

Defeating Disasters: Ideas for Action



Madhavi Malalgoda Ariyabandu

A Duryog Nivaran Publication

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Acknowledgements

This book is an attempt to bring together into one document the key experiences and results of the initiatives taken by the Duryog Nivaran (DN) Network in promoting an *'alternative approach'* to addressing disasters and development since its inception in 1994. Consolidated here are the experiences of the DN Network in its five member countries in South Asia, supported by some theoretical concepts and examples from other parts of the world.

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Madhavi Malalgoda Ariyabandu
Intermediate Technology Development Group
Colombo, January 1999

Introduction

Disasters are as old as human history. They have been mostly dealt with from a purely humanitarian angle, while natural hazards such as cyclones, droughts and earthquakes have been analysed 'technically and scientifically' within scientific disciplines.

The dramatic increase in disasters and the damage caused by them in the recent past has become a cause of national and international concern. We cannot look at them any longer as 'acts of god' over which we have little control. Nor can we leave disasters to be understood by natural scientists, and handled by rescue teams alone. There is a demanding need for new ways of analysis, new approaches and new methods to address disasters.

This book is an effort to share some thinking and practical messages on an alternative way of understanding and dealing with disasters. The focus is South Asia; however, the issues and concepts discussed here are applicable globally. The book draws mainly on the experiences of the member institutions and individuals of Duryog Nivaran (DN), a South Asian Network on disaster mitigation. Duryog Nivaran, an initiative of the Intermediate Technology Development Group (ITDG), was established in 1994. It has members in five South Asian countries, together with the Asian Disaster Preparedness Centre, Bangkok. The network aims to generate analytical concepts, good practices and improved methodologies based on its 'Alternative Perspective' and to integrate these at conceptual, policy and implementation levels to reduce the vulnerability of communities to disasters.

We are convinced that correct approaches and correct action can minimise the impact of many natural and non-natural hazards on people and property. To arrive at this, fundamental changes are required both in development and disaster mitigation policies, and in action. This process has been initiated, but most efforts remain isolated. The need for consolidation is pressing. This book, we hope, will contribute positively to the changes needed.

Disasters in South Asia

Many people are killed, affected and made homeless by disasters with natural and non-natural triggers¹ in South Asia. During the last decade on average 56% of those killed world wide by disasters each year were in South Asia. This is due to the sub-continent's large population, its exposure to a wide variety of hazards, and its population's high level of vulnerability to those hazards.

The annual average number killed in South Asia in the period 1987-1996 was 50,695. During the same period, the annual average number of people affected by disasters was 77,250,041².

The situation in the Duryog Nivaran member countries over the last ten years is as follows.

Annual average number of people killed or affected by disasters 1987-1996

Country	Number of people killed	% of total killed in South Asia	Number of people affected	% of total affected in South Asia
Bangladesh	44,014	86.82	18,574,280	24.05
India	5,063	9.99	56,563,631	73.22
Nepal	783	1.54	200,768	0.26
Pakistan	748	1.48	1,407,065	1.82
Sri Lanka	87	0.17	504,297	0.65
South Asia	50,695	100.00	77,250,041	100.00

Source: *World Disasters Report 1998*.

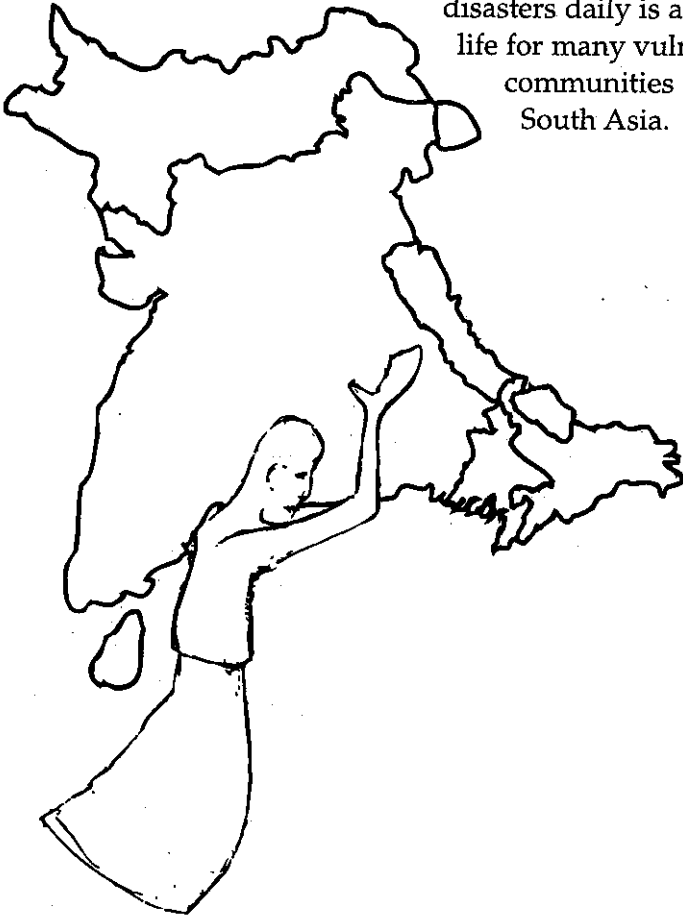
1 Natural hazards that trigger disasters include drought, earthquakes, floods, landslides, high winds, cyclones, and volcanic eruptions; technological accidents, and fire come under the category of disasters with non-natural triggers. Victim of war and conflict are not included in these statistics

2 *World Disasters Report 1998*.

Official statistics documenting the loss of life and damage caused by disasters are only one indication of their impact. It is acknowledged that the statistics reveal only the tip of the iceberg. The full impact of disasters, including their impact on lives and livelihoods, is evident only in the long run and cannot be quantified in financial and economic terms alone.

The limitations of official statistics are obvious from the criteria used to define disasters. For instance, the criteria for an entry in the records used to compile the International Federation of Red Cross and Red Crescent Societies' annual *World Disasters Report* are 'ten deaths, and/or 100 affected, and/or an appeal for assistance'. Smaller-scale disasters therefore do not enter the records, do not make the headlines and pass unnoticed – yet these are substantial

in number and impact. Facing disasters daily is a way of life for many vulnerable communities in South Asia.

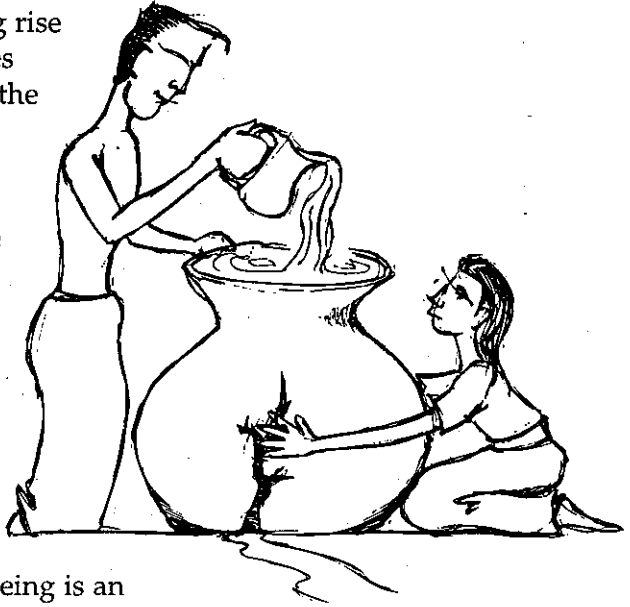


Vulnerability

What is vulnerability?

All the evidence points to a steep and continuing rise in deaths and injuries from disasters since the 1960s, and there is a general consensus among researchers and insurers that the number of disasters are increasing.

This rise cannot be explained by a parallel rise in the number of earthquakes, cyclones and the like. What we are seeing is an increase in the effects of disasters on people – or, in other words, an increase in people's *vulnerability* to disasters.



It is the social, cultural, economic and political environment that makes people vulnerable. This is most apparent in the economic pressures that force many of the poor to live in cheap but dangerous locations such as flood plains and unstable hillsides; but there are many less visible underlying factors – social and political as well as economic – that affect people's ability to protect themselves against disasters or to recover from them.

Some groups are more vulnerable than others. Vulnerability is not just poverty, but the poor tend to be the most vulnerable. The influence of poverty and the development process on vulnerability to disasters is now well established³. Being poor, and having no choices increases vulnerability to disasters. Class, caste, ethnicity,

³ Maskrey A, *Disaster Mitigation: A Community Based Approach*; Blaikie P et al., *At Risk*.; *Natural hazards people's vulnerability and disasters*.

gender, disability and age are other factors affecting people's vulnerability. Those who are already at an economic or social disadvantage because of one or more of these characteristics tend to be more likely to suffer during disasters.

Living with risk

People do not willingly embrace the risk of death or economic devastation, but short-term pressures such as the need to earn money and feed a family may oblige them to face the more remote risk of a disaster.

For example, a study of the Karakoram area in Northern Pakistan in the 1980s found that houses tended to be sited in dangerous locations, against mountainsides and in the line of landslides and floods. Their owners were aware of the risk but chose to build there rather than use up precious agricultural land, of which little was available in this mountainous area.

When asked about the risk of disasters such as flooding and earthquakes, people said they had more pressing problems to face such as the lack of education and health, and the difficulty of selling crops at a decent price.

Duryog Nivaran, is improving our understanding of vulnerability by collecting and presenting well-researched case studies and perspectives that are relevant to the realities of South Asia⁵. The material is wide-ranging – from women in urban and rural districts of the Indian state of Gujarat, who face a range of hazards, to peasant farmers affected by drought in Sri Lanka's Dry Zone and Nepali villagers living under the threat of landslides. Yet, though the circumstances are different, every case demonstrates the complex interaction between the forces of nature and the forces of society that combine to create disaster. Disasters can only be understood and prevented by addressing all these factors.

4 Wijkman A, Timberlake L, *Natural Disasters: Acts of God or acts of Man?*

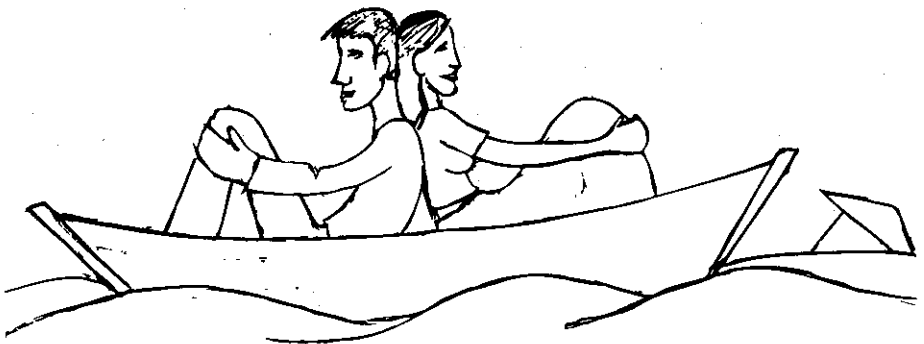
5 See the list of Duryog Nivaran's outputs at the end of this book.

Acting against disasters

It is both common-sense and rational to be prepared for disasters and have measures ready to reduce the impact of such occurrences rather than to recover once the damage is done.

Naturally therefore, arguments for investing in mitigation are many:

- Mitigation reduces loss of life and human suffering.
- Not all disasters are 'emergencies'. Many disasters including drought and floods are predictable. Investment in mitigation can minimise their impact.
- Mitigation reduces the risk element in development investments, thus making development initiatives more stable.
- Treating disasters separately from development action can contribute towards increased levels of hazards and vulnerability, and can jeopardise future development initiatives
- Mitigation reduces dependency on relief and aid, and strengthens local capacities for preparedness
- Mitigation reduces the resources required for emergency responses; therefore in the longer run more resources become available for development.



The cost of recovery

Over the last few decades, the costs of emergency responses, disaster recovery and rehabilitation have shown an alarmingly increasing trend. Resources spent on relief and recovery world wide account for 96% of all the resources spent on disaster related work each year⁶. The grant disbursements for emergency and distress relief (excluding food) from donors internationally in 1996 show a 2.5 times increase in comparison to the amounts disbursed in 1990⁷.

Particularly in developing countries, this has resulted in having to reallocate resources intended for development activity to meet the demands of emergencies. These resources are used to pay for the most immediate costs of disaster recovery and rehabilitation. They do not cover the human losses and suffering, or the longer term losses to the economy in terms of lost production and investments.

Paying the price

Between 1987 and 1988 the World Bank reallocated about \$2 billion of existing loans for rehabilitation after natural disasters. In 1991 it was estimated that since the early 1970s floods and drought together had accounted for more than half the Bank's assistance in emergencies (apart from war)⁸. It is believed the Bank to have provided more than US\$ 8 billion in emergency recovery loans in the past 10 years. In India, during the 1980s the Government of the State of Rajasthan spent more than twice as much on drought relief (such as public works programmes to give employment to drought victims) as on its official development programmes⁹.

6 UNESCO, *Disaster reduction, Environment and Development Briefs No 5*, 1993.

7 The figure for 1990 is US\$ 1.058 millions, which has risen to 2.692 in 1996 (*World Disasters Report 1998*); much of the increase is due to conflicts and 'complex emergencies'.

8 Anderson M B, 'Which costs more: prevention or recovery?'

9 Subbiah A R, 'Drought management through participatory multidimensional approaches'.

Mitigation and preparedness require long term planning and investment. Countries in South Asia are caught in a vicious cycle of increasing vulnerability to disasters. Being resource poor, investments which bring longer-term security are limited, since there are many more immediate problems to address. This is true both at state level and at household level.

At the state level scarce resources are not sufficient to address the causes of vulnerability to disasters, which are directly linked to poverty. Frequent disasters require the diversion of more and more state resources for emergency response and rehabilitation.

Similarly poor households are often unable to invest in disaster preparedness measures since they are compelled to spend the limited resources available on daily survival. However, even the very poor make efforts to invest in mitigation measures whenever resources permit, as this example from Bangladesh illustrates.

Poverty and vulnerability

Mumtaz lived on a char island in the river Padma, highly susceptible to frequent flooding. Her husband was the only breadwinner in the family of seven. Determined to support the family she undertook pickle making and selling in the local market with the help of a loan from the Bangladesh Rural Development Board. Her pickle making equipment was damaged by the seasonal floods, forcing her to go for a second loan. The second loan was also supported by training in food-processing skills and small business planning. Armed with improved knowledge and skills she was able to run her business more profitably. As a priority she invested the surplus in a flood safe house, securing the future of the business and reducing the family's vulnerability to floods.

Source: Chaudhury M. in *Proceedings of Workshop: Understanding Vulnerability, A South Asian Perspective*

Cost-effectiveness

The positive economic impact of mitigation efforts is difficult to quantify, and to demonstrate. But the available evidence and calculations clearly show that mitigation is cost-effective.

The World Bank and United States Geological Survey calculated that economic losses worldwide from natural disasters in the 1990s could be reduced by \$280 billion if \$40 billion were invested in preparedness, mitigation and prevention strategies¹⁰.

More simply, the owner of a sweet shop in Indore India, interviewed in 1994, said he had paid 25 Rupees to put stepping stones around his shop so that customers would not have to stand in flood water. He believed that if he had not taken this action it would have cost him 100-200 Rupees in lost business¹¹.

At national levels disaster prevention in development plans will provide added economic stability for further investments. The power crisis in Sri Lanka in 1996 amply demonstrated this position. Sri Lanka depends on hydro electricity for over 80% of its power supplies. A lasting and severe drought spell in 1996 substantially dried up the water resources, severely affecting power generation. The drought was predicted, and back-up plans for the alternative sources of energy supply were drawn up and proposed by the Ceylon Electricity Board well on time. But political and other bureaucratic factors did not allow the proposed measures to be implemented.

This drought had a direct impact on the livelihoods of communities living from agriculture. The agricultural sector suffered most from the drought, consequently, the total agricultural output registered a 5% decline¹². The power crisis resulting from the drought affected all the other sectors of the economy. This unstable situation had a long-term effect on both local and foreign investments, when the country was badly in need of such investment. The Central Bank of Sri Lanka urged the need

10 Dilley *et al.*, 'ENSO and Disaster: Droughts, Floods and El Niño'.

11 Stephens C *et al.*, 'Risk perceptions towards flooding and environment in low income urban communities'.

12 Annual Report, Central Bank of Sri Lanka, 1996.

to reduce dependence on hydro power, which is highly vulnerable to weather conditions, and to have back-up plans. It was difficult to mitigate the severe impact of drought on the agricultural sector, but it was possible to save the country from the power crisis resulting from the drought with appropriate preparedness.

Protecting development

To break the vicious cycle, the link between poverty, vulnerability to hazards and development needs to be clearly understood and acknowledged in making investment decisions. Investment for risk reduction and disaster preparedness is an investment for development; it is an investment for the reduction of poverty and vulnerability.

The cyclone shelters built on the coast of Bangladesh are a well known case in point. Cyclones have taken many lives on the coast and offshore islands. A number of agencies have helped to build cyclone shelters, which have multiple uses. The premises are now used as schools and immunisation centres and for other community gatherings, serving general 'development purposes' during cyclone-free times.

Another example is the landslide hazard mapping initiative in Sri Lanka (see box).

A disaster mitigation initiative by the Government of Sri Lanka – landslide hazard mapping

Sri Lanka has been experiencing a spate of landslides over extensive areas of its Central and South western regions since the early 1980s. There has been a sharp increase in landslide occurrences in recent years. While the first six decades in this century recorded only six major landslide events, the years since 1981 have registered seven major occurrences. The 1989 slide claimed more than 300 lives and left an undetermined

number of families homeless in an extensive part of hill country. Damages include disruptions to the water supply, power generation, telecommunications, road structures and schools.

In 1990 the government of Sri Lanka took an initiative¹³ to assess and map landslide hazards in two districts, Badulla and Nuwara Eliya. The project was completed in July 1995. The specific design of the project included ascertaining socio-economic issues of resettlements, creating awareness among resident communities in hazardous areas about the adverse impacts of improper land use, and other preparedness measures. This initiative has now been extended to six other landslide-prone districts in the country.

This pilot initiative has resulted in multiple benefits, immediate and long term:

- The most immediate benefit is the lives saved in the recent landslide in Badulla District. As a result of the awareness created, communities in the area could detect early signs, and 11 families (50 people) moved to safety.
- Conceptual changes in the approach: landslides were considered an area of technical expertise, but are now recognised as a multidisciplinary issue with much focus on social aspects; land users have been categorised into vulnerable groups¹⁴.
- The Government organisations responsible for town building, and settlement planning now take a more systematic approach, and get clearance from the National Building Research Organisation (NBRO)

¹³ The project began as a pilot project supported by the United Nations Development Programme, and implemented through the National Building Research Organisation (NBRO).

¹⁴ The socio-economic component of the project has established degrees of vulnerability ('encroachers' or illegal squatters are the most vulnerable group to landslides). This has helped in future settlement planning.

during planning stages regarding potential landslides¹⁵.

- The Centre for Housing and Planning of Buildings (CHPB), as part of its training courses on building construction, has included landslide hazard assessment in the curriculum.
- A risk assessment methodology and a methodology to determine priority areas for detailed landslide mapping have been developed, to be used in future plans.

Source: N.M.S.I Arambepola, *National Building Research Organisation, Sri Lanka*

Unbalanced agendas

Investment in disaster mitigation and preparedness in international disaster aid budgets is minimal. In the early 1990s it was estimated that resources expended on preparedness and mitigation world wide accounted for only 4% of all the money spent on disaster-related work each year¹⁶. Since then, relief budgets have risen sharply to deal with the consequences of numerous conflicts, and it is likely that the percentage spent on preventing disasters has fallen still lower.

Even within the international agencies who recognise and endorse disaster mitigation, investments are at a very low level. For instance, the disaster preparedness budget of the UK Government's Overseas Development Administration (now Department for International Development) was only 1.04 % of its total emergency aid budget for the year 1994/5. Many major donors do not have specific disaster preparedness budgets. The picture is similar in most national government investments too.

15 With the technical and socio-economic information generated, and experience gained over the years, the NBRO has become the consulting body on landslides.

16 UNESCO, *Disaster reduction, Environment and Development Brief No 5, 1993.*

South Asian Governments are also hindered from considering the options available for disaster preparedness and emergency investments by a lack of awareness and knowledge of alternative methodologies and approaches among officials. Added to this is the inadequate availability of technical knowledge and techniques. Mitigation action requires thorough planning and co-ordination, with the involvement of a number of ministries/agencies. Existing institutional structures are equipped and geared towards treating all disasters as emergencies, where no link is made with development activity. The institutional structures looking after the two problem areas, 'development' and 'disasters', operate separately from one another.

Mitigation is effective, but often not 'attractive' compared to relief and rehabilitation. Investments in preventive methods and structures are not as visible as relief work and the effects of such investments are only visible in the long term, which means that mitigation does not create a 'popular' environment to help politicians to collect votes at election time. Also, it does not create 'fundraising' opportunities. In the media there is a tendency to sensationalise the news wherever possible, and to politicise disaster events. In reporting, what is sought is 'a good story' with the goriest pictures and the human suffering and loss.¹⁷

It seems that there are not enough visible 'incentives' for organisations to readily come forward to invest in preparedness. But the measures can vary, particularly from an investment point of view. While actions such as constructing retaining walls to protect the coastline in Southern Sri Lanka against sea erosion require substantial investment, and the benefits are not immediately visible, the costs of promoting and supporting the construction of rainwater harvesting structures to reduce the impact of drought are much smaller, and the benefits are immediate (see the case study 'Working with the community' in the section 'Community based approaches').

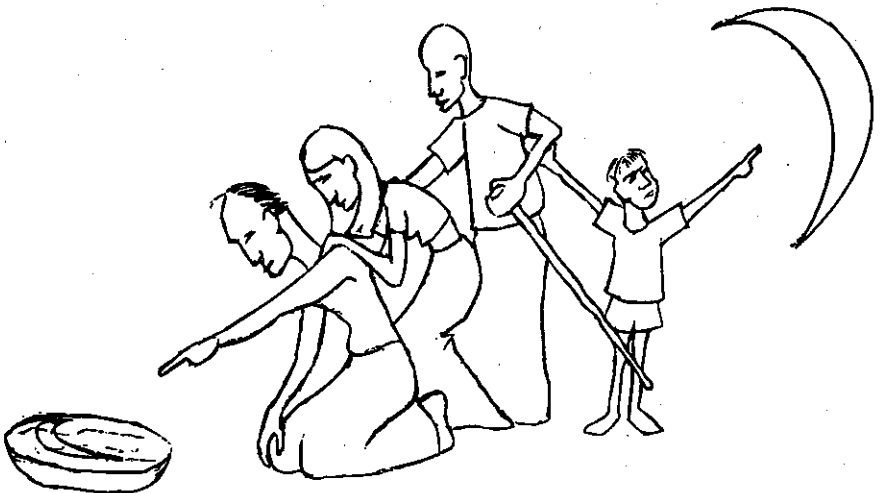
17 Chaudhry A in *South Asian Women, Facing Disasters, Securing Life*.

Dominant and alternative perspectives

We argue that the theoretical basis for analysing and understanding disasters determines the approach taken to address them.

The dominant perspective

Disasters and conflicts are generally viewed by practitioners, policy makers and donors as isolated 'events' which require emergency responses. Every disaster is viewed as an emergency, and the emphasis is on the 'event'. This view does not take into account the social processes and relationships that have contributed to it. *Post hoc* responses such as immediate emergency assistance, recovery, and rehabilitation are the usual pattern that follows a disaster event. As a result an increasing percentage of national budgets and non-government aid is spent on emergency response leading to more and more resources being diverted away from development.



Governments in South Asia have set up institutions whose mandate is to manage disasters. They are highly centralised and often take a top-down, bureaucratic and inflexible approach. There is usually little involvement of the victims of disasters in the decision-making process.

The 'Alternative Perspective'

The 'Alternative Perspective' advocated by Duryog Nivaran looks at disasters as part and parcel of the 'normal' development of societies, as unresolved problems of development. This point of view argues that there is a link between 'disasters' and conditions in society during 'normal' times. The analysis attempts to address the underlying reasons why certain sections of society become relatively more vulnerable to disasters than others. It is important to understand these linkages in order to identify the social causes and effects of disasters – and to plan how to deal with them. Thus the basis for the strategy of intervention is mitigation rather than *post hoc* responses.

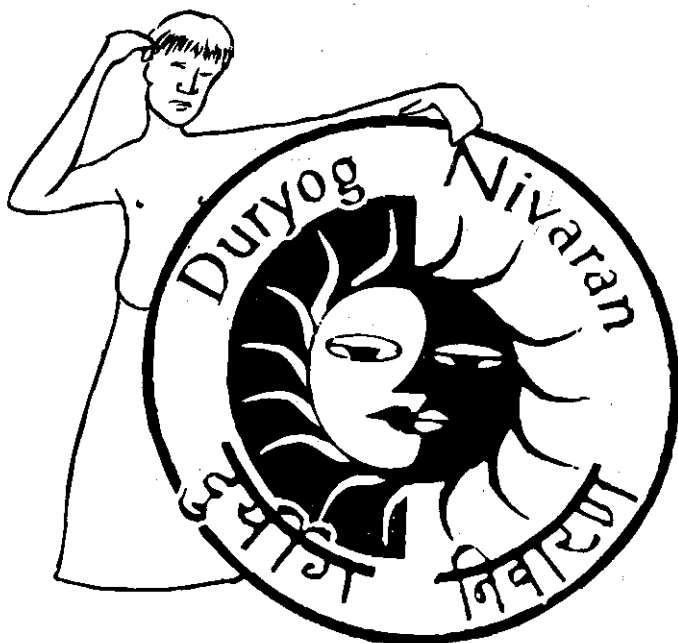
The Alternative Perspective recognises that communities have an important role to play in disaster mitigation. Thus in any intervention a 'community-based approach' to disaster mitigation is emphasised.

Dominant Perspective ¹⁸	Alternative Perspective
<p>Disasters/conflicts viewed as an isolated event.</p> <p>Linkages with conditions in society during normal times less analysed.</p> <p>Technical/law and order solutions dominant.</p> <p>Centralised institutions dominate in the intervention strategies. Less participation of people, who are treated as 'victims'.</p> <p>Implementing agencies less accountable and their processes less transparent to people.</p> <p>Interventions are made after the event occurs.</p> <p>The objective of intervention is to return to the situation before the event.</p>	<p>Disasters/conflicts are part of the normal process of development.</p> <p>Analysing linkages with society during normal times is fundamental for understanding disasters/conflicts.</p> <p>Emphasis on solutions that change relationships / structures in society. The objective is to reduce peoples' vulnerability and strengthen their capacity.</p> <p>Decentralised institutions dominate in the intervention strategies. Participation of people paramount in intervention strategies; people treated as 'partners' in development.</p> <p>Ensuring accountability and transparency emphasised in implementation.</p> <p>Mitigation of disasters/conflict the fundamental aim.</p> <p>Disasters/conflicts viewed as opportunities for social transformation.</p>

Duryog Nivaran

Duryog Nivaran¹⁹, established in 1994, is a network of individuals and organisations working in South Asia who are committed to promoting the Alternative Perspective on disasters and vulnerability as a basis for disaster mitigation in the region. The network's aim is to reduce the vulnerability of communities to disasters and conflicts by integrating the Alternative Perspective at conceptual, policy and implementation levels of disaster mitigation and development programmes in the South Asian region.

The network's membership includes institutions and individuals from research and academic spheres, relief and rehabilitation agencies, grass-roots implementing organisations, and local and regional training bodies in Bangladesh, India, Nepal, Pakistan, Sri Lanka and Thailand. These organisations and individuals in turn are linked to local networks in their respective countries, making the sharing and access of information wider.



¹⁹ The Sanskrit term 'Duryog Nivaran' means 'disaster mitigation'.

Themes

The network's activities fall within five chosen themes.

1. Understanding linkages with society

As argued by the Alternative Perspective, disasters/conflicts are part of the overall development of society. Therefore there is a need to understand how disasters/conflicts are linked to different aspects of social reality. The theme includes the issues of development and conflict, and gender concerns in disasters.

2. Myths of science and technology

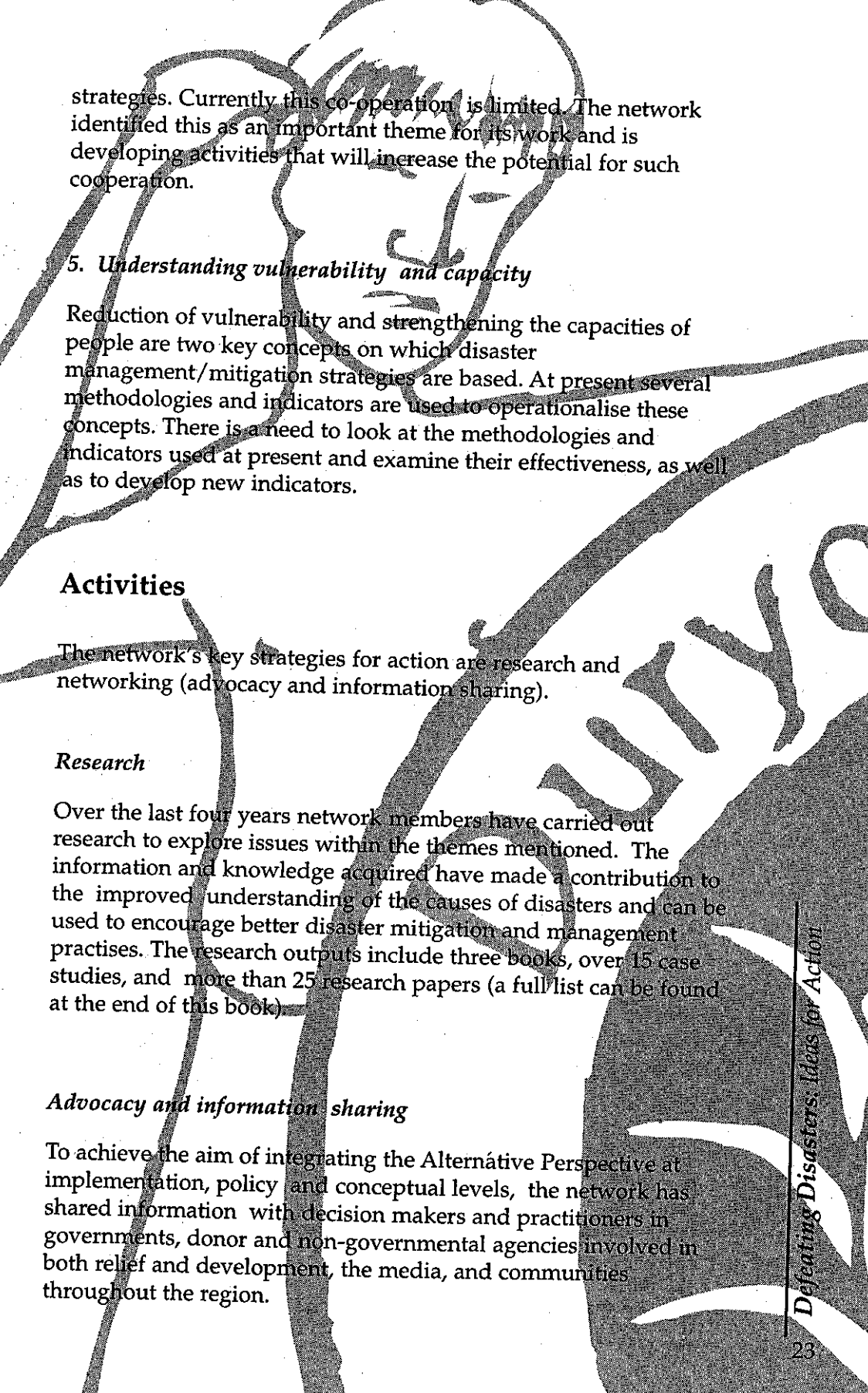
The legitimacy and hegemony of the dominant way of looking at disasters is provided by the argument that it is based on so-called 'scientific' knowledge. This mode of analysis claims superiority over others in understanding disasters. It is necessary to demonstrate the limitations of this framework based on natural sciences, and also the importance of other disciplines, including indigenous forms of knowledge in dealing with disasters.

3. Accountability

Accountability by various actors involved in intervention strategies during disasters or conflicts is a key element of the Alternative Perspective. Lack of accountability and transparency has been recognised as one of the main causes of increasing vulnerability. It is necessary to study the existing degrees of accountability of formal institutions at various levels as well as the accountability of actors at field or operational level. A closer look at the various participatory strategies employed is a key aspect in this theme.

4. Regional co-operation

Co-operation among South Asian countries is critical for the success of disaster/conflict management and mitigation



strategies. Currently this co-operation is limited. The network identified this as an important theme for its work and is developing activities that will increase the potential for such cooperation.

5. Understanding vulnerability and capacity

Reduction of vulnerability and strengthening the capacities of people are two key concepts on which disaster management/mitigation strategies are based. At present several methodologies and indicators are used to operationalise these concepts. There is a need to look at the methodologies and indicators used at present and examine their effectiveness, as well as to develop new indicators.

Activities

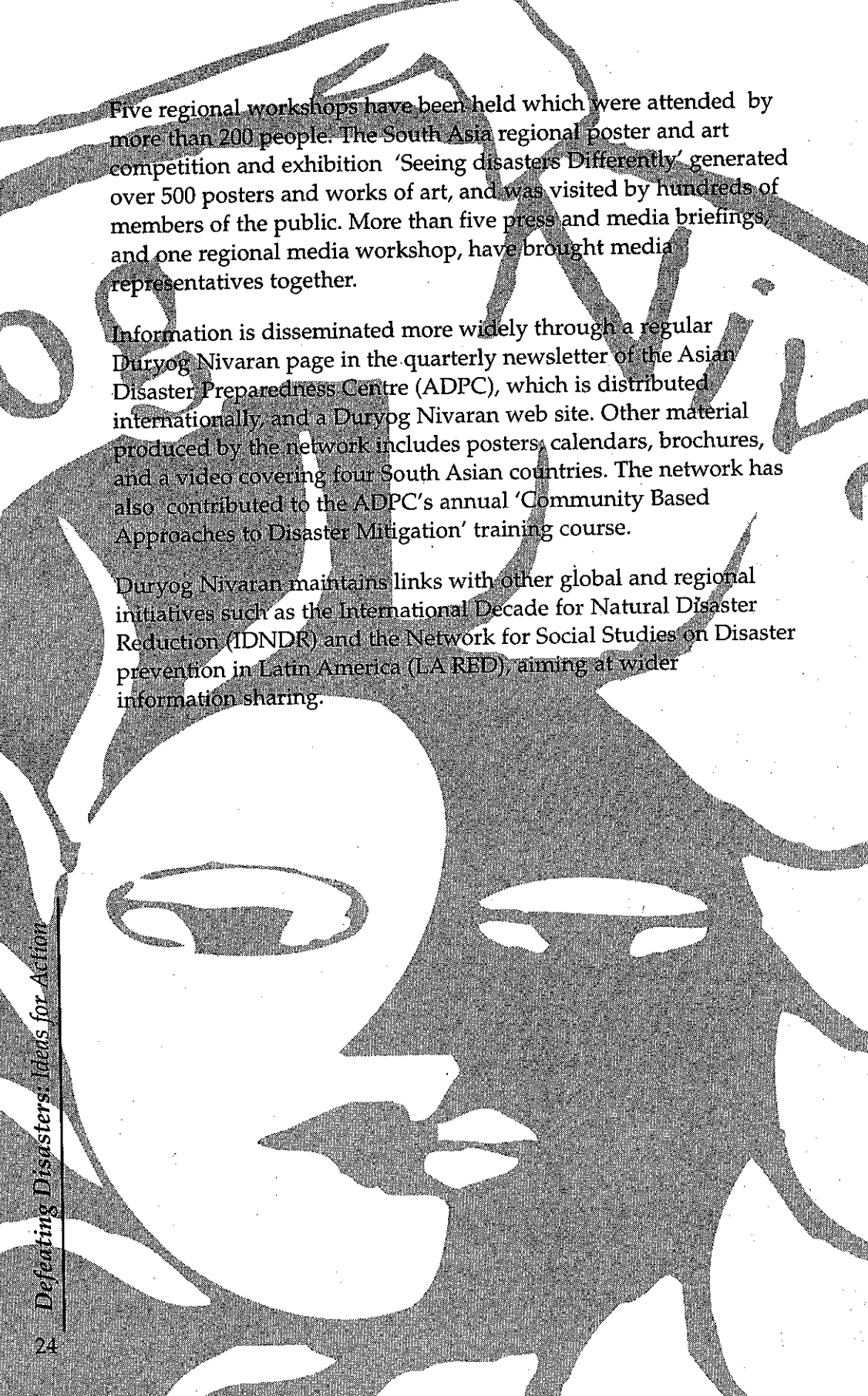
The network's key strategies for action are research and networking (advocacy and information sharing).

Research

Over the last four years network members have carried out research to explore issues within the themes mentioned. The information and knowledge acquired have made a contribution to the improved understanding of the causes of disasters and can be used to encourage better disaster mitigation and management practises. The research outputs include three books, over 15 case studies, and more than 25 research papers (a full list can be found at the end of this book).

Advocacy and information sharing

To achieve the aim of integrating the *Alternátive Perspective* at implementation, policy and conceptual levels, the network has shared information with decision makers and practitioners in governments, donor and non-governmental agencies involved in both relief and development, the media, and communities throughout the region.



Five regional workshops have been held which were attended by more than 200 people. The South Asia regional poster and art competition and exhibition 'Seeing disasters Differently' generated over 500 posters and works of art, and was visited by hundreds of members of the public. More than five press and media briefings, and one regional media workshop, have brought media representatives together.

Information is disseminated more widely through a regular Duryog Nivaran page in the quarterly newsletter of the Asian Disaster Preparedness Centre (ADPC), which is distributed internationally, and a Duryog Nivaran web site. Other material produced by the network includes posters, calendars, brochures, and a video covering four South Asian countries. The network has also contributed to the ADPC's annual 'Community Based Approaches to Disaster Mitigation' training course.

Duryog Nivaran maintains links with other global and regional initiatives such as the International Decade for Natural Disaster Reduction (IDNDR) and the Network for Social Studies on Disaster prevention in Latin America (LA RED), aiming at wider information sharing.

Conflict

Conflicts, especially ethnic conflicts, are a major problem in many parts of South Asia today.

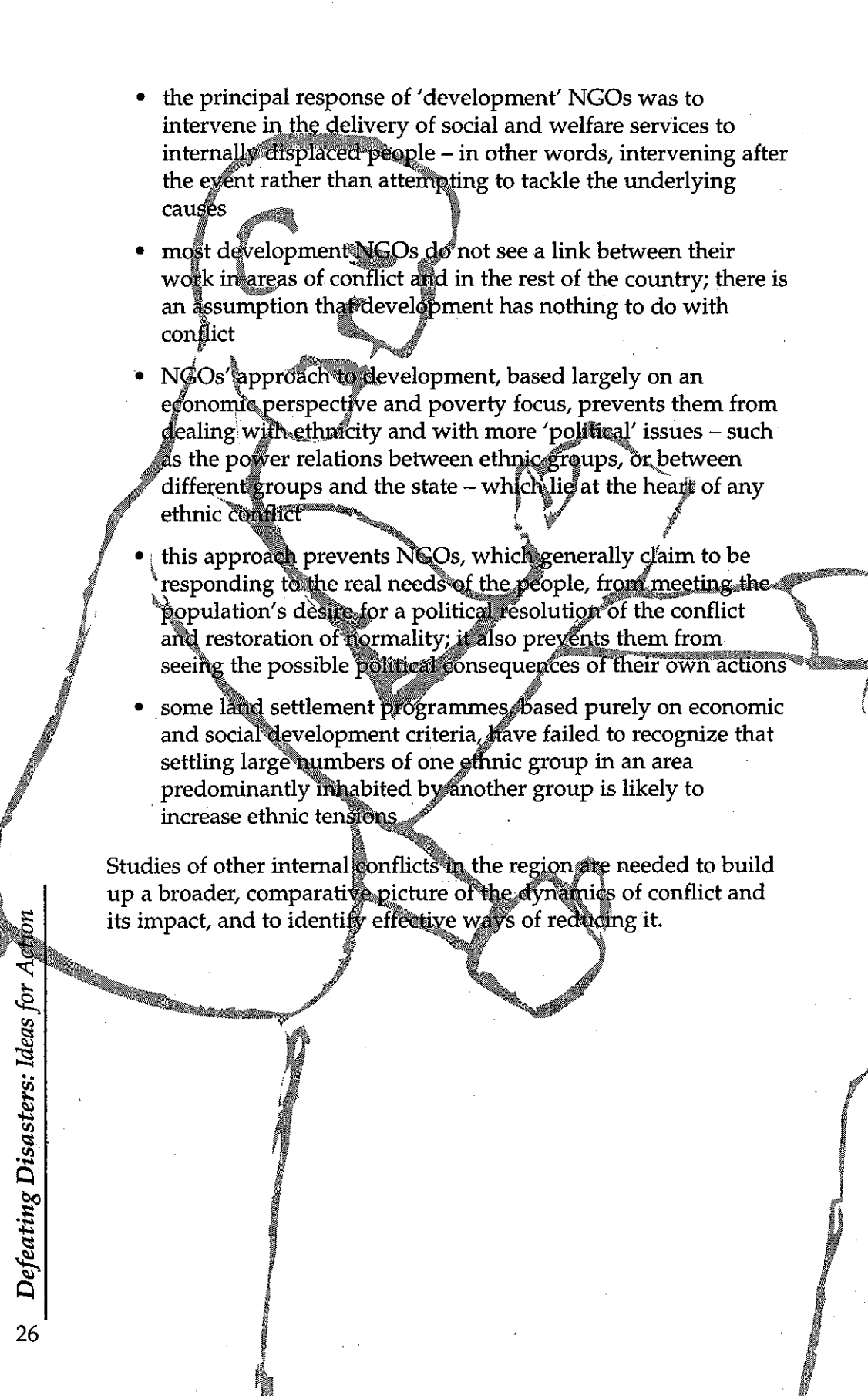
Like other disasters, conflicts are part of the process of development and cannot be understood without an understanding of relationships in society in 'normal' times.

Conflicts can also be viewed as an opportunity to change existing relationships and develop new structures that will allow disadvantaged groups to reduce their vulnerability.

Members of Duryog Nivaran have begun a programme to research the relationship between development processes and conflict in the region. The first phase of that research looked at how development agencies, especially Non Governmental Organisations (NGOs), have responded to the long-term conflict in Sri Lanka²⁰. The conclusions it drew are of wider relevance in the region and elsewhere:



20 Bastian S. in *Culture and Politics of Identity in Sri Lanka*

- 
- the principal response of 'development' NGOs was to intervene in the delivery of social and welfare services to internally displaced people – in other words, intervening after the event rather than attempting to tackle the underlying causes
 - most development NGOs do not see a link between their work in areas of conflict and in the rest of the country; there is an assumption that development has nothing to do with conflict
 - NGOs' approach to development, based largely on an economic perspective and poverty focus, prevents them from dealing with ethnicity and with more 'political' issues – such as the power relations between ethnic groups, or between different groups and the state – which lie at the heart of any ethnic conflict
 - this approach prevents NGOs, which generally claim to be responding to the real needs of the people, from meeting the population's desire for a political resolution of the conflict and restoration of normality; it also prevents them from seeing the possible political consequences of their own actions
 - some land settlement programmes, based purely on economic and social development criteria, have failed to recognize that settling large numbers of one ethnic group in an area predominantly inhabited by another group is likely to increase ethnic tensions

Studies of other internal conflicts in the region are needed to build up a broader, comparative picture of the dynamics of conflict and its impact, and to identify effective ways of reducing it.

Gender and disasters

The importance of gender issues in development programmes is now widely recognised. At present there is hardly any international or national development plan which does not include gender analysis as an integral part. However, there is little understanding of gender aspects of risk and vulnerability to disasters – not only in South Asia, but worldwide.

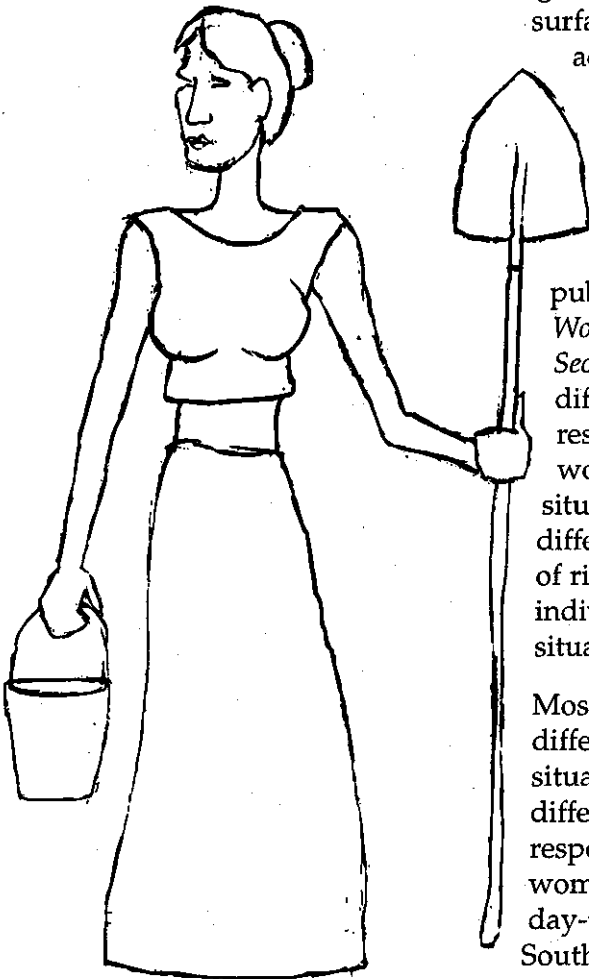
There is an evident lack of awareness of this issue at both practitioner and policy levels among actors engaged in disaster mitigation and management. Gender analysis is practically absent in disaster planning in South Asia.

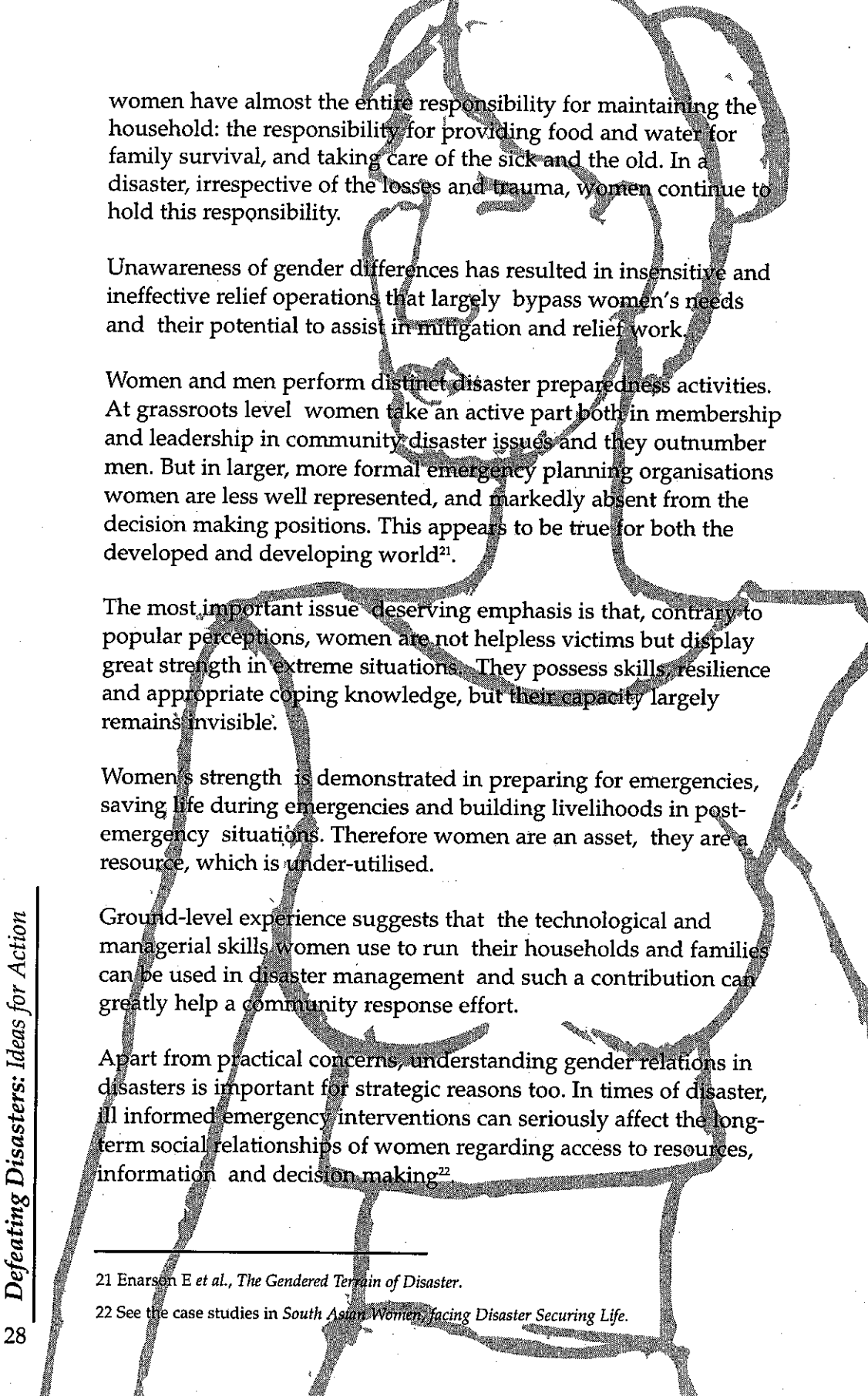
However, the different natures of the needs and concerns of men and women facing disasters are now

surfacing from the accounts of emergency workers, and from the few research studies on this subject.

Case studies from Duryog Nivaran's publication *South Asian Women, Facing Disasters, Securing Life* outline the different roles and responsibilities men and women take in disaster situations, and the differences in the degrees of risk they face individually in such situations.

Most of the gender-related differences in disaster situations arise from the different roles and responsibilities men and women undertake in their day-to-day lives. In most South Asian societies





women have almost the entire responsibility for maintaining the household: the responsibility for providing food and water for family survival, and taking care of the sick and the old. In a disaster, irrespective of the losses and trauma, women continue to hold this responsibility.

Unawareness of gender differences has resulted in insensitive and ineffective relief operations that largely bypass women's needs and their potential to assist in mitigation and relief work.

Women and men perform distinct disaster preparedness activities. At grassroots level women take an active part both in membership and leadership in community disaster issues and they outnumber men. But in larger, more formal emergency planning organisations women are less well represented, and markedly absent from the decision making positions. This appears to be true for both the developed and developing world²¹.

The most important issue deserving emphasis is that, contrary to popular perceptions, women are not helpless victims but display great strength in extreme situations. They possess skills, resilience and appropriate coping knowledge, but their capacity largely remains invisible.

Women's strength is demonstrated in preparing for emergencies, saving life during emergencies and building livelihoods in post-emergency situations. Therefore women are an asset, they are a resource, which is under-utilised.

Ground-level experience suggests that the technological and managerial skills women use to run their households and families can be used in disaster management and such a contribution can greatly help a community response effort.

Apart from practical concerns, understanding gender relations in disasters is important for strategic reasons too. In times of disaster, ill informed emergency interventions can seriously affect the long-term social relationships of women regarding access to resources, information and decision making²².

21 Enarson E et al., *The Gendered Terrain of Disaster*.

22 See the case studies in *South Asian Women, facing Disaster Securing Life*.

Action required

In view of these issues, it is clear that policy makers and programme managers need to adopt the following steps:

- understand specific gender concerns in disaster mitigation planning and take measures to accommodate them
- identify women's capacity as a resource in risk reduction and disaster management
- provide women with the necessary information and skills, and they can make an enormously positive change in reducing risk and vulnerability
- include women in mitigation and preparedness plans

Defying convention

Sabiha Khatun is a 76-year-old widow from the island of Hatiya in Bangladesh. This island is frequently affected by floods and cyclones. She lost her husband to a cyclone in 1970, and that incident encouraged her to take action to prepare her community to face natural hazards of this nature. She has educated herself about preparedness measures, discussing them with the local authorities, and she has started sharing her knowledge with her community. She formed a women's organisation in 1985 to empower women with knowledge and skills in income generation and savings, health, and rehabilitation of disaster victims. This organisation was the driving force behind women moving into safer areas during the 1991 cyclone.

The normal practise is for women to remain inside the house even in the face of impending disasters since to leave is a violation of *purda*. Women moving out of households into the cyclone shelters was opposed initially by the male members of the community but was endorsed soon after, when they had seen the effects. Sabiha Khatun has defied the barriers of culture and age to ensure a more secure way of life for her community.

Source: Duryog Nivaran video *South Asian Women, Facing Disasters, Securing Life*

Maintaining families in drought

Banaskantha, situated in the North of Gujarat in India is a drought-prone and arid area where the unpredictability of rainfall results in long drought spells. Lack of water is the main problem threatening the livelihoods of the people in this area. The main occupation is agriculture, and livestock are an essential part of the farming system, providing the main source of transport, power for agriculture, food during scarcity, and a source of cash income. The community falls back on livestock as a resource when the rains fail and crop cultivation is affected. In the long drought spells when families are forced to migrate in search of food and water, they also take their animals with them.

The responsibility for ensuring fodder for livestock lies mainly with women. Having assessed the threats and disruptions to their livelihoods from drought, women have formed themselves into a cooperative to ensure fodder security for animals during the dry spells, with support from the Self Employed Women's Association (SEWA). The scheme involves growing, purchasing and distributing fodder to ensure fodder security for all the families with livestock, and it is managed by the women in the village. As a result of this initiative they are not dependent on relief during the drought periods; it makes migration unnecessary, and it helps them to increase their capacity to support their own livelihoods.

Source: Bhatt M, in *South Asian Women, Facing Disasters, Securing Life*

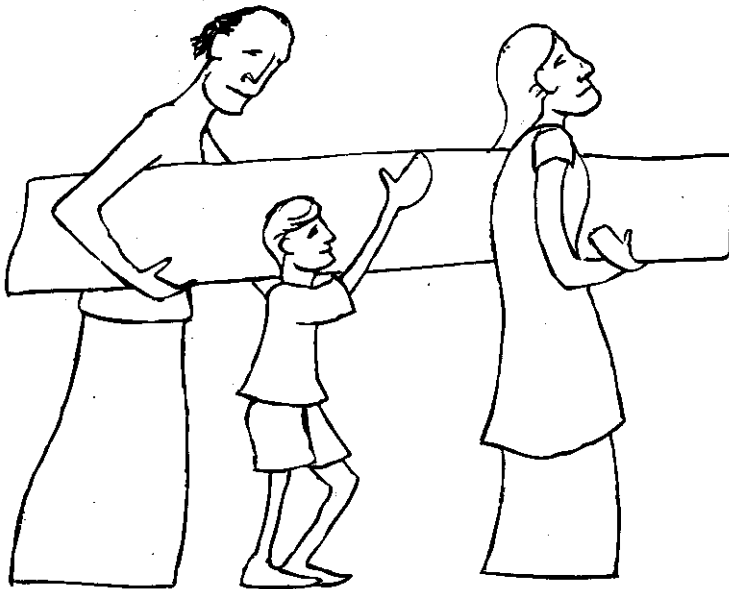
Community-based approaches

The 'community-based' or 'bottom-up' approach is not new in development discussion. However, this is a relatively new concept in the discussion of disaster mitigation. With the identification of the direct link between 'development' and 'disasters' the issue is now being given some attention.

It is increasingly becoming evident that with appropriate support in skills development and infrastructure, communities can play a central role in disaster management and in emergencies.

The place and the role of the community in disaster preparedness and mitigation varies depending on the approach one takes.

The dominant approach to dealing with disasters offers no space for community-based initiatives, since it sees communities/victims as a part of the 'problem' for which solutions need to be worked out. Communities are considered 'victims' and 'beneficiaries' of interventions by outside 'experts'.



The Alternative Perspective promoted by Duryog Nivaran and others sees the community as a part of the 'solution' – indeed, as an important part of it. A sustainable way of addressing disasters, disaster preparedness and emergency management lies in recognising the community as a 'resource'. This approach makes it possible to find solutions 'within', and makes communities and victims less dependent on outside help and relief.

Communities and victims are a resource because:

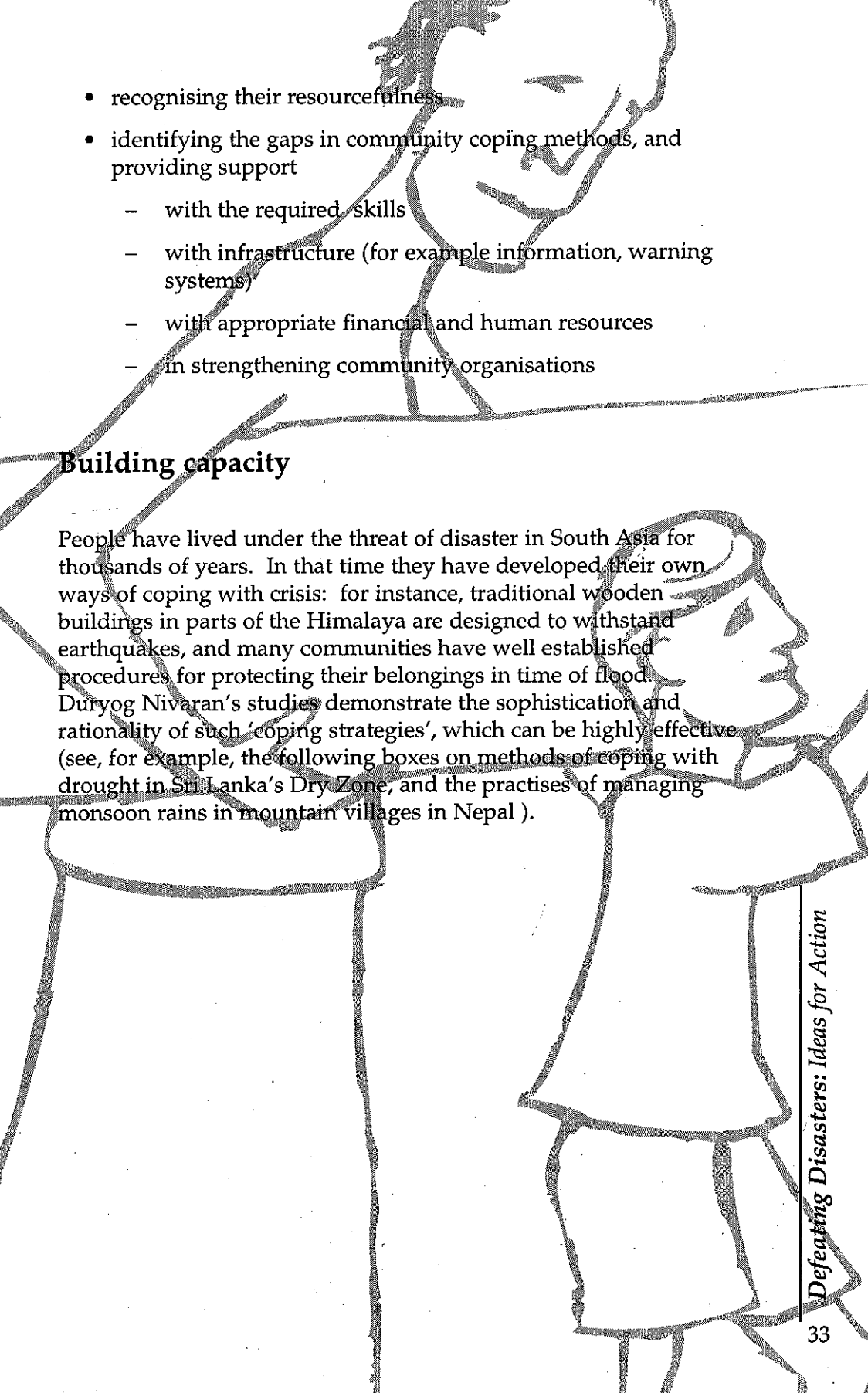
- They are knowledgeable about disasters happening in their own environment, and are sometimes able to forecast them.
- They are rich in experience of coping, both in preparedness and in emergencies. Their coping methods – practised over time and derived from their own experience – suit the local environment best. The richness and diversity of ordinary people's coping strategies is certainly a resource to be recognised.

Communities respond to their real priorities in the context of all the constraints they face, including social, economic and political pressures, whereas outside experts never see the full picture²³. By itself, community capacity is not sufficient for effective disaster mitigation. But it is a vital part of any integrated and sustainable disaster mitigation strategy. With the changing nature and the increasing intensity of the impact of disasters, community efforts need to be particularly supported since there are a number of barriers to the full realisation of community efforts:

- lack of resources
- inadequate access to information on time
- inadequate technologies
- lack of capacity in community organisations
- difficulties in negotiating with governments and other agencies
- lack of control over structural factors (such as land and produce markets)

An effective disaster mitigation strategy should take action to remove these barriers to facilitate the full potential of community efforts by:

23 Maskrey A, *Disaster Mitigation: A Community Based Approach*.

- 
- recognising their resourcefulness
 - identifying the gaps in community coping methods, and providing support
 - with the required skills
 - with infrastructure (for example information, warning systems)
 - with appropriate financial and human resources
 - in strengthening community organisations

Building capacity

People have lived under the threat of disaster in South Asia for thousands of years. In that time they have developed their own ways of coping with crisis: for instance, traditional wooden buildings in parts of the Himalaya are designed to withstand earthquakes, and many communities have well established procedures for protecting their belongings in time of flood. Duryog Nivaran's studies demonstrate the sophistication and rationality of such 'coping strategies', which can be highly effective (see, for example, the following boxes on methods of coping with drought in Sri Lanka's Dry Zone, and the practises of managing monsoon rains in mountain villages in Nepal).

Coping with drought in the Dry Zone of Sri Lanka

In Sri Lanka, communities living in drought-prone areas have worked out survival mechanisms using their own experience of previous droughts. The methods are both agricultural and non-agricultural. They help in minimising crop damage and strengthening the food and water security of the community.

Coping practices include:

- noting the water level in the irrigation tanks at the end of the rainy season before deciding on the type of the crop and the extent of the area to be cultivated
- shared cultivation
- growing subsidiary food crops like cassava, sorghum and pulses which require less water than rice
- looking for casual agricultural labour opportunities outside the village
- taking up *chena* (shifting) cultivation as insurance in case the rice crop fails due to drought
- changing diet and reducing the food intake
- gathering food from forest reserves

Source: Wickramarachchi P. *Food Security Strategies For Dealing with Drought*

Managing mountain hazards

Villagers in Rampur, in Okhaldhunga District, Nepal live in vulnerable conditions. Monsoon rains, while contributing to agricultural productivity, the main livelihood of the villagers, also bring the threat of soil erosion, landslides and flooding. Adjusting for survival, villagers have worked out techniques to 'manage' monsoons, to trap adequate quantities of monsoon rains for agricultural purposes, and to let the excess out. Stone works are used to stabilise slopes and to make diversions to check gully erosion. Grass and tree planting is done to reduce erosion in the monsoon. All construction and resource management work in the village is done to let the flood out without much damage.

Source: Dahal N. in *Understanding Vulnerability: South Asian Perspectives*

Local coping strategies could be made even more effective if they were linked to official disaster mitigation programmes. However, in practice, official intervention tends to be in the form of short-lived post-disaster responses that often take little or no account of local practices.

Nevertheless, some non-government organisations are developing new initiatives that build on local capacity to reduce vulnerability to disaster. The box below, 'Working with the community' illustrates one such initiative. These projects provide models to be taken up and adapted in other parts of the region.

Working with the community

The farming community in the Muthukandiya Irrigation Scheme in the South East of Sri Lanka faces an acute shortage of water from July to October annually. Most wells dry up during this period, and women and children have to walk as much as 3-4 km to fetch a limited quantity of water from open ditches and irrigation canals. Much time is spent only in fetching water.

This was the practice over many years till they heard about the simple and low-cost technology of rain water harvesting (RWH) from roof catchments which is promoted by the Intermediate Technology Development Group (ITDG). The community had been making efforts to collect rainwater from the roofs into pots and buckets in a very basic manner for day-to-day use, but were unaware of methods of systematically preserving the water for use during the dry months.

RWH technology suits this location well since rain is ample during the Maha²⁴ season, but uncertain and inadequate during the Yala. The RWH technology offers a choice of two types of tanks to each household:

²⁴ In the Dry Zone of Sri Lanka there are two rainy seasons: *Maha* (North East monsoons during October-March) and *Yala* (South West monsoons during April-September). Often *Yala* rains are scanty and uncertain.

the underground brick dome type and surface ferro-cement tanks of 5 cubic metres each.

ITDG's intervention with the RWH technology (providing technical information, supporting installation, and training in operation and maintenance) to address this problem resulted in 17 of the most vulnerable families in the community organising themselves into a user society. The equity contribution of an individual household, in labour and material, was 40% of the total construction cost of a unit. The remaining 60%, the amount contributed by the project, is being paid back to the society on a monthly instalment basis to a revolving fund. This fund, it is expected, will generate adequate resources to perpetuate the RWH technology among potential families in need in future.

The project has trained two village masons to construct tanks without external assistance to make sure that the technology is known at community level. This and the revolving fund guarantee the sustainability of the project.

All the members of the user society now have RWH tanks and are able to face drought more securely. There is an added bonus for women, children, and men, being free of the drudgery of having to walk/cycle long distances in the scorching sun to bring pots of water home.

Source: Ariyabandu M. M. *ITDG Sri Lanka*.

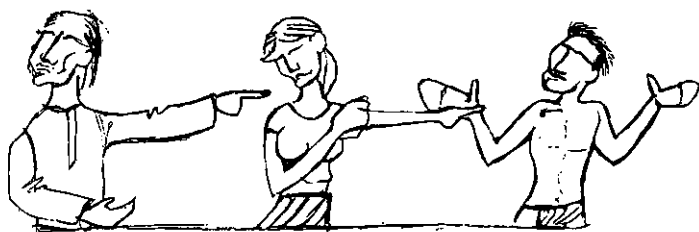
Accountability

Those who live under the threat of disasters, or are affected by them, usually have little or no say in deciding what steps should be taken by government and other agencies to protect them or relieve their suffering. All too often, as a result, interventions by outside agencies do not help those who are most at risk or in the greatest need.

This lack of accountability – accompanied by a lack of transparency – is a major obstacle to reducing the impact of disasters. Agencies all round the world are now becoming more concerned about this issue but there is no general agreement yet on the most effective methods of ensuring greater accountability.

Duryog Nivaran is exploring new ways of increasing accountability and transparency, particularly in official institutions. Its plans include research on 'social action litigation' in South Asia – that is, on ways of using the national legal systems to obtain relevant information about disaster threats and official responses, prevent developments that might expose people to greater risk, and ensure more effective interventions. Existing laws and legal precedents offer good opportunities here and have been used effectively by groups campaigning for better environmental safeguards.

Other approaches to accountability need to be tested, and the results shared. These might include asking victims of disasters to fill in 'report cards'²⁵ on the performance of relief agencies and then publishing the results. Duryog Nivaran aims to stimulate further debate about such methods and their effectiveness.



²⁵ Practised by the Disaster Mitigation Institute (DMI), Ahmedabad, India during the 1998 cyclone in Gujarat.

Priorities for action

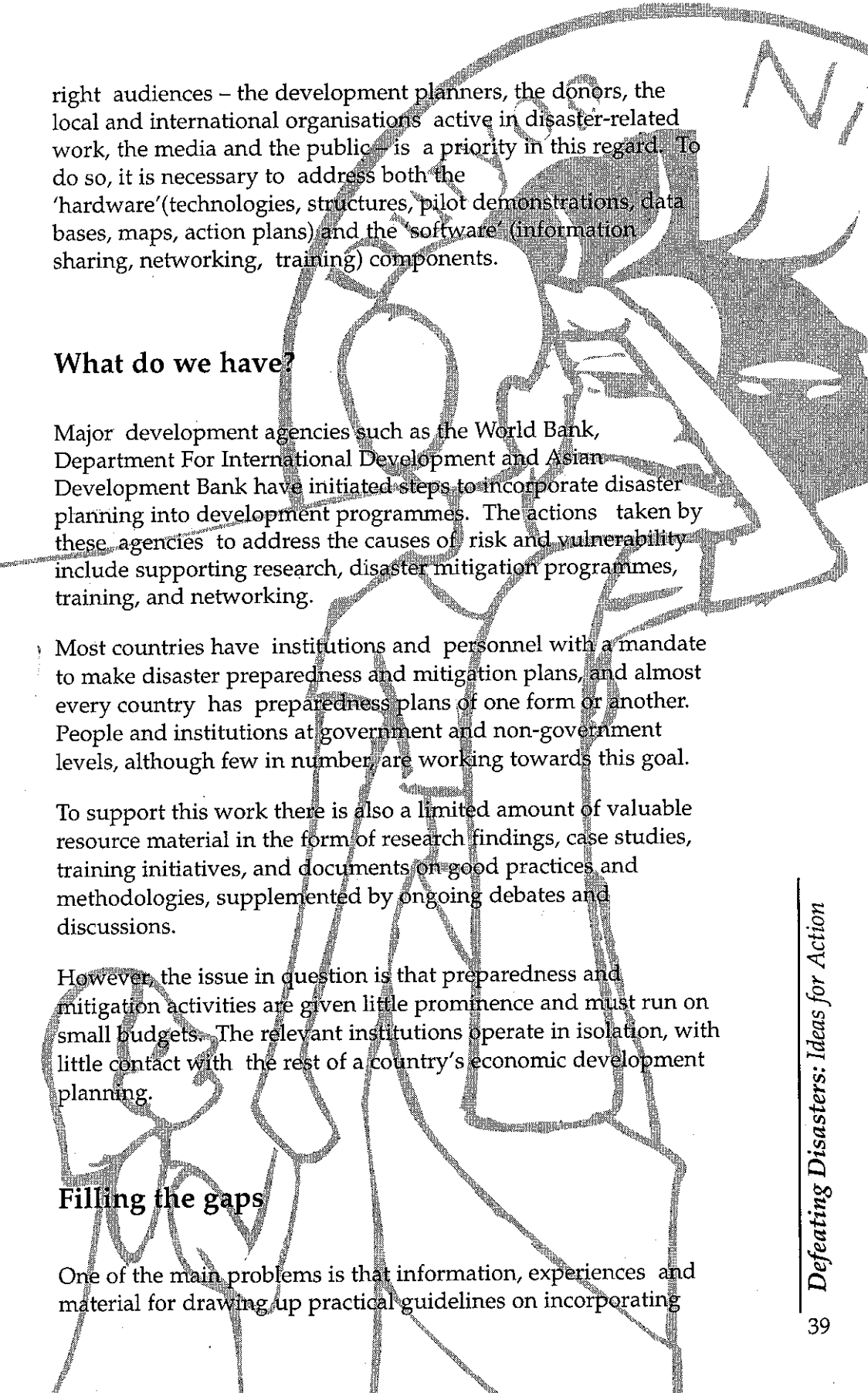
Our ultimate goal is the inclusion of disaster mitigation interventions/actions in all development policy and planning. While acknowledging the journey towards this goal is long, difficult and slow, it is encouraging that a process in that direction has already been initiated.

Getting disaster mitigation guidelines incorporated into development plans, in the same way that gender and environment issues have been incorporated, can be seen as an immediate and significant goal to work towards, in our move towards the ultimate goal.

Incorporating disaster mitigation into development planning will require fundamental changes in approach, and in attitudes. The present dominant way of dealing with disasters is largely negative (disasters are events over which we have little control) and passive (communities are helpless and wait for aid).

To move forward we need to challenge these myths/misconceptions, to bring out the less visible side of the scenario and to create an opposite, positive image. This uphill task requires substantial efforts in convincing people that 'disaster mitigation equals development'. Informing and influencing the





right audiences – the development planners, the donors, the local and international organisations active in disaster-related work, the media and the public – is a priority in this regard. To do so, it is necessary to address both the 'hardware' (technologies, structures, pilot demonstrations, data bases, maps, action plans) and the 'software' (information sharing, networking, training) components.

What do we have?

Major development agencies such as the World Bank, Department For International Development and Asian Development Bank have initiated steps to incorporate disaster planning into development programmes. The actions taken by these agencies to address the causes of risk and vulnerability include supporting research, disaster mitigation programmes, training, and networking.

Most countries have institutions and personnel with a mandate to make disaster preparedness and mitigation plans, and almost every country has preparedness plans of one form or another. People and institutions at government and non-government levels, although few in number, are working towards this goal.

To support this work there is also a limited amount of valuable resource material in the form of research findings, case studies, training initiatives, and documents on good practices and methodologies, supplemented by ongoing debates and discussions.

However, the issue in question is that preparedness and mitigation activities are given little prominence and must run on small budgets. The relevant institutions operate in isolation, with little contact with the rest of a country's economic development planning.

Filling the gaps

One of the main problems is that information, experiences and material for drawing up practical guidelines on incorporating

disaster mitigation into development planning are still insufficient. Current initiatives need to be supported with policy guidelines, action plans, training manuals and so on, which translate the theoretical arguments of the benefits of disaster mitigation planning into action.

In terms of hardware more research and testing of alternative technologies is required, and greater demonstration of proven technologies. Updated planning tools such as practical and locally appropriate databases, mapping and warning systems need to be prepared and made easily available. The gaps in methodologies and indicators, particularly for developing new methods of costing and showing the benefits of disaster mitigation planning, require attention. Equally important are the methods for getting communities actively involved in disaster mitigation planning.

The software component includes making information available by targeted information sharing, active networking, creating training opportunities, initiating debates/discussions, and getting development and disaster mitigation planners to work together.

A number of such initiatives taking place at individual country levels have been presented in this book. These examples provide us with a lead to move towards more similar positive initiatives, where all the stakeholders – the planners, donors, researchers, practitioners, and communities – have a role to play.

Duryog Nivaran's outputs

1. Gender issues in disasters

1.1 South Asian Women: Facing Disasters, Securing Life.

Edited by Priyanthi Fernando and Vijitha Fernando.

Colombo: Intermediate Technology Development Group (ITDG)-Sri Lanka for Duryog Nivaran, 1997. 75pp.

This is a collection of selected papers from South Asia presented at a workshop held in Multan, Pakistan in March 1996. The case studies bring out the issues and gaps, and the inadequacy of our understanding of the gender issue in tackling disasters and emergencies; and they focus on the interaction of gender and politics in the management of disasters in South Asian societies.

1.2 Workshop Report 'Gender Issues in Disasters' held in

Multan, Pakistan, 6-8 March 1996. Edited by Tharuka Dissanayake. Colombo: ITDG Sri Lanka for Duryog Nivaran, 1996. 49pp.

The workshop proceedings carry the case studies presented by researchers from South Asia, and an account from media representatives on the subject. The workshop recommendations include the role and action required of the media in bringing about wider awareness on this issue.

1.3 South Asian Women: Facing Disasters, Securing Life. By

Ajitha Kadiragamar and Sharni Jayawardena. Video. Produced by ITDG-Sri Lanka for Duryog Nivaran, Duration - 35:58.

This documentary depicts women's strength and resilience which enables their families to survive during disaster situations. The video demonstrates women's capacity as survivors and innovators, contrary to the commonly perceived view that they are 'helpless victims' of disasters. The country case studies each portray a different issue:

cyclone in Bangladesh, diarrhoeal epidemic in Nepal, Afghan refugees in Pakistan, and communities affected by civil conflict in Sri Lanka.

2. Food and water security

A series of case studies on 'Food and Water Security in South Asia' compiled by the Disaster Mitigation Institute, Ahmedabad, India, for Duryog Nivaran.

The case studies address problems related to the food and water security of communities living with different disasters. Secure food and water supply are identified as two basic elements in reducing vulnerability. The case studies focus on the issue from a practical viewpoint, and outline real-life interventions carried out to ensure food and water security.

2.1 Harvesting rainwater: a means of water security in rural Sri Lanka. By R.de. S. Ariyabandu and S. Dharmalingam, HARTI, Sri Lanka, 1997, 8pp.

The case study outlines a rainwater harvesting project in the central hills of Sri Lanka. It depicts how an appropriate and timely intervention helped a community to overcome the problem of increasingly acute water shortage, preventing potential economic and social disaster.

2.2 Craft in the aftermath of disaster: generating independence as well as incomes. By Laila Tyabji DASTAKAR, India, 1997, 8pp.

The case study portrays crafts and crafts people in Kutch, Gujarat, as active and independent participants in their own rehabilitation in facing disasters such as drought, floods and earthquakes. It also describes the interventions of DASTAKAR, a non-governmental organisation, providing the tribal communities with support services for community empowerment.

2.3 Fallows & village food security in rainfed areas – a case study. By K.S. Gopal and M. Shashikumar. Centre for Environment Concerns, India, 1998, 16pp.

The case study discusses the process of how a woman small farmer gained leadership in her village by building an innovative food security scheme for the poor with the help of a voluntary agency.

2.4 Food and water security in times of malaria emergency. By Mumtaz Baloch. Banaskantha DWCRA Mahila SEWA Association, 1998, 16pp.

This study deals with a situation where a severe malaria epidemic took lives in a Northern Indian community. The epidemic also led to loss of income, employment, mental and physical distress, and loss of agricultural crops affecting food security and children's education. The study discusses the measures taken by the government authorities and voluntary organisations, and raises questions on actions for future mitigation of similar epidemics.

2.5 Food security strategies for dealing with drought: a case study of Milamperumawa village. By P. Wickremarachchi. HARTI, Sri Lanka, 1998, 16pp.

The study focuses on the coping mechanisms adopted by a community in the North Central Province of Sri Lanka, an area which is highly prone to drought. Suggestions are made about how the coping methods can be incorporated into drought mitigation planning.

2.6 Impact of drought on livelihood and food security of farmers in the Dry Zone of Sri Lanka: the case of vegetable farmers in Yodakandiya. By Vishaka Hidellage and Jayasundara Menike. Colombo: ITDG -Sri Lanka, 1997, 16pp.

The study highlights the food and water security problems faced by farmers in a village in Southern Sri Lanka due to poor rainfall. The study records how the economic and social capital of the communities is used in facing the drought, and the coping mechanisms specific to this area.

3. Rainwater harvesting for water security

This is a series of research studies covering India, Pakistan and Sri Lanka, to document the historical and present systems of rainwater harvesting. The studies are being compiled by ITDG Sri Lanka for Duryog Nivaran.

3.1 Wisdom of tradition. Rainwater harvesting for domestic and agricultural purposes in Pakistan. Research report, by Amjad Farooque, Pakistan, 1998, 59pp.

This research study documents existing rainwater harvesting technologies for domestic and agricultural purposes in three areas of Pakistan: Cholistan, Thar, and D.I Khan. It identifies the gaps inhibiting the utilisation of their full potential, and recommends action for future.

3.2 Wisdom of tradition; collection of rainwater for domestic use. By R.de.S. Ariyabandu, Rainwater Harvesting Forum, Sri Lanka, 1998. 58pp.

Sri Lanka has a rich history of catching rainwater for both domestic and irrigation purposes using traditional techniques. The study documents the historical systems of rain water harvesting for domestic purposes in three Districts in the country, and offers recommendations for replication.

4. Understanding vulnerability

4.1 Proceedings of the workshop on 'Understanding Vulnerability: A South Asian Perspective'. Held in Colombo Sri Lanka, 21-22 August, 1997. Edited by Mihir R. Bhatt, DMI, India for Duryog Nivaran, 1997. 66pp.

The report summarises the papers presented at the workshop. The major focus of the papers from five South Asian countries was understanding and defining the nature of vulnerability in South Asia. The workshop recommendations offer strategies and methodologies for more effective vulnerability reduction.

4.2 Understanding vulnerability, South Asian perspectives, edited by John Twigg and Mihir R. Bhatt. UK: IT Publications for Duryog Nivaran, 1998. 84pp.

In recent years, researchers and development organisations have begun to investigate why certain groups of people are more vulnerable to disasters. This book tries to break new ground by exploring the complex issues of vulnerability from a South Asian perspective, presented in the form of case studies and essays from India, Nepal and Sri Lanka.

5. Understanding Linkages with Society

5.1 Assessing participation. A debate from South Asia. Edited by Sunil Bastian and Nicola Bastian. Delhi: Konark Publishers, ITDG -Sri Lanka for Duryog Nivaran, 1996, 288pp.

The articles appearing in this publication originate from a workshop organised by Duryog Nivaran in 1995 on participatory approaches to development. The papers look at and challenge 'participation' from different angles: from a practical project view point, from a pure research point of view, and taking a social science outlook.

6. Regional co-operation

6.1 Workshop Report 'Regional Co-operation on Flood Warning', Disaster Forum Bangladesh for Duryog Nivaran, June 1995, 42pp.

The report records the proceedings of the workshop which discussed issues related to the limitations of existing national flood forecasting activities, and the need for developing indicators within a framework of regional co-operation for flash flood mitigation.

7. Advocacy

7.1 Duryog Nivaran web site:

<http://www.adpc.ait.ac.th/duryog/duryog.html>

Located at the Asian Disaster Preparedness Centre (ADPC), the web site introduces the network, its partners, and themes. The network's activities, events and outputs are regularly updated.

7.2 Duryog Nivaran Newsletter

ADPC's quarterly newsletter, distributed internationally carries a page with Duryog Nivaran news and views.

7.3 South Asia poster and art exhibition, 'Seeing Disasters Differently', June 1998, Colombo, ITDG Sri Lanka for Duryog Nivaran.

This initiative is an attempt to present views of disasters and development through the eyes of average people. A collection of over 400 posters and art works from five South Asian countries depict various disasters from the view points of the general public and disaster victims. These works demonstrate the need to address the root causes and to draw strength from the community's own capacity to cope for survival. This is the first ever South Asian poster and art collection on this topic.

7.4 Seeing Disasters Differently: Visions and Suggestions, edited by Sunethra Rajakarunanayake, Madhavi Malalgoda Ariyabandu. ITDG Sri Lanka for Duryog Nivaran.

This publication contains view points of key editors, journalists and policy makers on the issue of disasters and development, and presents art, poems and religious philosophy, based on disaster management concepts in South Asia. The discussion is supplemented with selected artworks from the 'Seeing Disasters Differently' exhibition.

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