

# Both ENDS Information Pack Nr.15

## Natural Disaster Management

Both ENDS offers a wide range of services to **NGOs** in Africa, Asia, Latin America, Central and Eastern Europe, and the Newly Independent States who are working in the field of environment, development and social justice.

Our **standard information service** includes Information packs on a wide range of topical environment issues . These packs have been written mainly for Southern NGOs. They are to enable (beginner) environmental organizations to get familiarized with an important environmental subject in a short period of time.

### Contents:

- a general overview of the theme
- details of relevant international treaties, guidelines and conventions
- some aspects of the current (international) debates on the topic
- case studies (mainly from Southern countries)
- a listing of useful contacts in North and South
- a list of publications
- a choice of websites

We are making an effort to **regularly update** the information included in these packs. But since people and developments are moving fast, we will inevitably lag behind somewhat. The information presented is meant as an introduction. If you require more specific information, please feel free **to contact us** .

You can **download** the information packs from our website or you can request an e-mail printed version. They are free of charge for NGOs in the South and the CEE countries

We welcome any suggestions or comments which help improve this information package.

## Both ENDS

### Environmental and Development Service for NGOs

Nieuwe Keizersgracht 45  
1018 VC Amsterdam  
the Netherlands

Phone: +31 20 6230823

Fax: +31 20 6208049

E-mail: [info@bothends.org](mailto:info@bothends.org)

Website: <http://www.bothends.org>

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The following Information Packages are available at Both ENDS:

1. Desertification
2. Sustainable Energy
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4. Dams and the Environment
5. Oil
6. Coastal Zone Management
7. Mining
8. Gender, Environment and Development
9. Trade and Environment
10. Local Forest Management
11. Multilateral Financial Institutions
12. Analog Forestry
13. River Management
14. Gene-technology
15. Natural Disaster Management

## Natural Disaster Management

### 1. Introduction

Throughout the world lots of people are directly or indirectly affected by disasters. During the decade between 1993 and 2002, about 2.5 million people were reportedly affected by disasters (World Disaster Report 2003). Disasters can wipe out years of work in a matter of hours, destroying farmland, animals and houses, taking away people's resources to sustain their livelihoods, and exposing them to famine and diseases.

While the total numbers of deaths from natural and non-natural<sup>1</sup> disasters are decreasing, the number of people affected by natural disasters is rising. Over the last decade, famine as a result of drought was by far the deadliest disaster, killing at least 275,000 people (although this is probably a gross underestimate). Floods however, affected more people across the globe (140 million per year on average) than all other natural or non-natural disasters put together.

In particular, weather related disasters are increasing. Climate change is already taking place and not likely to be easily stopped<sup>2</sup>. It will have a variety of impacts, such as a rise in sea level, more droughts, floods, heat waves, and water shortages. However, the impacts will be unpredictable: one year a region may be hit by drought and the next by floods. The consequences of climate change imply that risk reduction needs to be

<sup>1</sup> Non-natural disasters are disasters resulting from accidents at industries (like chemical spill, explosions, fire, leak, poisoning, radiation), accidents in a domestic (non-industrial) sphere (like a collapse of structures, explosions, fire) or from transport accidents (air, rail, road and water-borne accidents).

<sup>2</sup> Het Nederlandse Rode Kruis, 2003. *Preparedness for climate change*. The Netherlands Red Cross.

integrated into all development strategies.

Disasters have a large economic impact in terms of both houses and other infrastructure that is destroyed and in terms of direct damage to the economy: i.e. affecting the flow of goods and services, and causing losses in productivity. In the long-term the overall economic performance of a region is reduced, impacting government budgets, and leading to

*Total number of people reported killed by disasters from 1993 to 2002*

Avalanches/landslides	9488
Droughts/famine (underestimated)	275522
Earthquakes	75391
Extreme temperatures	12549
Floods	93561
Forest/scrub fires	458
Volcanic eruptions	511
Windstorms	60971
Other Natural disasters	2708

*(Source: World Disaster Report 2003)*

increased indebtedness, changes in income distribution, and in the scale and incidence of poverty.

Tragically, disasters continue to affect the world's poorest and least developed. While countries with a low human development index reported the fewest natural disasters during the last decade (compared to countries with a high human development index), the number of deaths for each disaster is by far the highest. An average of 555 people died per disaster in countries with a low human development index, compared to 133 where there is a medium human development index, and 18 in countries with a high human development index.

Apparently then, there is a relationship between poverty and the probability of being affected by disasters. Though

natural forces play an important role in the initiation of natural disasters, they can not be considered to be the main cause of disasters. A series of other fundamental causes play a role in disasters in countries with a low human development index, such as a high probability of being affected caused by poverty and inequality (e.g. poor people having a badly constructed house on a volcanic slope), environmental degradation caused by land abuse, and fast demographic growth especially among poor people.

A lot of things can be done in order to be better prepared for disasters and in this way reduce their impact. However, conventional development programmes are often "disaster blind", and may even exacerbate disasters by degrading the natural environment or by moving people from quakeproof shanties to quake-vulnerable high-rise apartments. Increasingly it is being realised that in disaster prone areas disaster management needs to be an integral part of sustainable development.

In disaster management, the community itself has to take a leading role. Awareness raising and capacity building enables communities to reduce the impact of disasters on their livelihoods. In the design of disaster responses it is important that differences such as class, gender and age are taken into account.

In the following section, some of the definitions used in natural disaster management are explained. Thereafter, we will be dealing with disaster management techniques. We will explain how to carry out a risk assessment and what tools can be used, what preparedness means in practical terms, what kind of activities can be undertaken, and what can be done during and after a disaster. A list with local Non Governmental Organisations (NGOs) working on disaster management is provided, and in the final section, other information sources are given, including guides

and handbooks on disaster management.

## **2. Risk, Hazard, Vulnerability And Capacity: Some Definitions**

### *Natural disaster*

A natural disaster starts with an extreme phenomenon of great intensity and limited endurance in a particular location. This can be a flood, an earthquake (either on the land or submarine), a landslide, a volcanic eruption, drought, a hurricane or a tornado. Such a natural event can become a disaster if it strikes in combination with social and economic conditions that leave people vulnerable and at risk. Poverty and inequality make people vulnerable. A disaster causes loss of lives, as well as physical damage and the disruption of livelihood systems and society. It requires (to a certain extent) outside assistance to cope with.

Until recently, natural disasters were predominantly regarded as on-off events or aberrations in the normal path of development. Increasingly observers are moving away from this point of view and disasters are being seen as more than simply the occurrence of an extreme natural phenomenon. Many floods, earthquakes, or other phenomena happen without resulting in a disaster. The risk that a disaster will evolve is the outcome of the combination of such a natural phenomenon with the vulnerability of the population, communities, households or individuals affected. Nevertheless, people are able to develop capacities to reduce their vulnerability. In short<sup>3</sup>:

***Risk is the result of a natural hazard, the vulnerability of people, and the capacities that are developed to cope with disasters.***

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<sup>3</sup> Frerks, G. et al, 1999. *Natural disasters, a framework for analysis and action*. Report for MSF-Holland, Disaster Studies - Wageningen University, The Netherlands.

Let us consider these different elements.

#### *Risk*

Risk refers to the expected numbers of lives lost, persons injured, property damaged and economic activity disrupted. Apart from this technical definition of risk, people have different perceptions and assessments of risks. These are often a result of culture, power and the opportunities available to avoid the risk. This results in different persons, households or communities, responding differently to a risk.

Often people expose themselves to risks simply because they have no other options. For example people living in cities on landslide-prone slopes may not be able to move to more secure places, because proximity to an urban labour market is essential for the survival of the family.

#### *Hazard*

A natural hazard is an extreme natural event that may affect different places at different times. Hazards may have varying degrees of intensity and severity. Floods, landslides, earthquakes, *tsunamis* (very large ocean wave resulting from submarine earthquakes), volcanic eruptions, droughts, hurricanes and tornadoes are all examples of hazards.

#### *Vulnerability*

Vulnerability is the extent to which an individual, community, sub-group, structure, service or geographic area is likely to be damaged or disrupted by the impact of a particular hazard. How vulnerable societies are depends on factors like their physical environment, the economy, the governments' capacity and the level of organisation of the society. All kinds of processes, such as urbanisation, economic decline, increasing population density, land degradation and the depletion of natural resources, tend to increase vulnerability.

Generally speaking, the poor and the marginalised are the most vulnerable

to hazards. They generally reside in unsafe areas, live in badly constructed houses, have more possibilities of being malnourished (and are thus more prone to diseases) and they have no money to get access to insurance that can help them to recover on their own.

#### *Capacity*

Apart from the hazard and the vulnerability, we cannot overlook the other side: the capacity of individuals, groups and local communities to cope with disasters. Capacity refers to the survivor's skills, resources and strengths used to help themselves and others. It takes into account the practical strategies to organise themselves to cope with a disaster. This means that if coping capacities are well developed, the vulnerability is less, and the risk of a disaster is reduced.

#### ***People power in Mozambique***

Following Mozambique's devastating floods in 2000, primary school teachers worked as voluntary flood monitors, to watch rivers and issue warnings to their communities. This gave trusted community members an important and responsible task.

In 2001, the Mozambique Red Cross trained these community volunteers and held community meetings to describe the project and recruit more volunteers. This work helped identify 'improvement of wells, participation in rescue training, and distribution of radios to improve early warning.' Mitigation activities included planting trees to halt erosion near riverbanks, and constructing a multi-purpose community hall in a secure location for pre-positioned relief stocks storage and as a community meeting centre.

In 2002, the government contributed to this program by issuing radios, bicycles and motorcycles to help monitor the situation and spread information. Posters explaining how to prepare for a disaster were distributed.

*Source: World Disasters Report 2002.*

### 3. Disaster Management

Conventional development programming is often "disaster blind". Development may sometimes exacerbate disasters by degrading the natural environment or by moving people from quakeproof shanties to quake-vulnerable high-rise apartments. This increases the vulnerability of people. Serious efforts have to be made to *build risk reduction into every development plan and policy*. National development plans need to include risk assessments, and take related risk reduction measures. This requires participation of all relevant sectors (environment, finance, transport, construction, agriculture, education and health). Disaster management is, however slowly, becoming part of international development agendas.

*Disaster management* is a very broad term and it includes all aspects of planning for and responding to disasters, including both pre-, during and post- disaster activities. It refers to the management of both the risk and the consequences of a disaster. It includes a cycle or continuum comprising the disaster impact, recovery (relief, rehabilitation and reconstruction), development, and anticipatory disaster reduction activities, including assessments of the risk, vulnerability and capacity, prevention, mitigation (measures taken in advance to reduce the impact), and preparedness.

Nowadays, it is increasingly recognised that in certain regions disaster management needs to be incorporated as an integral part of sustainable development plans. However, a lot of myths about disasters still exist:

#### **Common myths about disasters**

- The myth that the affected local population is helplessly waiting for the Western world to save it is false. In fact, only a handful of survivors owe their lives to foreign teams. Most survivors

owe their lives to neighbours and local authorities.

- A common myth is that any kind of international assistance will do, and it is needed now. However, experience shows that a hasty response that is not based on familiarity with local conditions and meant to complement the national efforts only contributes to the chaos. It is often better to wait until genuine needs have been assessed.
- Many also believe that disasters bring out the worst in human behaviour, but the truth is that while isolated cases of antisocial behaviour exist, the majority of people respond spontaneously and generously.
- The myth that the affected population is too shocked and helpless to take responsibility for their own survival is superseded by the reality that on the contrary, many show themselves to be extremely strong during an emergency.
- The myth that dead bodies cause a major risk of disease and needs to be disposed of as soon as possible is not true. This is reiterated in all large natural disasters.
- The myth that things go back to normal within a few weeks is especially pernicious. The truth is that the effects of a disaster last a long time.

There are lessons to be learned. It is essential that the press and the donor community be aware of what is good practice and bad practice in emergency management. Past sudden-impact natural disasters have shown the need for international contributions in cash and not in kind. This ensures that allocation of resources is field-driven by evidence of what is needed on-site. More needs to be done to strengthen the local capacity. If donors would commit now to strengthening the local capacity to respond to future disasters in the disaster-prone countries, and learn what is important and what is futile in helping countries, the world would be better off.

*Based on: 'Stop Propagating Disaster Myths' by Dr. de Ville de Goyet. He is since 1977, Chief of the Emergency Preparedness and Disaster Relief Coordination Program at the Pan American Health Organisation. The whole article can be found at <http://pdm.medicine.wisc.edu/degoyet.htm> (Prehospital and Disaster Medicine, volume 14, number 4 - 1999).*

The participation of the whole community is needed for effective disaster management. A gender perspective has to be incorporated into disaster reduction and recovery strategies. At the Fourth World Conference on Women (1995) it was stressed that many women are particularly affected by environmental disasters and that this deserves more attention. Gender-based vulnerabilities need to be systematically included in any assessment and the gender aspect has to be included in the whole process of disaster risk management.

### 3.1 Risk assessments at community level

Assessing disaster situations and focusing on people's vulnerabilities and capacities is a must for appropriate, effective and sustainable disaster management. Assessments further serve as baseline data for monitoring and evaluation purposes during and after implementation of disaster response activities.

Even within communities, not all people are equally vulnerable to hazards. Communities are often socially differentiated and diverse. Class, clan, wealth, gender, age, origins, religion, and other aspects divide and crosscut the community. Beliefs, interests and values of community members may conflict. To address disasters, it is important to be aware of these differences and the way the people themselves perceive and prioritise their vulnerabilities.

On the other hand, a community also shares things in common like living in the same environment, being exposed to the same natural phenomenon, and having experienced the same disaster event. Common problems, concerns, hope and ways of behaviour may also be shared. Social and motivational capacities of people are important assets to consider in assessments.

The valuable contribution of disaster survivors has to be acknowledged during all phases of disaster

management, but particularly during the assessment of the situation. With the participation of the communities, more appropriate disaster responses are ensured as class and gender are considered as well as age, culture, religion etc. Apart from that, the process of assessing risk makes the community aware of the situation, helps to 'discover' the root causes of their vulnerability, and assess these causes. There are a lot of different instruments to assess risk, vulnerability and capacity, to be used before, during, and after the impact of a natural hazard is experienced. In the following some examples of assessment methods are given.

### 3.2 Participatory assessment methods

- *Participatory (village) risk mapping* is a participatory tool that can be used to determine *the nature and extent of risk*. This is done by analysing potential hazards and evaluating the existing conditions of vulnerability and capacity that pose a potential threat to people, property, livelihood and the environment. A map is drawn of a community or a geographical area and places and buildings that may be adversely affected in the event of a disaster are identified. It has to be a group effort with a cross section of the community (including women, children and elderly people). Asking the community to map out where the (last) hazard affected the most is a very useful tool to get people to visualise the hazards and discuss the possible solutions to reduce risks. This approach has been used by Oxfam resulting in the working paper 'Risk-Mapping and local capacities, lessons from Mexico and Central America'.  
[http://www.oxfam.org.uk/what\\_we\\_do/resources/wp\\_mexca\\_risk.htm](http://www.oxfam.org.uk/what_we_do/resources/wp_mexca_risk.htm)
- *Hazard, vulnerabilities and capacities assessment (HVCA)*<sup>4</sup> is

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<sup>4</sup> As described in: Heijmans A. and L.P. Victoria

another participatory tool designed to identify *disaster preparedness and mitigation measures* at the community level. It involves a participatory analysis of past patterns of hazards and present threats at the community level (hazard assessment), combined with an understanding of the underlying causes of why hazards become disasters (vulnerability assessment) and of the available resources an affected community uses to cope with the adverse affects (capacity assessment).  
<http://www.adpc.ait.ac.th/pdr-sea/cbdo-dr/chapter3-4.html>

**Capacities identified by upland communities to address drought**

- diversification of crops;
- eating wild crops;
- budgeting of meals per day;
- selling livestock before prices drop;
- seasonal migration by men and women;
- social network to take care of small children;
- community organization 's activities maintained despite out-migration;
- PO formulated land use management plan;
- Motivated to stay in the remote community, and therefore willing to learn new farming methods;

Source: Heijmans and Victoria, 2001

- *Damage needs and capacity assessment (DNCA)* is developed to assess the situation in a community *right after a disaster*. This involves a participatory analysis of the disaster event, the damages caused, the immediate needs and priorities of the affected community and of the remaining capacities people use to cope with the adverse effects.

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(2001). *Citizen-Based and Development Oriented Disaster Response*. Center for disaster preparedness, Partnership for Disaster reduction Southeast-Asia (PDR-SEA), Philippines.  
<http://www.adpc.ait.ac.th/pdr-sea/cbdo-dr/toc.html>

<http://www.adpc.ait.ac.th/pdr-sea/cbdo-dr/chapter3-5.html>

- *Vulnerability and capacity Analysis (VCA)*<sup>5</sup> can be used to assess the situation in the community after the emergency period in order to identify appropriate *rehabilitation assistance and mitigation measures*. It involves a participatory analysis of (post) disaster situations from the community to the national level expressed in terms of capacities and vulnerabilities. It helps to identify disaster management responses that would support development initiatives in the community. Unlike the HVCA, the VCA focuses more on the long term aspect.

<http://www.adpc.ait.ac.th/pdr-sea/cbdo-dr/chapter3-6.html>

All instruments are used to get snapshots of the community at particular moments. As such, the outputs of the different assessments build on one another. Like the DNCA provides information about a particular disaster event, this can be used to update the information of the community's existing HVCA. And the HVCA outputs can be integrated in the VCA. From the communities' perspective, the HVCA, DNCA and VCA are very much integrated, because people at risk do not distinguish between preparedness, emergency relief, rehabilitation, and mitigation measures. All these can be integrated together in a Community Development Plan.

### 3.3 Risk reduction

As we have seen, risk is a result of hazard, vulnerability and capacity. As it is almost impossible to prevent that natural hazards take place (except for slowly evolving hazards, like global warming), the measures to be taken have to reduce the vulnerability and

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<sup>5</sup> Anderson, M. and P. Woodrow, 1989. *Rising from the ashes: development strategies in times of disasters*, Westview press.



increase the capacity of people and institutions to cope with a disaster. It is difficult to address the root causes of vulnerabilities, but by taking interventions step by step, the capacities of people and organisations are increasing.

*Increasing people's capacities* to deal with disasters is one of the main concerns for risk reduction. It is necessary to build on, and further develop, the capacities of the community. The people who are exposed to hazards have to be directly involved in setting up a *counter disaster plan* and have to get training to be able to implement it and develop certain skills. The exposed people need to be involved in the whole process of assessments (see chapter 3), planning, decision-making, and operational activities for risk reduction. Although it is hard to involve everybody in the capacity building process, efforts have to be made to include as many people as possible. Also, local leaders and other key persons, from all sectors of society (political, social and economic) need to be involved. Capacity building is a long-term process, which is not always easy to match with the agenda of donors.

A counter disaster plan alone cannot work. It must be supported by institutions and needs to be embedded in the national policy: one needs funding to implement the plan, one needs legislation and political commitment, to be allowed to implement the plan, and one needs (local) organisations for the implementation. An *institutional framework* is essential to ensure efficient coordination. The role of community organisations and municipalities in natural disaster prevention and mitigation is crucial and the formation of grassroots response organisations has to get major attention. However, national authorities have to establish standards and regulations, and coordinate and follow-up on local efforts in risk management. Both organisations and

national commissions need to improve their access to risk management information. Furthermore, their capacity at local level to carry out vulnerability assessments and implement prevention and mitigation measures, have to be enhanced.

While developing an institutional framework, the creation of new organisations for disaster preparedness needs to be avoided. Instead, if it is possible, the established structures and systems can be worked with. Using structures that are already functioning is the best way to implement disaster prevention and emergency management (WHO, 1998).

### **3.3.1 Prevention, mitigation and preparedness**

Three important elements in disaster management are *prevention*, *mitigation* and *preparedness*. These risk reduction elements cannot be taken separately, as there is often an interaction between them. *Prevention* is designed to impede the occurrence of a disaster event and/or prevent such an occurrence having harmful effects on communities. Examples of preventive measures are the construction of dykes, dams and levees to prevent flooding; controlled burning off in bush-fire areas; and land-use and settlement regulations to prevent utilisation of vulnerable, disaster prone sites.

*Mitigation* takes the form of programs intended to reduce the effects of disasters on communities. It comprises actions taken to reduce damage and loss. The term mitigation implies that whilst it may be possible to prevent some effects of a disaster, other effects will persist but can be modified or reduced provided appropriate action is taken. Examples are: the application of building codes, land-use regulations, safety regulations and agricultural programs (e.g. drought or flood proof crops).

*Preparedness* comprises measures that

enable governments, organisations, communities or individuals to respond rapidly and effectively to disaster situations. Typical preparedness measures include ready and up-to-date counter-disaster plans, operative early-warning systems, public education and awareness campaigns, and training activities.

The kind of measures that need to be undertaken will largely depend on the kind of hazards a community has to cope with. Some examples of responses with immediate benefits are: a warning system, an evacuation plan, and the diversification of crops. Measures that take more time are for example: tree planting, community alliance building, and advocacy for resettlements and land rights. Some of these processes can take several years, and others might not even be completed in a life time.

It is clear that the devastating effects of disasters are not only the result of natural forces, but also of contributing factors resulting from human activities. To some extent these problems derive from the population's lack of knowledge about the direct and indirect consequences of their activities, or the lack of other options. Major effort needs to be made to *increase public awareness of and levels of public participation* so as to reduce vulnerability to hazards. Organisations such as the Red Cross and Red Crescent, community-based organisations and NGOs can play a crucial part in this. Raising awareness can be done through formal and non-formal education and training.

*Environmental education* is an essential and powerful tool to decrease the vulnerability to natural hazards. Information campaigns using various sources of media (TV, radio and newspaper) can be effective, but there is also a need to educate the media about coverage of disasters. Environmental education needs to be part of the education of children to shape attitudes, values and patterns of behaviour toward natural

environments. It also often has a spill-over effect on the older generation. There is a need to educate political decision makers and planners, corporate leaders and other influential persons in society regarding the importance of protecting the environment. (A fact sheet is available from Both ENDS with links to environmental education websites and organisations:  
<http://www.bothends.org/service/ip-edu.htm>)

It is important to practice *sustainable environmental management*. Some examples of practices that intensify vulnerability are deforestation, unsustainable agriculture practices, and the over-exploitation of other natural resources. The importance of ecosystems, like forests, wetlands, estuaries and marine environments, should not be underestimated in relation to their capacity to absorb the impacts of natural phenomena. For example, overgrazing and logging on steep slopes of upland sections in watersheds may cause increased levels of erosion, which can result in landslides upstream, and increased flooding downstream. Practices like agro-forestry, soil conservation measures and limited and controlled logging serve to reduce disasters.

The use of *early warning systems* is becoming more and more of an issue. Early warning systems involve physical and electronic equipment that provide "early warning" on emerging environmental stresses and threats. A problem with large scale early-warning systems is the dependence on the commitment of political and decision making persons. Furthermore, the information collected has to reach the communities. For this, organisation and information, backed by political commitment, are necessary. Community participation is vital to success (micro-level risk mapping, preparation and implementation of plans). Based on the information available, communities can design their own community specific warning system. It is likely that early warning

is going to take a leading role in the future of disaster management (more information can be found on: <http://www.grid.unep.ch>).

**Community based flood warning systems save lives in Guatemala**

In the Coyolate River basin in Guatemala, where several rural towns were flooded every year, the national emergency council with the support of the Swedish International Development Agency (SIDA) began a project in 1997 to design and implement a community-operated early warning system, along with other risk management measures. Simple hardware was installed to monitor rainfall and measure river levels, and community volunteers were selected locally and trained in early warning through simulation exercises. Communities were also helped to develop hazard maps, establish emergency plans, create specific committees to deal with search and rescue, shelter management and security, and maintain and extend dykes to prevent floods.

The volunteers now transmit data on rain and river levels to a local forecasting centre, which can then initiate emergency preparations. Since the scheme began, it has benefited more than 5,000 people in and around 100 flood-prone communities, at very little cost. During Hurricane Mitch, it probably saved dozens of lives.

The three key pillars of this programme are:

- The use of community volunteers
- The use of simple practical instruments supported by both a radio network and the national emergency management institution
- The recognition that risk management and disaster response can initially be handled at a local level.

Source: *World Disasters Report 2002*, pp.52-53.

**3.3.2 Examples of local preparedness strategies and activities by hazard type**

The specific strategies and activities that individuals or local communities can implement to reduce their risk in relation to particular hazards are mentioned below. Other risk reduction

strategies that require long-range planning and resources are not mentioned below. (These can be found in: Bethke, L. *et al.* (1997) *Building capacities for risk reduction*. Disaster management training programme, DHA.

<http://www.undmtp.org/english/riskreduction/riskreduction.pdf>)

- *Earthquakes*  
An important element of earthquake mitigation is community awareness and participation. Awareness of earthquake risk and the desire to live in houses safe from seismic forces may help motivate construction of earthquake-resistant buildings. This is not necessarily very expensive: adding bamboo reinforcements to adobe structures for instance greatly increases their earthquake resistance. In addition, risk can be reduced by arranging the building and planning daily activities with the possibility of ground shaking in mind. For example, sources of open flame and dangerous appliances can be made stable and safe. Knowledge of what to do in the event of an earthquake can be increased by a public awareness programs and identifying safe places in the community. Community fire fighting and first aid training groups can also be formed. These groups can take responsibility for readiness and maintenance of fire extinguishers, excavation tools and other civil protection equipment.
- *Volcanic eruptions*  
Communities have an important role in mitigating their risk from volcanic eruptions. Community members should be aware of volcano risk and should identify potential danger zones. In addition, communities and families can prepare and train their evacuation plan. Access to information about the volcanic activity is important, and a system to spread this

information to the people at risk can be set up.

- *Land instability*  
Communities have to be trained to recognise areas of potential land instability, such as active landslide areas, and to identify hazardous locations where building houses should be avoided. In addition, communities can reduce the risk from land instability by constructing structures with strong foundations, compacting ground, preventing deforestation of slopes, stabilising slopes through terracing and forestry, and creating rock-fall barriers using trees and earth banking.
- *Floods and water hazards*  
Communities have to be actively involved in reducing the risk of flood damage. Where construction in a flood-prone site is necessary or cannot be avoided, houses can be constructed to be flood resistant: using materials resistant to water damage and strong foundations. Awareness of water hazards can be reflected in living practices such as constructing elevated storage and sleeping areas, or raising the whole building on stilts. Crop cycles can be modified to avoid the flooding season, and flood-resistant crops can be grown. In addition, community members have to be aware that deforestation can exacerbate flooding, and they have to make sure that a vegetation cover slows down the run-off of water. Communities can reduce the risk of personal harm by preparing flood evacuation plans that include identification of evacuation routes, and locations for the availability of boats or other appropriate transport and rescue equipment. Monitoring and warning systems at the local (and regional) level are also important to a risk reduction strategy.

It is important in an evacuation plan to agree under which conditions (*when*), you are going to *what*.

Ms. Imelda Macara, a member of the People Organisations Disaster Response Committee in Fabrica, explains their warning system designed for typhoons and floods:

“It was emphasised in our counter disaster plan that the *typhoon signal-2 through the radio* are warnings to be heeded and that if the rains continue unabated for *twenty-four hours*, we should be ready to evacuate. We also agreed that *when the floods on the roads overflow the sidewalks*, we should proceed to the pre-designated evacuation-site, the village chapel. Women and children first bringing personal belongings, followed by the men with the farm animals in boats.”

(Based on: Heijmans and Victoria, 2001)

- *Storms (typhoons, hurricanes, cyclones, tropical storms and tornadoes)*  
Communities can help reduce their risk of damage from storms by preparing evacuation plans and warning systems to be implemented in the event of a storm. Planting windbreaks and taking care that a forest area upwind of a settlement is conserved also reduces risk. Furthermore, they can construct wind-resistant or easily rebuilt houses. By securing the elements that could blow away and cause damage or injury elsewhere, such as metal sheeting, fences, and signs, risk is also reduced. Other measures are: taking shelter in strong, wind-resistant buildings; taking protective measures for boats, building contents or other possessions at risk; and finally, protecting food storage facilities from storms.
- *Drought and desertification*  
Communities can construct check dams, reservoirs, wells, and water tanks. Furthermore, communities have to make sure that a sustainable management system for forest, rangeland, and

agricultural land, is in place to reduce the risk of drought and desertification. This includes planting and re-forestation efforts and reducing uncontrolled firewood cutting. Cropping patterns and livestock management practices can often be changed in such a way that the impact of drought is reduced. Finally, it helps if water conservation policies are set up, and if alternative non-agricultural industries are developed.

The following case studies on local initiatives on dryland management and water scarcity can be ordered from Both ENDS or can be found at the website: <http://www.bothends.org/encycl/encycl.php?page=st>

- A holistic approach to dry land agriculture, Working with village communities in Tamil Nadu, India (English)
- Polyculture in the Brazilian drylands, A new version of an old technique (English/ Spanish/ Bahasa Indonesia)
- Dryland agriculture management and group dynamics, Youth for Action, India (English)
- Integrated crop management as alternative in dryland conditions, Farming in semi-arid conditions in Tamil Nadu, India (English/ Spanish/ Bahasa Indonesia)
- Permanent solution of water scarcity, Restoring sacred groves, Western Ghats, India (English/ Spanish)
- Tapping climatic variation for dryland restoration, Using El Nino-associated rainfall to establish tree and shrub seedlings (English)

- *Technological hazards*  
Communities can participate in actions to monitor pollution levels, ensure inspection and enforcement of the existing safety standards, and improve safety legislation. They should also develop evacuation plans to be followed in the event of a technological disaster as well as regulate hazardous-material transport routes away from schools and residential areas.

### 3.4 Emergency assistance and rehabilitation

A lot of different responses are needed by local communities and outsiders to set up good working emergency assistance. It starts with a damage needs and capacities assessment (as described in the former chapter). Often, an organised search and rescue mission is needed, afterwards relief delivery operations and a temporary shelter become points of attention. In case of long-term displacement, an evacuation centre needs to be set up. This includes setting up all kinds of committees managing health, food, security and public information. Other important aspects of emergency assistance are a medical mission, psychosocial assistance, networking and negotiation, and the mobilisation of the less vulnerable sectors of society.

During the rehabilitation, a vulnerability and capacity analysis (as described earlier) helps to identify disaster management responses that support development initiatives in the community. Often it is concerned with practical actions, like rebuilding houses, setting up agricultural activities again, (seed dispersal, farm/fishing tools, dispersal of working animals and livestock, rehabilitation of irrigation works) the restoration of bridges and trails, and the set up of a water supply systems. Another important aspect is the negotiation for conditions in which people can start their life and livelihood again.

### 3.5 Disaster management: a continuous effort

All the different responses outlined above are aimed not at addressing the hazard itself, but at reducing the vulnerability and increasing the capacities of the affected communities. However, to sustain the initial gains of the long list of interventions, people's organisations need forms of assistance that are not always considered to be 'disaster response', but that nonetheless are essential in the

process of capacity building and addressing root causes of vulnerability. These are: continuous capacity building among people's organisations, information for the public (raising awareness), networking and advocacy, and building alliances among communities.

#### 4. Local NGOs Working On Risk Management

*ASONOG (La Asociación de Organismos No Gubernamentales con Presencia en Zonas Fronterizas)*  
ASONOG is focused on community participation and strengthening their capacities. One of their programmes is developing the capacities for prevention and preparedness of natural disasters.  
Address: Apdo. Postal No.1248  
Col. Alameda 4 calle,  
Ave.Tiburcio Carias Casa 938  
Tegucigalpa, Honduras  
Tel-Fax: + 504 232-2431  
E-mail: [asonog@sdnhn.org.hn](mailto:asonog@sdnhn.org.hn)  
Website:  
[www.asonog.hn/seccion1/index.html](http://www.asonog.hn/seccion1/index.html)

*CADME (Coastal Area Disaster Mitigation Efforts)*  
CADME organises activities to reduce the socio-economic impact of disasters in 518 disaster-prone villages, located by the Bay of Bengal. The activities include: the organisation of task force teams, the organisation of courses, emergency medical care and rescue services, advocacy workshops.  
Contact person: Mr Gurudutt Prasad ([prasad\\_org@rediffmail.com](mailto:prasad_org@rediffmail.com))  
Address: Krishna Sadan, Dr.Meda Ranga prasada rao Gardens, Hukum Pet P.O., Rajahmundry – 533106, Andhra Pradesh, India  
Tel: +91 883 2461442  
Fax: +01 883 2468449  
E-mail:  
[cadmeindia@remove\\_78vG0\\_this.rediffmail.com](mailto:cadmeindia@remove_78vG0_this.rediffmail.com), [prasad\\_org@rediffmail.com](mailto:prasad_org@rediffmail.com)

*CARE Bangladesh*  
CARE Bangladesh has adopted a community-based approach, working in collaboration with partner NGOs in the municipalities and with the

Disaster Management Bureau of the Government of Bangladesh. Currently they are also doing a vulnerability study about climate change in the coastal zone of Bangladesh.  
Contact: Mr. Fahmid Karim Bhuiya, project coordinator  
Address: House 66, Road 7 A, Dhanmondi R/A, Dhaka 1209, Bangladesh  
Mail address: GPO Box 226, Dhaka 1000  
Tel: 02-811.41.95 / 811.41.98 / 811.42.07 / 9  
Fax: 02-811.41.83  
E-mail:  
[carebangla@drik.bdg.toolnet.org](mailto:carebangla@drik.bdg.toolnet.org)

*Citizen's Disaster Response Network (CDRN), Philippines*  
CDRN is a national network of 14 NGOs that promotes community-based disaster preparedness work. It has conducted campaigns and advocacy work to mitigate the impacts of disaster. CDRN has developed strategies to enhance people's capacities through community organising, forming village-level disaster response committees, developing local early warning system, organising rescue teams and diversifying local sources of livelihoods.  
Address: 72-A Times Street, West Triangle Homes, Quezon City, 1104, Philippines  
Tel: + (632) 924-0386/ + (632) 928-7860  
Fax: + (632) 929-9822  
E-mail: [cdrc@i-manila.com.ph](mailto:cdrc@i-manila.com.ph)  
[rpiddcsrc@i-manila.com.ph](mailto:rpiddcsrc@i-manila.com.ph)  
Website : <http://www.cdrc-phil.org/>

*Duryog Nivaran – the South Asian Network for Disaster Mitigation*  
Duryog Nivaran is a network of individuals and organisations working in South Asia who are committed to promoting an alternative perspective on disasters and vulnerability as a basis for disaster mitigation in the region. The Network's aim is to reduce the vulnerability communities to disasters and conflicts by promoting the alternative perspective of disaster mitigation. Publications are available,

and a newsletter 'Disaster Dispatch' is produced.

Duryog Nivaran Secretariat, c/o ITDG-South Asia

Address: No. 4, Lionel Edirisinghe Mawatha, Colombo 5, Sri Lanka  
Tel: 94-1-829412, 829413 and 829414

Fax: 94-1-856188

E-mail: DN.NET@itdg.slt.lk

Website:

<http://www.duryognivaran.org/indexnew.php>

#### *Disaster Mitigation Institute*

The Disaster Mitigation Institute is an organisation working for community based disaster risk reduction (disaster mitigation, capacity building and disaster preparedness). This is done by training, research and documentation. Their focus is on water, habitat, food and livelihood security. Several publications are available, a monthly journal 'Afat Nivaran' is produced (in Gujarati language), and a quarterly publication 'Vipada Nivaran' is available (in Hindi language).

Address: 411, Sakar Five, Near Nataraj Cinema, Ashram Road, Ahmedabad - 380009, Gujarat, India  
Tel: +91-79-6586234, 6583607

Fax : +91-79-6582962

E-mail : [dmi@icenet.co.in](mailto:dmi@icenet.co.in)

Website :

<http://www.southasiadisasters.net>

#### *ITDG (Intermediate Technology Development Group)*

ITDG is an international development agency that promotes appropriate technology options around the world. They work in Latin America, Asia, and southern Africa on disaster reduction strategies. ITDG has substantial international experience of disaster mitigation work, particularly in Latin America and South Asia. Furthermore, they have gained experience in reducing the impact of drought working among farming and pastoral communities in Africa. Regional offices are located in Bangladesh, Kenya, Peru, Nepal, Sri Lanka, Sudan, and Zimbabwe.

Head office: ITDG, c/o The Schumacher Centre for Technology & Development

Address: Bourton Hall, Bourton-on-Dunsmore, Rugby, CV23 9QZ, United Kingdom

Tel: +44 (0)1926 634400

Fax: +44 (0)1926 634401

E-mail: [itdg@itdg.org.uk](mailto:itdg@itdg.org.uk)

Website: [www.itdg.org](http://www.itdg.org)

#### *La Red de Estudios Sociales en Prevencion de Desastres en America Latin (LA RED)*

LA RED is a network and information source in the field of disasters and risk management in Latin America and the Caribbean.

Address: Antigua Base de Howard, Rencher Ave., Edificio 707, 2do. Piso, Apartado Postal 0832-1782 WTC, Ciudad de Panamá, Panamá

Tel: (507)316-0065

Fax: (507)316-0074

E-Mail : [laredp@bellsouth.net.pa](mailto:laredp@bellsouth.net.pa)

Website: [www.desenredando.org](http://www.desenredando.org)

#### *Living Space for Environmental Refugees (LiSER)*

LiSER Foundation was founded by people who are involved in refugee care, environmental organisations, human rights organisations and development agencies. The main goal of LiSER is to see these various organisations join together by broadening their original working goals and mandate to environmental refugees. LiSER focuses on environmental refugees who lack any means or possibilities to rebuild their own subsistence.

Address: Antoniestraat 19, 2011 CN, Haarlem, The Netherlands

Tel: + 31 23 5332892

E-mail: [info@liser.org](mailto:info@liser.org)

Website: [www.liser.org](http://www.liser.org)

#### *PREPARE (India Rural Reconstruction & Disaster Response Service)*

Address: 600 050, Madras, Tamil Nadu, India

Tel: +91-44-654-211

Fax: +44-655-015

#### *National Red Cross/Red Crescent societies*

There are 181 national organisations that are member to the international federation of the IFRC. Their addresses can be found at:

<http://www.ifrc.org/address/directory.asp>

*Sustainable Environment and Ecological Development Society (SEEDS)*

SEEDS India focuses on community-based disaster management. People oriented campaigns to help communities prepare themselves in the event of natural or manmade disasters have been initiated.

Address Delhi: D-6, Panchsheel Enclave, New Delhi - 110017, India  
Tel: + 91 11 - 2649 8371, 2649 8372  
Fax: + 91 11 - 2649 8372

Address Gujarat: B/2, Jam Apartments, Behind Dada Saheb Na Pagla, Near Vijay Char Rasta, Ahmedabad -380009, Gujarat, India  
Tel: + 91 79 - 644 4847

Website:

<http://www.seedsindia.org/menupage-disasternotes.htm>

## **5. Generating Funding For Disaster Management**

Disaster management activities are funded both from development and emergency budgets. There is a lot more funding available for emergency short-term response than for long-term funding for mitigation and preparedness activities. However, there is a modest increase in funding these long-term activities. In general, most organisations work through their own partner organisations. The following is a list of (large) NGOs whose focus is primarily on disaster relief.

*AIDMATRIX*

AIDMATRIX leverages the power of technology and partnerships to bring items such as food, clothing, building supplies, medical and educational supplies to people in need during the time of need.

<http://www.aidmatrix.org/>

*AmeriCares*

AmeriCares is a nonprofit disaster relief and humanitarian aid organisation, which provides immediate response to emergency medical needs—and supports long-term healthcare programs.

<http://www.americares.org>

*CARE*

One of the world's largest international relief and development organisations.

<http://www.care.org>

*ECHO (European Union Humanitarian Affairs Office)*

[http://europa.eu.int/comm/echo/index\\_en.html](http://europa.eu.int/comm/echo/index_en.html)

*InterAction (American Council for Voluntary International Action)*  
(www.interaction.org)

A coalition of more than 165 nonprofit organisations for sustainable development, refugee and disaster assistance, and humanitarian aid.

*International Federation of the Red Cross and Red Crescent Societies*

<http://www.ifrc.org>

*Oxfam International*

In many parts of the world, Oxfam is most associated with response to manmade and natural disasters.

<http://www.oxfam.org>

[http://www.oxfam.org.uk/what\\_we\\_do/issues/conflict\\_disasters/introduction.htm](http://www.oxfam.org.uk/what_we_do/issues/conflict_disasters/introduction.htm)

*Pan American Health Organisation (PAHO)*

Disaster preparedness, mitigation and response activities.

[http://www.paho.org/english/ped/ped\\_home.htm](http://www.paho.org/english/ped/ped_home.htm)

*Pan American Development Foundation (PADF)*

PADF is uniquely qualified to address the immediate and long-term needs of communities that have been devastated by natural disasters.

<http://www.padf.org/>

*United Way International (UWI)*



UWI is helping local charities become more effective. United Way organisations in 41 countries help create long-term solutions to local human needs. <http://www.uwint.org>

*United Nations, International Strategy for Disaster Reduction*  
<http://www.unisdr.org/>

*World Bank Disaster Management Facility*  
<http://www.worldbank.org/html/fpd/dmf>

Some governmental aid agencies:

*Australian Agency for International Development*  
[www.ausaid.gov.au](http://www.ausaid.gov.au)

*British Department for International Development*  
[www.dfid.gov.uk](http://www.dfid.gov.uk)

*Canadian International Development Agency*  
[www.acdi-cida.gc.ca](http://www.acdi-cida.gc.ca)

Besides looking for funding from (large) relief organisations, insurance, savings and micro finance are also examples of instruments that can be used to generate resources for mitigation, recovery and reconstruction. The efficiency of these instruments depends on the number of participants, the money available and on the accountability and strengths of the institutions or persons involved. *The Grameen Bank* in Bangladesh pioneered the concept of *micro-finance* for entrepreneurial activities of the rural poor. Credits, saving and insurance were part of their services (see also: [www.grameen-info.org/mcredit/cmodel.html](http://www.grameen-info.org/mcredit/cmodel.html)).

Nowadays there are many more microfinance institutions. Some initial experiences to invest in risk reduction measures have proved successful. Nevertheless, directly after a disaster, members often find it hard to make repayments on their loans. Some micro-credit programmes will often include government subsidies to overcome this problem.

## 6. Sources Of Information

### 6.1 Guides & Handbooks

Bhattu, A. and M. Ariyabandu (2002), *Disaster Communication: A Resource Kit for Media*, Duryog Nivaran Publication.

Bethke, L. et al. (1997) *Building capacities for risk reduction*. Disaster management training programme, DHA.  
<http://www.undmtp.org/english/riskreduction/riskreduction.pdf>

Enarson, E. et al. (2003). *Working with women at risk, Practical guidelines for assessing local disaster risk*. International hurricane centre, Florida International University, USA. Available in English and Spanish.  
[http://online.northumbria.ac.uk/geography\\_research/gdn/resources/Working%20w%20Women%20English%20.pdf](http://online.northumbria.ac.uk/geography_research/gdn/resources/Working%20w%20Women%20English%20.pdf)

Heijmans, A. and L.P. Victoria (2001). *Citizen-Based and Development Oriented Disaster Response*. Center for disaster preparedness, Partnership for Disaster reduction Southeast-Asia (PDR-SEA), Philippines. A very practical manual for disaster management at community level.  
<http://www.adpc.ait.ac.th/pdr-sea/cbdo-dr/toc.html>

IFRC. *Vulnerability and capacity assessment guidelines*. Shows how vulnerability and capacity assessment (VCA) can help to improve understanding of the needs of people at greatest risk of disasters, and thus prepare more appropriate actions to assist them and recover from a hazard. Includes case studies and examples describing VCA's usefulness and lessons learned.  
<http://www.ifrc.org/what/disasters/dp/pubs.asp>

IFRC (2000). *Disaster preparedness training manual*.  
<http://www.ifrc.org/what/disasters/dp/pubs.asp>

Oxfam emergency manuals on food security assessments, health issues and save drinking water.

[http://www.oxfam.org.uk/what\\_we\\_do/emergencias/how\\_we\\_work/manuals.htm](http://www.oxfam.org.uk/what_we_do/emergencias/how_we_work/manuals.htm)

Prevention Consortium (World Bank). The site provides successful examples of disaster prevention. Furthermore, a toolkit can be found that includes online resource materials for conducting various types of disaster-related assessments and reducing risks.

<http://www.proventionconsortium.org/index.htm>

Seaman, J. et al. (2000). *Household Economy Manual: A resource manual for practitioners*. Save the Children UK Development Manual 6, UK.

Language: English/Portuguese/French:  
<http://www.savethechildren.org.uk/foodsecurity/publications/index.htm>

Tearfund International Group (2002). *Preparing for disaster*. Partnership In Local Languages ResourceS (PILLARS), Tearfund International Group.

Language:

English/French/Spanish/Portuguese.  
Information on how to order:

<http://www.tilz.info/uploads/documents/Resources%20Catalogue%20English%202003.pdf>

Von Kotze, A. and A. Holloway (1996). *Reducing Risk: Participatory learning activities for disaster mitigation in Southern Africa*. International Federation of Red Cross, Oxfam Publishing. A collection of participatory learning activities for people who work in development or relief with at-risk communities.

*Spanish guides/handbooks online:*

Abarca Alpízar, Flor (1997). *Educación comunitaria para la prevención de desastres: Guía metodológica y pedagógica para personas facilitadoras*. San José, Costa Rica.

[http://www.crid.or.cr/crid/CD\\_Alerta\\_Temprana/pdf/spa/doc9223/doc9223.htm](http://www.crid.or.cr/crid/CD_Alerta_Temprana/pdf/spa/doc9223/doc9223.htm)

Caicedo B., Luis Antonio, Oscar Orejuela Osorio. *Guía instructiva para la prevención de desastres y la atención de emergencias*. Cali, Colombia

<http://desastres.cies.edu.ni/PDF/PDF%20nuevos/pdf/spa/doc1265/doc1265.htm>

Cruz Roja Costarricense (1995). *Educación comunitaria para la prevención de desastres: guía para la facilitación de procesos educativos orientaciones pedagógicas y metodológicas. Guía 1 : La Prevención de los Desastres*. IFRC, San José, Costa Rica.

<http://www.cepis.ops-oms.org/eswww/fulltext/repind67/guia/guia1.html>

Guía de trabajo para la elaboración de los mapas de riesgos comunales. A simple spanish guide about disaster mapping.

<http://www.eird.org/publicaciones/publicacioneseesp.htm>

International Strategy for Disaster Reduction. Secretariat and UNICEF. Education materials for children: "Let's learn to prevent disasters" and the educational game, "Riskland".

<http://www.eird.org/ing/ninos/kideduc/kiting.htm>

## 6.2 Literature

Anderson and Woodrow (1998). *Rising from the ashes: Development strategies in times of disaster*. IT Publications.

Ariyabandu, M.M. and M. Wickremasinghe (2004). *Gender Dimensions in Disaster Management*. ITDG South Asia Publication.

Blaikie P, T. Cannon, I. Davis and B. Wisner (1994). *At Risk: natural hazards, people's vulnerability, and disasters*. Routledge, London.

Burby, R. (ed). (1998). *Cooperating with nature: confronting natural hazards with land use planning for sustainable communities*. Joseph Henry Press, Washington , DC.  
<http://www.nap.edu/books/0309063620/html/>

Division for the Advancement of Women-UN (2001). *Environmental Management and the Mitigation of Natural Disasters: a Gender Perspective*. Report of the Expert Group Meeting- Ankara, Turkey, 6 – 9 November 2001, UN/ISDR, USA.  
[http://www.un.org/womenwatch/daw/csw/env\\_manage/documents/EGM-Turkey-final-report.pdf](http://www.un.org/womenwatch/daw/csw/env_manage/documents/EGM-Turkey-final-report.pdf)

Fernando and Fernando (1997). *South Asian Women: Facing Disasters, Securing Life*. Duryog Nivaran Publication, Intermediate Technology Development Group. This book focuses on the interaction of gender and politics in the management of disasters in South Asian societies.

International Federation of Red Cross and Red Crescent Societies: *World Disasters Reports 2003, Focus on ethics in aid*  
[http://www.ifrc.org/publicat/wdr2003/World Disasters report 2002, Focus on reducing risk](http://www.ifrc.org/publicat/wdr2003/World%20Disasters%20report%202002,%20Focus%20on%20reducing%20risk)  
[http://www.ifrc.org/publicat/wdr2002/World Disasters report 2001, Focus on recovery](http://www.ifrc.org/publicat/wdr2002/World%20Disasters%20report%202001,%20Focus%20on%20recovery)  
<http://www.ifrc.org/publicat/wdr2001/>

ISRD (2003). *Living with Risk: A global review of disaster reduction initiatives*. Includes a selection of disaster reduction applications.  
[http://www.unisdr.org/eng/about\\_isdr/basic\\_docs/LwR2003/lwr-03-preface-eng.htm](http://www.unisdr.org/eng/about_isdr/basic_docs/LwR2003/lwr-03-preface-eng.htm)

Palakudiyil, T. and M. Todd (2003). *Facing up to the storm. How local communities can cope with disaster: lessons from Orissa and Gujarat*. Christian Aid, India.  
<http://www.christian-aid.org.uk/indepth/0307stor/>

Sainath P. (1997). *Everybody Loves a Good Drought: Stories from India's Poorest Districts*. Penguin, New Delhi. Reprint available at:  
<http://www.indiadisasters.org/idrpdf/Droughts/Drought%20Everybody%20Loves.PDF>

Trujillo, M., A. Ordóñez and C. Hernández (2000). *Risk-Mapping and Local Capacities; Lessons from Mexico and Central America*. Oxfam working papers  
[http://www.oxfam.org.uk/what\\_we\\_do/resources/wp\\_mexca\\_risk.htm](http://www.oxfam.org.uk/what_we_do/resources/wp_mexca_risk.htm)

Twigg and Bhatt (eds.) (1998). *Understanding Vulnerability: South Asian Perspectives*. ITDG Publishing

Twigg J, (2001). *Guidance Notes on Participation and Accountability in Disaster Reduction*. Benfield Greig Hazard Research Center, London.  
[http://www.benfieldhrc.org/SiteRoot/activities/misc\\_papers/PA%20text.pdf](http://www.benfieldhrc.org/SiteRoot/activities/misc_papers/PA%20text.pdf)

Uribe A. et al (1999). *Reducing Vulnerability to Natural Hazards: Lessons learned from Hurricane Mitch, A Strategy Paper on Environmental Management*. Regional Operations Department 2 of the Inter-American Development Bank. Stockholm, Sweden 25-28 May 1999.  
[http://www.iadb.org/regions/re2/consultative\\_group/groups/ecology\\_workshop\\_1.htm](http://www.iadb.org/regions/re2/consultative_group/groups/ecology_workshop_1.htm)

### 6.3 Some international development agendas

Over the last decades, the international community has adopted several declarations, agendas and conventions, which contain commitments related to disaster reduction. The *International Decade for Natural Disaster Reduction (IDNDR)* is in this respect the most important one. It was initiated in 1989 by the General Assembly of the United Nations, to inform the people in the disaster prone countries of the world about the protective measures to be taken. The First World Conference on Natural Disaster Reduction (1994) led

to the adoption of the Yokohama Plan of Action, which included focussing on risk and vulnerability reduction and incorporate disaster reduction into sustainable development. A review will take place in 2004. At the end of the (IDNDR) decade (1999), the United Nations International Strategy for Disaster Reduction (ISDR) was established to shift the emphasis, from protection against hazards, to raising awareness and the assessment and management risks. Two mechanisms were established for this: the Inter-Agency Secretariat and the Inter-Agency Task Force on Disaster Reduction. The Secretariat has a facilitating role, while the Task Force serves as a UN forum on identifying recommendations for disaster reduction. A selection of disaster reduction applications by the UN can be found in the document 'Living with Risk: A global review of disaster reduction initiatives', 2003.

[www.unisdr.org](http://www.unisdr.org)

*The Habitat Agenda* was developed to reduce the impact of disasters. Appropriate norms for land use, building, and planning standards were developed. UN HABITAT is working with local governments, insurance companies, NGOs, and the academic and health community, to improve disaster management in human settlements. Their website includes information on housing rights and policies, and building materials and their applicability

<http://www.unhabitat.org/programmes/housingpolicy>

#### **6.4 International agencies, research institutes and networks**

*African Center of Meteorological Applications for Development* (ACMAD), Niger

ACMAD is working on cooperation among the African states and among the rest of the world in climate and environmental issues, regarding sustainable social and economic development. <http://www.acmad.ne>

*Asian Disaster Preparedness Center* (ADPC), Thailand

ADPC is one of the most prominent institutes working towards disaster reduction. It serves as a regional resource centre for safer communities and sustainable development. It promotes disaster awareness, enhances knowledge and skills, strengthens sustainable institutional mechanisms, and facilitates the exchange of information, experience and expertise. Activities include the creation of state, district and village disaster management plans, the development of community awareness videos and publication, and the establishment of a disaster information system.

Address: (P.O. Box 4), 58 Moo 9, Km. 42, Paholyothin Highway, Klong Luang, Pathumthani 12120, Thailand.

Tel: (66) 02 516 5900 to (66) 02 516 5910

Fax: (66) 02-524 5350 or (66) 02-524 5360

E-mail: [adpc@adpc.net](mailto:adpc@adpc.net)

Website: <http://www.adpc.ait.ac.th/>

*Benfield Greig Hazard Research Center* (BGHRC), United Kingdom

The BGHRC is an academic research center in Geological Hazards, Meteorological and Space Hazards, and Disaster Management. [www.bghrc.com](http://www.bghrc.com)

*Central European Disaster Prevention Forum* (CEUDIP)

It was established in 1999, the main focus is early warning, including media's role, disaster prevention and mitigation and legislation on states of emergency.

*Centre for Research on the Epidemiology of Disasters* (CRED)

A research centre specialised in public health and disasters, including socio-economic and long-term effects. It maintains an international disaster database. [www.cred.be](http://www.cred.be)

*Centro Regional de Informacion de Desastres* (CRID), Costa Rica

CRID works on the compilation and dissemination of disaster-related information in Latin America and the

Caribbean. Capacity building material available online. [www.crid.or.cr](http://www.crid.or.cr)

*Disaster Management Facility (DMF)*, World Bank, USA  
DMF provides technical support to World Bank operations to make sure that disaster prevention and mitigation are integral parts of their programmes. <http://www.worldbank.org/html/fpd/dmf/>

*Disaster Studies Wageningen*, the Netherlands  
Disaster Studies is part of Wageningen University, and focuses on the sociology of natural disasters, conflicts and humanitarian aid in the Third World. <http://www.disasterstudies.nl>

*International Federation of the Red Cross and Red Crescent Societies (IFRC)*  
IFRC is the world's largest humanitarian organisation, and plays a leading role in setting up disaster management systems and providing assistance during disasters. Their activities are executed in co-operation with local Red Cross/ Red Crescent organisations. <http://www.ifrc.org/what/disasters/>

*International Institute for Disaster Risk Management (IDRM)*, Philippines  
The IDRM gives courses in best practices in disaster risk management. <http://www.idrmhome.org>

*International Strategy for Disaster Reduction (ISDR)*  
The ISDR promotes increased awareness of the importance of disaster reduction as an integral component of sustainable development. The *Central European Disaster Prevention Forum* is part of the ISDR. [www.unisdr.org/unisdr](http://www.unisdr.org/unisdr)

*Natural Hazards Center at the University of Colorado*, USA  
The centre's primary goal is to increase communication among hazard/disaster researchers and those individuals, agencies and organisations actively working to

reduce disaster impact. [www.colorado.edu/hazards](http://www.colorado.edu/hazards)

*Pan-American Health Organisation (PAHO)*  
The PAHO is as a regional office of the World Health Organisation, working to improve health and living standards of the people of the Americas. They have a special disasters and humanitarian assistance. <http://www.paho.org/disasters/>

*ProVention consortium* (Disaster Management Facility, World Bank)  
A global network to share knowledge on reducing the impact of disasters. <http://www.proventionconsortium.org/index.htm>

## 6.5 Websites

[http://online.northumbria.ac.uk/geography\\_research/radix/](http://online.northumbria.ac.uk/geography_research/radix/)  
Radical interpretations of disasters and radical solutions. It is meant as a home for discussion, working papers, opinion pieces, resources and links that can help to develop solutions for all disasters in the whole world.

[http://www.unisdr.org/eng/public\\_aware/world\\_camp/2003/pa-camp03-sg-eng.htm](http://www.unisdr.org/eng/public_aware/world_camp/2003/pa-camp03-sg-eng.htm)  
World Disaster Reduction Campaign 2003. Includes Information Kit (en/fr/sp).

<http://www.climatecentre.org/>  
The Red Cross and Red Crescent Centre on Climate Change and Disaster Preparedness (PO Box 28120, 2502 KC The Hague, The Netherlands)  
[http://online.northumbria.ac.uk/geography\\_research/gdn/index.html](http://online.northumbria.ac.uk/geography_research/gdn/index.html)  
Gender and Disaster Network

[http://www.undmtp.org/modules\\_e.htm](http://www.undmtp.org/modules_e.htm)  
Site with all kind of training modules concerning disasters

<http://www.ndcc.gov.ph/>  
The National Disaster Coordination Council of the Philippines

<http://www.disaster.info.desastres.net>

This web site is maintained by the Pan American Health Organisation, and contains disaster preparedness and prevention information of other organisations (particularly those in Latin America and the Caribbean)

<http://disasterfinder.gsfc.nasa.gov/>

The 'Disaster Finder' is a search service of the Goddard Space Flight Centre of the NASA in the USA It provides links websites about natural hazards worldwide.

<http://www.alertnet.org>

Alertnet is a free news and communications service designed to

provide concise, reliable information to organisations responding to humanitarian emergencies with the aim of helping them coordinate their efforts and get aid to those affected by disasters faster.

<http://www.reliefweb.int/>

Relief Web is the world's premier electronic clearinghouse for those needing timely information on humanitarian emergencies and natural disasters.

<http://www.sphereproject.org>

The SPHERE Project aims to improve the quality of assistance provided to people affected by disasters.

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