks are of living in a potentially dangerous place?
2. That the unsustainable use of natural resources and/or damage to the environment will result in environmental degradation, which in turn increases the chances of disasters occurring?
3. Are undesirable land use practices discussed with the people involved?

4. Are they actively encouraged to change their land use practices where necessary?
5. Are women involved in these processes?

5.4 Early Warning Systems

Once you have identified the potential hazards that could cause the greatest damage to your community and the surrounding environment, you need to work out how to monitor and measure changes so that you can have early warning of potential disasters.

If you are at greatest risk from climate-related hazards, do you :

1. Measure and monitor the amount of rainfall?
2. Keep up to date with the weather forecast published in newspapers and on radio and TV?
3. Maintain contact with community leaders in neighbouring areas to where you live?
4. Plan to establish a reliable means of passing on warnings of impending potential disasters?
5. Communicate and warn the community when the situation is deteriorating or a potential disaster is imminent?

If you are at risk from a geological hazard, have you contacted somebody in the government or at an educational institution to advise you on how to monitor the situation?

1. Do you have ways of measuring environmental degradation, because this could be an important indicator of a slow-onset disaster?
2. Can you develop a monitoring system that involves the people, especially women, and documents changes in the environment that may increaserisk to the community?

5.5 Integrated Environmental and Disaster Risk Management Plans

Are the following aspects covered?

1. The application of appropriate risk reduction and environmental impact mitigation measures. These actions should respond to early warnings and help to prevent slow-onset disasters.
2. Have preparedness and response plans been developed and tested?
3. Are these plans easily accessible in the event of an unavoidable disaster?
4. Have you identified areas where the main focus of attention should be during the post-disaster recovery phase?

5.6 Epilogue

We trust that this booklet will assist you to determine what are the actions that your community can implement to bring about environmental protection and sound risk management.

African communities that can adapt and learn from disaster risk reduction and environmental protection principles will not only be securing a more sustainable future for themselves, their children and their grandchildren, but also will set an example and be an inspiration of African self reliance to others.

APPENDIX A

INTERNATIONAL AGREEMENTS

International Agreements and Commitments

The journey towards sustainable development and environmental protection is ongoing. In the last 30 years, a series of summits, meetings and agreements have brought us to the wide-ranging interpretation of sustainable development that we see today. Environmental Protection and Disaster Risk Reduction are recognised as an essential part of development. At the UN Conference on Human Environment (Stockholm, 1972), the international community met for the first time to consider the global environment and highlighted the need to support people in this process.

The UN Conference on Environment and Development, also known as the Earth Summit, took place in 1992 in Rio de Janeiro. The main outputs of that Summit were the *Rio Declaration on Environment and Development* and *Agenda 21* (a programme of action).

Disaster Reduction was not specifically dealt with in this declaration but during the International Decade for Natural Disaster Reduction; (1989-1999) the connection between disaster reduction and sustainable development was clarified to a greater extent.

In 2002, the World Summit on Sustainable Development held in Johannesburg resulted in:

- A political declaration on increased commitment for action
- A Plan of Implementation
- The formation of partnerships to implement the Plan of Implementation.

AFRICAN / SUB-REGIONAL INITIATIVES

Many African countries are party to various environmental policy instruments at regional and sub-regional levels. The formation of the African Union and NEPAD provides an opportunity to place Africa on a path of sustainable growth and development by reducing poverty, revitalising governance and developing mutually beneficial global partnerships.

A number of disaster reduction initiatives between African Institutions and the UN ISDR Africa are in progress. These include:

- Sub-regional and regional reviews
- Development of guidelines to mainstream Disaster Risk Reduction into development projects
- Promoting women's active participation in disaster reduction
- Development of educational material for children and community leaders
- The development of an African Regional Strategy on Disaster Reduction together with the African Union and NEPAD

Key International Events related to Disaster Risk Reduction and Sustainable Development

1972: UN Conference on Human Environment (Stockholm); UNEP established

1983: World Commission on Environment and Development (the Brundtland Commission) established

1989: Launch of the International Decade for Natural Disaster Reduction (IDNDR)

1992: UN Conference on Environment and Development (the Earth Summit) in Rio de Janeiro, Brazil

1994: World Conference on Natural Disaster Reduction, Yokohama, Japan

1994: UN Conference on Population and Development

1995: UN Fourth World Conference on Women, Beijing, China

1997: First World Water Forum, Marrakech, Morocco

1999: End of IDNDR

2000: Launch of the International Strategy for Disaster Reduction (ISDR)

2000: Millennium Summit, New York, USA

2002: World Summit on Sustainable Development, Johannesburg, South Africa

2005: World Conference on Disaster Reduction, Kobe, Japan

APPENDIX B

Partnerships, Aid and Funding for Disaster Risk Reduction

The UN/ISDR encourages networking and partnerships in order to build links that help to reduce risk in Africa. These partnerships can range from information exchange networks to fully organised and funded implementation partnerships. Examples of these are:

- Technical and research networks with governments and universities.
- Rural networking support – involving NGOs working with vulnerable communities (e.g. FAO, USAID, CARE).
- Networking support for community partnerships – consisting of groups of organisations and people committed to disaster risk reduction in communities. In Africa, Periperi is a network of partners from five Southern African countries. Periperi was established by the Disaster Mitigation for Sustainable Livelihoods Programme (DiMP) at the University of Cape Town.
- Cross-sectoral coordination and collaboration – where different government departments and communities all work together to reduce the risk of disasters or manage the impacts of disasters.

Communities can establish links with organisations that provide advice on environmental protection and risk reduction. They can encourage local and national authorities to establish committees or other platforms for disaster risk reduction. These would include active community involvement and the participation of relevant sectors. The better prepared the community is, the less it will have to rely on foreign aid since risk reduction and disaster prevention make better economic sense than reliance on disaster relief.

There are various ways that communities can help reduce their dependence on aid.

MicroFinance

Microfinance can help families to increase their coping capacity through diversification of income (different types of jobs, regular employment and opportunities for women). Microfinance can also serve as an insurance policy following disasters.

Savings

Communities that save and invest savings in improving their physical assets are reducing the risk and the potential impact of disasters affecting them.

Public works programmes

If properly implemented public works programmes can combine environmental protection, disaster risk reduction and employment and capacity building.

GLOSSARY

The following terms are taken from **Living with Risk**, A Global Review of Disaster Reduction Initiatives UN/ISDR 2002

Acceptable risk: The level of loss a society or community considers acceptable given existing social, economic, political, cultural and technical conditions.

Capacity: A combination of all the strengths and resources available within a community or organisation that can reduce the level of risk, or the effects of a disaster.

Capacity building: Efforts aimed to develop human skills within a community, organisation or institution needed to reduce the level of risk.

Coping capabilities/Capacity: The manner in which people and organisations use existing resources to achieve various beneficial ends during unusual, abnormal, and adverse conditions of a disaster event or process.

Disaster: A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community/society to cope using its own resources.

Disaster risk reduction: (disaster reduction): The systematic development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of sustainable development.

Early warning: The provision of timely and effective information, through identified institutions, that allow individuals at risk of a disaster to take action to avoid or reduce their risk and prepare for effective response.

Ecosystem: A system of interacting living organisms together with their physical environment.

Environmental degradation: Processes induced by human behaviour and activities (sometimes combined with natural hazards) that damage the natural resource base or adversely alter natural processes or ecosystems. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards.

Hazard: A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazard analysis: Identification, studies and monitoring of any hazard to determinate its potentiality, origin, characteristics and behaviour.

Land-use planning: Branch of physical planning that determines the most desirable way land should be used. Involves land-use studies and mapping, analysis of data acquired, formulation of alternative land-use decisions and design of a long-range land-use plan for different geographical and administrative scales.

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Preparedness: Activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely and effective early warnings and the temporary removal of people and property from a threatened location.

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and related environmental, technological and biological disasters.

Public awareness: The processes of informing the general population, increasing their levels of consciousness about risks and how to take action to reduce their exposure to hazards. This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster.

Recovery: Decisions and actions taken after a disaster with a view to restoring the living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk.

Relief / response: The provision of assistance and/or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term or protracted duration.

Resilience/resilient: The capacity of a system, community or society to resist or to change in order that it may obtain an acceptable level in functioning and structure. This is determined by the degree to which the social system is capable of organising itself, and the ability to increase its

capacity for learning and adaptation, including the capacity to recover from a disaster.

Risk: The probability of harmful consequences or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable/capable conditions. Conventionally, risk is expressed by the equation Risk = Hazard x Vulnerability/Capacity

Risk assessment/analysis: A process to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability/capacity that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

Risk management: The systematic management of administrative decisions, organisation, operational skills and responsibilities to apply policies, strategies and practices for disaster risk reduction.

Risk reduction measures: The development and application of policies, procedures and capacities of the society and communities to lessen the negative impacts of a possible impact of natural hazards and related environmental and technological disasters. This includes structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, as well as the development of coping capabilities.

Sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs. (Brundtland Commission, 1987)

Vulnerability: A set of conditions and processes resulting from physical, social, economical and environmental factors which increase the susceptibility of a community to the impact of hazards.

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Famine Early Warning Network http://www.fews.net

Institute of Development Studies http://www.ids.ac.uk

International Development Research Centre http://web.idrc.ca

International Institute for Environment and Development
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United Nations Joint programme on HIV/AIDS http://unaids.org

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SADC Food Security Programme, Food, Agriculture and Natural

Resources http://www.sadc-fanr.org.zw

World Bank http://www.worldbank.org

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International Strategy
ISDR
for Disaster Reduction

The United Nations Secretariat of the International Strategy for Disaster Reduction

Within the United Nations system, the Secretariat of the International Strategy for Disaster Reduction is responsible for Co-ordinating disaster reduction strategies and programmes.

It's mission is to help people withstand disasters by making them aware of the importance of disaster reduction measures and providing support to help reduce human, economic and social losses.

The Secretariat also provides backing for an Inter-Agency Task Force on Disaster Reduction headed by the Under-Secretary-General for Humanitarian Affairs and comprising representatives of several United Nations agencies, regional institutions and non-governmental organisations.

Within the United Nations system, the Task Force is the chief body responsible for the design of disaster reduction policy.

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