Green Paper on Disaster Management

Contents

CALL TO ALL STAKEHOLDERS

To all heads of departments at the national, provincial and local government levels and other stakeholders in the non-governmental, community-based organisation and private sectors and interested parties who deal with or are affected by disaster-management issues:

Your participation is requested in developing a policy framework for disaster management.

General directions on how to read the document are provided.

All issues and points of debate that you want to raise or comment on should be submitted to the following address:

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Any queries and requests can be referred to the above contacts.

All submissions must be forwarded by 30 April 1998.

Thank you for you participation.

Foreword by Mohammed Valli Moosa, Minister of Provincial Affairs and Constitutional Development

Throughout our history, disasters have inflicted a heavy cost in human, material and physical resources, and damage to the environment. They represent a potentially significant obstacle to economic growth and development.

A disaster is an event which disrupts the daily life of the population of a community or country and can result in substantial loss of life and social upheaval, leading to many persons becoming homeless, helpless and hungry. The situation is further aggravated by the disruption, dislocation or loss of vital economic production and national infrastructure, including water and power supplies, communications and transportation.

Disasters occur when hazards impact on a community to the extent that available resources cannot cope with the problem effectively. The community itself needs support and assistance to prevent and cope with disasters and their effects.

Adequate procedures to deal with disaster situations and relief measures must be planned prior to the event, with strong legislation to empower those responsible to carry out the tasks. Regular training must be conducted covering all aspects of disaster management. Careful planning must be in place to coordinate the effective use of resources, both human and physical, for the saving of lives and property, limiting damage to the environment, and the return to a normal life style as soon as possible.

The development of disaster-management strategies must be undertaken before the event. Disaster management requires effective community-based strategies which will include programmes and measures to:

_ Prevent or reduce the severity of hazard impact.
_ Ensure the preparedness of the arrangements and of the community itself.
_ Provide an effective response should impact occur.
_ Provide for the recovery of a community affected by such an impact.

Measures must also be in place to request and receive assistance from outside the country. Many authorities and organisations are routinely involved in dealing with incidents and disasters which arise when natural or technological hazards impact on our communities.

An active partnership between national provincial and local governments, statutory and voluntary organisations and communities is needed in order to develop and implement effective disaster-management strategies.

The role of national government is to provide guidance and support to the provincial and local governments in developing their capacity for dealing with disasters, and to provide physical assistance if requested.

The aim of the Green Paper on disaster management is to ensure that an effective disaster-management system is realised and implemented by way of national policy which will be reflected in the White Paper.

The Green Paper on disaster management is presented to you for your comments and recommendations. We therefore invite you to respond to ensure that the views of all South Africans are reflected in the White Paper.

I take this opportunity to thank everyone who has contributed in the Green Paper process up to now and those from whom comments are awaited. A special word of appreciation is

conveyed to Ms Janet Love (MP) who was willing to take on the responsibility of coordinating the Green Paper process.

DISASTER MANAGEMENT TASK TEAM

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LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
CBO	Community-based organisation
DCD	Department of Constitutional Development
DEAT	Department of Environmental Affairs and Tourism
DMEA	Department of Mineral and Energy Affairs
DoH	Department of Health
DoT	Department of Transport
DoW	Department of Welfare and Population Development
DPW	Department of Public Works
DWAF	Department of Water Affairs and Forestry
EW	Early warning
EWS	Early-warning system
EMPR	Environmental management project report
GEAR	Growth, employment and redistribution strategy
GDP	Gross domestic product
GIS	Geographical information system
GNP	Gross national product
HAZMAT	Hazardous material
HIV	Human immunodeficiency virus
LAPC	Land and Agriculture Policy Centre
IDNDR	International Decade for Natural Disaster Reduction
IMC	Inter-Ministerial Committee for Disaster Management
MCDA	Military and Civil Protection/Defence Assets Project
MEC	Member of Executive Council
MinMec	Ministers and MECs Forum
MP	Member of Parliament
NDA	National Department of Agriculture
NDMCentre	National Disaster Management Centre
NDMC	National Disaster Management Committee
NEAR	National Emergency Alarm Radio System
NGO	Non-governmental organisation
NOCOC	National Operating Co-ordinating Committee
OAU	Organisation of African Unity
PDAs	Provincial Departments of Agriculture
RDP	Reconstruction and Development Programme
SABC	South African Broadcasting Corporation
SABS	South African Bureau of Standards
SADC	Southern African Development Community
SAESI	Southern African Emergency Services Institute
SALGA	South African Local Government Association
SANDF	South African National Defence Force
SAPS	South African Police Services
SASAR	South African Search and Rescue Organisation
SATEPSA	South African Telecommunications and

	Electrical Power Supply Authority
UN	United Nations
UNDHA	United Nations Department of Humanitarian Affairs
UNEP	United Nations Environmental Programme
US	United States

Preface

The Green Paper process

Why a Green Paper?
The Green Paper process is designed to set a conceptual framework for disaster management and risk reduction. It aims to outline possible management strategies that can be pursued to deal with disasters and risk in a more comprehensive manner. The Green Paper will hopefully also begin to establish what the different management requirements are for different types of disasters.

The Green Paper aims to convey an understanding of the difference between prevention and mitigation strategies on the one hand, and, on the other hand, strategies required when responding to a disaster event.

The Green Paper process will also begin to establish what capacity exists at the national, provincial and local levels for risk reduction and managing disaster events. An assessment of capacity is required because previous and current policies often do not take into account the resource constraints that institutions are faced with. There is also a recognition of the need to strengthen the resilience of local communities to cope with natural and other disasters.

The Green Paper provides all stakeholders with an opportunity to reflect on current approaches to disaster management and risk reduction. It intends to provoke thinking around a future strategy or strategies that will be in keeping with international trends - strategies that are more appropriate to current and future needs within the country as well as in Southern African.

The Green Paper is not meant to be the final word. It is therefore a document that still requires substantial contributions as the process of consultation unfolds.

Who was involved in the writing of the Green Paper?
A team was responsible for overseeing the Green Paper process (see disaster management task team). The team is chaired by Ms Janet Love (MP), chairperson of the parliamentary portfolio committee for agriculture, water and forestry.

The team comprises a secretariat, which provided logistical support to the process; a drafter who was responsible for the compilation of the Green Paper; a number of experts who have wide-ranging experience and knowledge in the field of disaster management and who identified cross-cutting issues that needed to be addressed; and officials from the various line-function departments involved with disaster-management issues, who compiled submissions indicating their areas of responsibility, current resources, constraints and needs.

Opinions were also canvassed from the provinces and local governments through meetings with provincial heads of departments, Salga and in provincial consultation meetings held in the provinces. A mail survey was conducted with local authorities and a number of inputs were received.

What happens after the Green Paper?
The Green Paper was submitted to Cabinet for approval in December 1997 and will be tabled before Parliament in February 1998. The Green Paper is also being released for wider public consultation and comment through national and provincial workshops. It is intended for this to lead to the formulation of a national White Paper for disaster management by June 1998, and the subsequent drafting of legislation to give effect to the policy on disaster management.

How to read the Green Paper

The Green Paper is designed to present the broad framework and principles that will give an indication of the direction government policy on disaster management is likely to take. The Green Paper does not go into too much detail about the specific options and choices. It is intended that stakeholders who are concerned about risk reduction and disaster-management issues in the country will point out gaps and suggest ways forward. The Green Paper process encourages vigorous debate about the direction(s) that are being proposed. Visit the discussion forum on this site to participate in an online debate on the Green Paper.

In certain sections of the document, specific questions and points of debate are presented to facilitate discussion and elicit further thought and responses from the reader. This will also help to identify the main issues, nature of activities undertaken to deal with risk reduction and disaster management, and new ways of dealing with disasters.

Chapter 1: Introduction
This gives the background to the Green Paper. It presents the context for disaster management in South Africa, some international trends, and some of the emerging ideas on the best ways to deal with disasters in the long-term.

Chapter 2: Key principles
This section considers the principles that should guide the policy initiative and the design of risk-reduction and disaster-management strategies. Readers can either concur with, add, delete or revise the suggested set of principles and their content.

Chapter 3: Different approaches to disaster management
This part examines different approaches to disaster management and the key elements involved.

Chapters 4 and 5: The current situation, and ensuring that a system of disaster management is in place
These are the most important sections. They deal with the current ways for dealing with disasters and suggest an approach for a new management system. They highlight the key elements that a new system must encompass to work successfully and to deal with various aspects of disaster management.

Chapter 6: Cooperation and coordination
This stresses the fact that disaster management requires cooperation and the involvement of government departments, the private sector, academic institutions, unions, non-governmental organisations and community-based organisations. An attempt is made to begin to define the possible coordinating roles of national, provincial, and local government and the National Disaster Management Centre in an integrated approach to risk reduction and disaster management at all levels, encompassing all government activities and involving all stakeholders. It is expected that responses will allow the Green Paper process to establish whether these roles are possible or whether other mechanisms are available or should be established.

Chapter 7: Glossary
This provides an explanation of certain words used in the Green Paper, particularly technical words that readers may not be familiar with.

Introduction

1.1.   The South African context

The development and social context

Like many countries in the world, South Africa is at risk from a wide range of natural, technological and environmental hazards that can lead to disasters such as droughts, floods, major fires, tornadoes, major oil spills and even earthquakes. In the past South Africa has pursued various strategies to counter the effects of these disasters. However, it has now been recognised that these strategies were not adequate. There is a need for a clear policy on risk reduction and disaster management that is proactive and not reactive.

Disaster management has to be placed in the context of the development challenges that the country faces as a whole. These challenges are set out in the government's Reconstruction and Development Programme (RDP), which became the cornerstone vision for the government's efforts at social and economic transformation. The central objective of the RDP is to improve the quality of life of all South Africans. Its major programmes focus on meeting basic needs, developing human resources, democratising the state and society and building the economy.

The Growth, Employment and Redistribution (Gear) strategy will also significantly impact on the path that development takes in the country. Gear - which is complementary to the RDP - is aimed at macroeconomic changes. It is a framework for accelerated economic growth coupled with rapid development in order to provide a sustained increase in employment and reduction in poverty. These factors are critical for reducing vulnerability to disasters.

With the potential increase in development programmes aimed at employment creation, and the provision of housing, water and sanitation facilities, building of new roads, industries, etc., planning procedures will come under pressure to take approaches that allow quick delivery. Within this context, short-term development needs can compromise long-term sustainability and risk aversion unless development is well-regulated.

Disaster-management policy in South Africa

After the June 1994 floods on the Cape Flats, Cabinet resolved to assess South Africa's ability to deal with risk reduction and disaster management. This resulted in the review of disaster-management structures and approaches in government. In 1995, Cabinet also recommended that a formal structure for disaster management be established. It resolved that the Department of Constitutional Development, which administers the Civil Protection Act, No. 67 of 1977, would serve as the focal point for disaster management in the interim, and that a national disaster-management committee be formed at national level.

The national disaster-management committee was established and constituted in February 1996. The committee's main function was to serve as a coordinating and managing body. The committee has not been fully functional. To strengthen government's commitment to developing a national policy and strategy for disaster management, Cabinet approved the formation of an inter-ministerial committee for disaster management in mid-1997, consisting of ministers from the following ministries:

_   Minister of Water Affairs and Forestry.
_   Minister of Agriculture and Land Affairs.
_   Minister of Finance.
_   Minister of Defence.
_   Minister of Safety and Security.

_ Minister of Public Works.

The inter-ministerial committee is being convened and chaired by the Minister for Provincial Affairs and Constitutional Development. In order to move the policy process forward, the inter-ministerial committee formed a task team in August 1997. The team was tasked with tabling a Green Paper on disaster management for Cabinet approval before the end of 1997.

To deal with immediate disaster issues, like the possible effects of El Nino, the inter-ministerial committee has established an interim disaster-management centre which comprises 10 national government departments. The interim disaster-management centre meets on a regular basis where its main function, at this stage, is the coordination and dissemination of information and the design of strategies to deal with disasters.

Counting the costs of some recent disasters

Quantifying exact damages is difficult - some disasters impact far beyond the occurrence and restoration phase. However, the estimates below show some of the results of recent disasters:

PLACE	DISASTER		COST
LADYSMITH;	Floods: 1994	400 families evacuated;	R50 million damages
LADYSMITH	Floods: 1996	Damages to infrastructure	R25 million
MERRIESPRUIT	Slimesdam: 1994	17 lives lost	R45 million damages
PIETERMARITZBURG	Floods: 1995	173 lives lost Emergency shelter needed for 5 500	
SOUTH AFRICA	Drought: 1991-92	49 000 agricultural jobs lost 20 000 non-agricultural jobs lost Negative effect on the current account of the balance of payments (Estimated at R1,2 billion - *Reserve Bank figure*)	
NORTHERN PROVINCE	Floods: 1996	R105 million damages	
MPUMALANGA	Floods: 1996	R500 million damages	

The effects of disasters

In South Africa, disasters have resulted in the following:

_ Migration of people from rural areas to urban centres to enhance their survival chances. This movement is primarily as a result of agricultural employment losses, due to drought.
_ In many instances, this movement is also due to limited employment opportunities in smaller towns and the belief that there is a greater possibility of becoming gainfully employed in major centres. The migration has resulted in uncontrolled urbanisation on vacant land that is unsuitable for safe housing. In addition, the informal settlements have been subjected to the rapid spread of fires and flash floods. (The Cape Town metropolitan area and Greater Johannesburg are typical examples.)
_ Most important is the loss of life that occurred and that could have been prevented. Examples of these are Laingsburg (104 lives lost in 1981 due to floods), Merriespruit (17 lives lost in 1994) and Pietermaritzburg floods (173 lives lost in 1995). The examples quoted could have been avoided through better planning and control measures, warning systems and community preparedness.
_ Disasters have also resulted in environmental degradation and have increased poverty. Several areas near rivers are occupied by informal settlements without any or with only

inadequate essential services. This has resulted in high levels of pollution of the rivers and the immediate environment. On farms, poor farming practices have increased the degradation of the land.

_ South Africa's development projects are hampered by recent disasters: finances have been needed to address the consequences of floods, fires and droughts, and this has reduced the funds available for development.

_ The social impact of disasters is difficult to measure: trauma, depression and grief as a result of losses continue for long periods after the disaster. These longer-term effects have a negative impact on community life and economic activity.

1.2. International framework

A number of international events have an important bearing on the approaches and thinking that should inform disaster management policy and strategies in South Africa. In 1989, the United Nations General Assembly declared the decade between 1990-99 as the International Decade for Natural Disaster Reduction. This declaration was a clear call for greater disaster prevention, mitigation and preparedness.

Following this declaration, a world conference on natural disaster reduction, held in Yokohama in May 1994, endorsed the International Decade for Natural Disaster Reduction motion and further underlined the link between disaster reduction and sustainable development.

The conference served as a mid-term review of what the scientific and technical community, national governments, regional bodies and the international organisations have done to prevent, mitigate or prepare for disasters. Both the mid-term assessment and direction for the future are summed up in the "Yokohama Message, Strategy and Plan of Action for a Safer World" (1994).

The Yokohama conference also recognised the importance of the Rio Earth Summit (1992). The Rio conference set out a number of principles and action plans for sustainable development which are detailed in the Agenda 21 programme. These have recently been revisited at the "Rio plus 5" conference held in 1997 in Brazil, and the Earth Summit meeting of heads of state. Of particular importance is Principle 18 in Agenda 21. Principle 18 stresses the need for the international community to assist states afflicted by natural disasters and other emergencies that are likely to produce sudden harmful effects in the environment of those states.

1.3. Aim of the process towards a national policy for disaster management

To stimulate a consultative process, in order to establish and sustain a holistic disaster-management structure and practice that will support and enhance development in South Africa, through risk management.

1.4. Conceptual framework

Disaster management has traditionally been viewed as an approach to the preparation for and management of discrete events such as floods, droughts and fires - events that have the potential to overwhelm the capacity of an affected community, province, country or region, and cause severe hardship and loss. While this has indeed been the dominant approach to disaster reduction both internationally as well as in South Africa, it is increasingly viewed as having limited effectiveness in our rapidly changing world.

During the 1990s, there has been a growing awareness that disaster losses can be more effectively reduced and, in fact, averted through improved development planning and action.

By taking full account - in policy and practice - of known hazards, the likely risks facing a community, and the community's capacity to withstand these hazards - focused development actually reduces the likelihood of disastrous events.

In this way, hazards are seen as integral aspects of our environment - as naturally occurring or human-induced processes or events with the potential to create loss. Exposure to a hazard need not necessarily mean disaster. It is the level of vulnerability of those who are exposed to the hazard that increases risk and, thus, the likelihood of a disastrous occurrence.

A simple example may help to illustrate this: two people are crossing the ocean - one in an ocean liner, the other in a rowing boat. The main hazard (deep ocean waters and waves) is the same in both cases, but the risk is far greater for the person in the rowing boat (because the rowing boat is more vulnerable to the impact of the waves). Here, the rower faces greater risk of a boating disaster than the ocean-liner captain, although the hazard is the same for both.

Therefore, from a developmental perspective, disasters are not seen as isolated random acts of nature. Rather, disasters are increasingly viewed as an expected consequence of poor risk management over the long-term. They are the outcome of interconnected social and physical processes that increase risk and vulnerability to even modest threats.

From this perspective, both risk reduction and disaster management are clearly multi-disciplinary processes, engaging a wide range of stakeholders. In the broadest sense, risk reduction is a developmental imperative for achieving sustainable growth, as well as a strategy that protects the lives and livelihoods for those most vulnerable.

Similarly, disaster management is a multi-disciplinary field focused on minimising losses from the vast array of hazards that face South Africa today. Both risk reduction and disaster management engage a wide range of players, as diverse as school teachers in peri-urban areas, civil engineers responsible for community water supplies, urban planners, climatologists, medical rescue teams and fire-fighters.

The challenge South Africa faces is how best to advocate for improved disaster-management and risk-reduction policies and practices so that these become integral aspects of existing strategies to achieve sustained development and social equity.

1.5.   Linkages between disasters and development

There is a significant relationship in the way that disasters and development affect one another. Disasters have special negative impacts on the non-formal sector where approximate costs of disasters are often underestimated - mainly because small-scale disasters go unrecorded and receive no national priority. However, these disasters adversely affect households and individuals who feel the consequences most due to loss of income or breadwinner members.

Disasters depress the non-formal economy through the direct costs of lost equipment, infrastructure, housing, lives and household utensils. Disasters also result in indirect costs such as loss of employment and economic losses.

The two possible contradictions referred to in the above sections may be described as follows:

_ **Disasters can provide development opportunities**
Development programmes must be designed to decrease vulnerability to disasters and their negative consequences. For example, housing projects that encourage the use of home-

made bricks designed to withstand high winds or heavy rainfall result in less destruction during the next tropical storm.

_ Development can reduce vulnerability

Disasters do highlight high-risk areas where action must be taken before another disaster strikes. The realisation of vulnerability after the occurrence of a disaster can motivate policy-makers and the public to participate in risk-reduction activities.

For example, the Pietermaritzburg flood disaster of 25 December 1995 highlighted a need for speedy development in Edendale, and it prompted the government to build formal houses in Edendale.

_ Development can increase vulnerability

Development can increase the vulnerability of communities, e.g., by creating employment opportunities, you attract scores of people who flock to urban areas to look for jobs and settle on dangerous locations.

_ Disasters set back development

Disasters set back years and years of investment in development. The 1995-96 floods destroyed transport and utility systems.

1.6. Underlying causes of disasters

These causes are embedded in social, economic, and environmental conditions that set or pose certain kinds of risks or hazards to development programmes and human beings. Disasters are now increasingly being seen as the outcome of cumulative risk processes rooted in patterns of behaviour like poor land-use practices, ill-conceived development projects, lack of rules and guidelines, etc. Given that disasters involve complex processes, and some are beyond human control, there is a need to strengthen traditional or existing methods but, more importantly, also to explore new, innovative ways of dealing with disasters.

Most of South Africa lies within a region of Southern Africa that has a semi-arid to arid climate. This region is subject to climatic extremes, including droughts, floods and other meteorological (weather) phenomena. There are indications that South Africa's climate is becoming increasingly variable. As in many other areas in Africa, our vulnerability to these climatic extremes has increased over the years as a result of poverty, distorted settlement patterns due to apartheid policies and the consequent heavier exploitation of natural resources.

In South Africa, threats such as droughts, floods and a growing risk of HIV and malaria are a constant drain on our country's human, economic and natural resources. For instance, an El-Nino event (a "creeping emergency") could reduce the gross value of our agricultural production by 16%, while agriculture's contribution to the gross domestic product would decrease by 11,7%. For farm workers and households dependent on farm labour for their livelihoods, the implications of this are immense. During the 1992 El Nino event, for example, some 50 000 jobs were lost in the agricultural sector alone.

But drought as a hazard is no stranger to Southern Africa, nor is the threat of veld fires, flash floods or other disasters. These are threats that occur again and again, and must be fully taken into account in development policy and practice in order to safeguard our investment in South Africa's human, economic and natural resources.

Some key points to remember

_ Disasters are increasingly viewed as an expected consequence of poor risk management rather than isolated, random acts of nature.
_ Disasters are also an outcome of interconnected social and physical processes that increase risk and vulnerability to even modest threats.
_ It is more cost-effective to prevent and mitigate against disasters.
_ Disaster management should be an integral component of development planning as disasters and development are often interrelated.

Points of debate and key questions

_ What are some of the underlying causes of disasters in your field/area?
_ What disasters have affected people in your area during the past 10 years?
_ Can you afford to only respond to a disaster after the event?
_ What actions can people take to reduce their risk and vulnerability?

2. Key principles for a disaster-management policy

The following principles need to be considered when shaping a vision and guiding strategy to deal with disasters:

It must focus on key issues
As sustainable development is one of the main goals in South Africa, reduction of vulnerability of communities must be the primary focus and not disaster relief. Disaster management offers a collective safety net that has the potential to protect development processes against those setbacks that wound development in many countries, frequently through natural and man-made disasters.

Taking care of the most vulnerable first
The first priority of disaster management is the protection of the people who are most at risk. The second priority is the protection of the critical resources and systems on which communities depend.

Foster a culture of prevention
Government will encourage both citizens and government structures to protect themselves and their property to the best of their ability at all times. It will not provide assistance to citizens who have failed to take proper precautions.

Integration into development
Disaster prevention and preparedness should be an integral part of every development policy.

Equity
Disaster assistance must be provided in an equitable, consistent and predictable manner without regard to economic circumstances, industry or geographic location.

It must ensure community involvement
Communities must know what disaster management and risk reduction stand for, what their own responsibilities are, how they can help prevent disasters, how they must react during a disaster (and why) and what they can do to support themselves and relief workers, when necessary.

It must be driven in all spheres of government
Disasters know no boundaries. Unless disaster management and risk reduction are effectively driven at central, provincial and local government level and are made compulsory, disasters that impact on a region or country will be extremely difficult and costly to address.

It must be transparent and inclusive
Disaster management and risk reduction require transparency in the way decisions are made and information is exchanged. They must also be inclusive, ensuring that all parties responsible for implementing the ongoing programme or any of its phases, are consulted; this includes private enterprise, unions, non-governmental organisations and community-based organisations.

It must accommodate local conditions
Any efforts could be ineffective if proposals/guidelines are accepted or implemented without ensuring that they are adapted to address local conditions, which differ widely from community to community.

It must have legitimacy

The structures tasked with implementing a disaster-management programme must be recognised by all present and future key roleplayers in the various government structures, as well as among the various community structures with whom liaison is necessary.

It must be flexible and adaptable
Flexibility and adaptability must be allowed for, to take into account the rapid changes brought about by modern development, as well as external factors that might pose a threat or have an impact on the functioning of the programme. Rapid changes in community structures and the general development of an area - i.e., new industries and residential areas and environmental changes require adaptation to planning and allocation of priorities, without which applied principles will become outdated and cause frustration.

It must be efficient and effective
Unless disaster management is results-driven, in all spheres of government, it is in danger of becoming sidelined, which could in turn become costly should a disaster occur.

It must be affordable and sustainable
The allocation of funds is an important issue. Hopefully, funds allocated to the ongoing proactive facets of the disaster-management cycle will mean that funds will be required less often to coordinate disaster relief.

It must be needs-orientated and prioritised
Many existing essential and emergency services find it difficult to accept the necessity for disaster management. If the concept is understood, and is seen to address real present and future needs, it will gain acceptance and receive the correct priority it deserves.

It must be based on a multi-disciplinary and integrated approach
Disasters are social phenomena, as much as physical or economic events. Disaster reduction is thus a multi-disciplinary process, that includes environment, human settlement, human behaviour, health and public administration considerations. Only an integrated approach can have success.

Points of debate and key questions

_ Which principles should we prioritise as being the most important for disaster management?
_ Do you think the principles as they are set out here are a basis to develop a common vision?
_ Are there further principles that need to be taken into account that should inform the new management system?
_ Are there revisions to the current wording that you would like to recommend or make specific changes to?

3. Different approaches to disaster management

3.1.   General approaches to the management of disasters

Introduction

What measures can be taken to manage and possibly reduce the negative impacts of disasters? Disasters are not welcome events and usually when they occur, every effort is made to reduce the impact of such events.

Disaster management should include administrative decisions and operational activities that involve prevention, preparedness, response, recovery and rehabilitation at all levels of government. Disaster management does not only involve official bodies - non-governmental organisations and community-based organisations also play a vital role.

Disaster management can be viewed in a number of ways. The more traditional approach has been to regard disaster management as a number of phased sequences of action - or a continuum - as you can see in the following illustration (Figure 1):

FIGURE 1: Traditional model: sequences of action

FIGURE 1

Traditional model — sequences of action

Pre-disaster risk-reduction phase

Preparedness

Mitigation

Prevention

DISASTER

Response

Recovery

Development

Post-disaster recovery phase
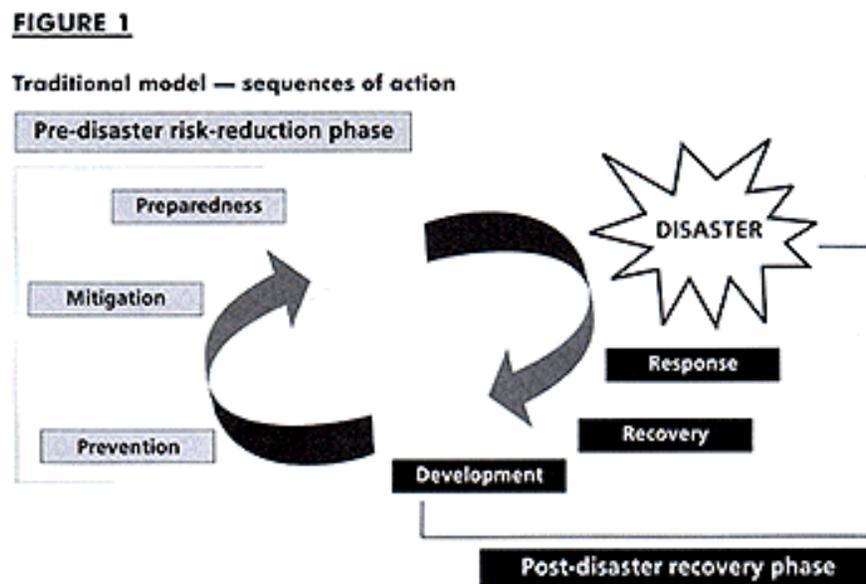
In the more traditional model shown in Figure 1, disaster management occurs in stages which follow each other in a sequence. That is to say, mitigation and preparedness precede a disaster. While this may well be the case, it is also often observed that the sequences of action occur simultaneously - as you can see in the illustration of the expand-contract model below (Figure 2).

FIGURE 2: Expand-Contract model

FIGURE 2

Expand - Contract Model
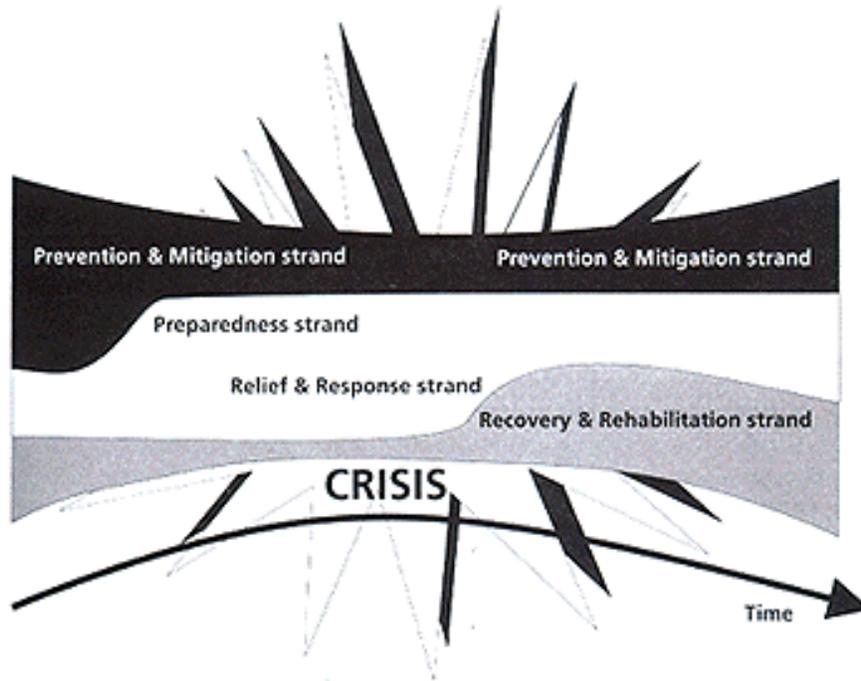
A new model for disaster management

In this alternative view of disaster management - the expand-contract model - disaster management is seen as a continuous process. Disasters are managed in a parallel series of activities rather than in a sequence of actions. The different strands of activities or actions continue side by side, expanding or contracting as needed.

For example, immediately after a disaster event - such as a flood - the "relief and response" strand will expand to cope with the immediate effects of the disaster. But as time passes, the "recovery and rehabilitation" strand - including prevention to mitigate against possible future disasters - will expand to address the rehabilitation needs of the affected community. The relative weighting of the different strands will also vary depending on the relationship between the hazard event and the vulnerability of the community involved.

This approach acknowledges that disaster management usually includes a number of interventions and actions that may be occurring simultaneously (at the same time) and not always in phased succession (one after the other). In the case of droughts, for example, drought relief, recovery and mitigation may often occur at the same time.

Despite the existence of different approaches to disaster management, disasters are often managed haphazardly. The approach taken to disasters may thus be as costly (or even more costly) than the event itself. People are unprepared, and when the event occurs (even slow-onset disasters) it usually triggers haphazard reactions, which often result in crisis management. Awareness of disasters and of one's vulnerability to such events can, however, reduce the impacts of such events.

Community involvement must always be part of the disaster management approach. The importance of community involvement can best be described with an example.

Awareness and mitigation can reduce disaster impacts

Community awareness of disasters can greatly reduce the overall costs of such events. In Laingsburg in 1981 people had not previously experienced severe flooding and were therefore completely unprepared when a severe flood hit the town. As a result of this unpreparedness, 104 lives were lost during the flood.

By contrast, the floods which struck Ladysmith in 1994 caused relatively little loss of life. This was largely because the low-lying areas around Ladysmith are frequently flooded and the risk of disasters is higher. The communty is therefore better prepared for the disaster and better able to limit its effects.

Note that awareness includes all the people concerned and not merely officials. Community awareness and effective mitigation are therefore a critical element of disaster management.

3.2.   Key elements of disaster management

Examples of disaster management strategies are provided below. These are not the only ways that disasters can be managed and are only meant to prompt institutions dealing with disasters to become better prepared for disasters.

Prevention
Government departments and municipalities can better prevent a disaster by conducting certain activities before a disaster occurs. These can include constructing a dam or levee to control flood waters; or control burning-off programmes in a veld fire area, and ensuring that there is proper socio-economic development and active ownership and participation of communities along the disaster management continuum (all the phases of the disaster management cycle).

Mitigation
Disaster mitigation refers to measures that can be taken to minimise destructive and disruptive effects of hazards and thus lessen the scale of a possible disaster. Disaster mitigation can occur at any time.

A disaster plan and structure (e.g., disaster committee at the local level) should be established. Each plan will be site or local specific and as such must be tailored for the municipalities concerned. For example, coastal towns may develop a series of building codes so as to reduce losses in the event of heavy rains and strong winds associated with a cyclone. Rural towns may have to plan for veld fires, droughts and improved water management.

Disaster mitigation can be achieved through proper engineering, spatial planning, municipal management and conflict resolution.

Preparedness
Preparedness measures such as the maintenance of inventories of resources and the training of personnel to manage disasters are other essential components of managing a disaster. Furthermore, this should be an ongoing, regular function of local government departments. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems.

Risk assessments (identifying those areas and people that may be at risk of a disaster before a disaster occurs) are also essential and may complement development strategies in local areas. The development of "suitable" housing for those living in urban, flood-prone areas cannot be undertaken without a risk assessment for development (and flood-reduction) planning. Efforts do not therefore have to be doubled and the two (development and disaster reduction) can occur simultaneously.

Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essential material are maintained in cases of national or local catastrophes.

Response and relief
If a disaster does occur then response and relief have to take place immediately; there can be no delays. Delays will occur if government departments and municipalities have no clear plans to manage such events. It is therefore important to have contingency plans in place. Imagine the following scenario:

A flood has occurred in an area and there are also strong winds. Fear and chaos break out. Members of the public are swamping emergency services with pleas for help and the mayor's reputation is on the line.

A well-managed team of government and local players should be prepared and know where to go, what to do... If the situation is managed in a crisis way, then people rush off in all directions, waste valuable time, and even make serious mistakes as a result of their actions.

Search and rescue plans need to be clear and all roleplayers need to know their role and function in such activities. Basic needs such as shelter, water, food and medical care also have to be provided and a plan needs to be in place (outlining who is responsible for such activities, etc.)

Rehabilitation
Interventions are also needed after a disaster occurs. In many ways this is the most difficult period for the victims. Job-producing activities, construction works and public works programmes may be needed to name but a few. The victims cannot be forgotten once the immediate disaster has passed.

Disaster management, as shown by these examples, requires effort and commitment by the various role players. The capacity must be built to handle such events, and training programmes are essential. Duplication of efforts should be minimised and financial resources appropriately controlled. In certain cases, the "expand and contract" model is best, with local government personnel conducting disaster management in their everyday activities and then "expanding" these when needed. It is important to note that disasters are non-routine events that require non-routine response. Governments cannot rely on normal procedures to implement appropriate responses - they will need to learn special skills, techniques and attitudes in dealing with disasters.

The key elements of disaster management listed above are important in providing governments with the capacity to deal with disaster management at various stages. This is not an exhaustive list of areas, simply the most important ones. A new system needs to incorporate some of these key elements into its management plans.

4. Current situation in managing disasters

PART ONE provides an insight into the range of disasters that the country has to deal with. There is a recognition that disasters are more effectively tackled through pro-active strategies. For each of the types of disaster, the main areas of prevention, preparation, response and relief are covered broadly to give an idea of the kinds of activities and resources that are involved in dealing with each of the areas. Part One also describes the national departments that are expected to lead in these areas.

PART TWO lists the other national departments that are required to give support in disaster management.

PART THREE critically examines whether current measures, both in the areas of prevention and response, are adequate and what more could be done by the lead departments in terms of the disaster management continuum.

PART FOUR reviews the existing legislative framework.

4.1.   How disasters are dealt with currently by government

4.1.1.   Drought

With improved understanding of southern hemisphere climate systems, international meteorological services are increasingly able to predict droughts. However, drought warnings will never be perfect, partly because the effects of drought are never uniform, and partly because droughts usually occur over a longer period of time.

Forecasting is mainly the task of the Weather Bureau. However, forecasts are also available from international bodies and academic institutions. Government and the private sector both have a role to play in providing forecasts and advice to farmers. It is small farmers who will mainly benefit from government's efforts, since the large scale commercial farm sector has the ability to obtain information elsewhere.

For droughts it is expected that the lead agency will be the national Department of Agriculture, which will be the first government body to initiate any preventative and reactive approaches to mitigating the effects of predicted or actual drought.

The Department of Agriculture would also provide disaster management support in cases of floods, veld fires, locust outbreaks, hail, windstorms and tornadoes. Drought relief in the past has predominantly been in the form of subsidies to meet the financial losses of the white commercial farming sector and its creditors.

Prevention and preparedness

Working against drought in the long-term
_ The Department of Agriculture has recognised that in the long-term the reduction of the effects of drought is the best way to mitigate against the negative impacts. Regular droughts are a normal part of the climate in South Africa, where there is exceptionally high variability in rainfall and temperatures associated with the normally dry climate. Droughts cannot be prevented, so the farming community has to accept variability and adapt to it as a normal part of farm management.
_ Recognising that the state cannot continue to bail out farmers like it did in the past with subsidies,more proactive approaches are now being taken or are being proposed for the agricultural sector. In conjunction with this policy drive, the Department of Agriculture is

working towards establishing a better way of co-ordinating drought response and relief. A proposal to establish a national drought management centre is being investigated.

_ The Minister of Agriculture has set up a task team to develop a new policy on drought. Under the new policy initiative, government's support for disasters will focus mainly on indirect intervention through the promotion and facilitation of self reliant strategies so that farmers take mitigating action to reduce the effects of drought, both on the environment and on farm incomes. Some of the proactive ways in which the Department of Agriculture is likely to take preventative or proactive measure against drought are:

  → Developing a national drought management plan that involves other national departments, such as the Department of Water Affairs and Forestry, and also the provincial and local governments.
  → Improving the Early Warning System, through developing close collaboration with the Weather Bureau and monitoring systems established by Department of Water Affairs and Forestry, and through constantly improved crop and forage forecasting (see below).
  → Improving and developing a communication and information strategy that is linked with communities, which provides farmers not only with forecasts, but also with farming advice appropriate to the best available forecasts in each province.
  → Investigating and developing financial incentives, such as using taxation mechanisms to encourage farmers and other communities to save after good seasons to provide farm income after poor seasons, and possibly targeting subsidised insurance to emerging farmers.
  → Developing with Department of Water Affairs and Forestry a water demand management strategy for the rural sector.
  → Promoting better land-use management and conservation practices through the extension services in the public and private sector.
  → Where necessary, providing expertise and management capacity for rural public works programmes to ensure that these promote "drought-proofing" and water-harvesting in the rural environment, such as through conservation works or afforestry.

Preparing for and responding to drought

A wide number of measures are required in response to drought. Typical measures that the Department of Agriculture is taking include:

_ Improving information for early warning. Data that should be collected and disseminated regularly by the Department of Agriculture include:

  → National crop forecasting. This is necessary for good market information for traders, as well as for our partners in the SADC who import South African grain when available. The Department of Agriculture is making adjustments to improve crop information now that the marketing boards no longer exist to provide the information. Forecasts should be presented to the public within statistical probabilities, since they will never be completely accurate.
  → Crop condition and forecasts in former homelands. Crop failures provide warning that incomes will fall in an area, and alert other departments, notably Health, Welfare and Public Works, that nutrition and income support may be necessary.
  → Condition of grazing lands, livestock and the access of livestock to water.
  → Satellite data (greenness indexes, etc.) with comparisons from previous years.
  → Similarly, the Departments of Agriculture will gain useful information from other participants in the early warning system, on weather, forecasts (rainfall and temperature, stress days), dam and river levels, etc.

_ Ensuring with the cooperation of Department of Water Affairs and Forestry and the SANDF that supplies of water are secured in poorer and deep rural areas before the drought hits.
_ Mobilising other state resources, to cushion or reduce the impact of drought, through:
  → Mobilising the support of provincial and local governments, particularly in the most drought prone areas. Provincial departments of agriculture have the major task in providing appropriate advice to farmers through their extension services.
  → Preparing a communication strategy and advice for farmers and other communities on how to deal with the drought.
  → Mobilising the resources of non-governmental organisations, community-basd organisations and the private sector in assisting with relief efforts, particularly in poorer areas.
  → Coordinating with the emergency services and committees of organised farmers, such as the SA Agricultural Union and the National African Farmers' Union.

Points of debate and key questions

_ Should the Department of Agriculture (or provincial departments of agriculture?) be the lead agent for drought disaster management, and if so, who else should be the other key institutions working with them?
_ What aspects of disaster management should be dealt with by the Department of Agriculture and provincial departments of agriculture, and who should be involved for instance in response, and recovery? What further proactive measures can the Department of Agriculture take?
_ What are the major obstacles to the proposed new approach to drought management by the Ministry of Agriculture?
_ What avenues should be pursued in conveying drought warnings as early as possible?
_ Which people should ensure that all people know the forecasts, and that adequate advice is offered, and distributed widely?
_ Are there institutions and mechanisms already in place that can be used for this, but have not been used adequately in the past, or do we need to create new ones?
_ How best can one utilise civic or community based structures for drought management?
_ What is the best role of district and local councils in this regard?

Water management

While the national Department of Agriculture is regarded as the national lead agency for drought-related aspects of disaster management, the Department of Water Affairs and Forestry is the national lead agency for most water-related aspects of disaster management. This may sound like a contradiction in terms, but it is not.

The most relevant drought-related field of jurisdiction of the Department of Agriculture, as far as disaster management is concerned, is rain-fed agriculture. This mostly concerns dry-land crop farming and also extensive stock farming. While these do contain their particular aspects of water management, which are primarily handled by Department of Agriculture, water management has a much broader scope than rain-fed agriculture. The Department of Water Affairs and Forestry is the national lead agency for this broader water management. The Department of Water Affairs and Forestry's area of rsponsibility includes, among other things, water resource and infrastructure management to serve the urban sector, the rural domestic sector and also irrigated agriculture at large.

South Africa is a relatively arid country - the average rainfall is 40% less than the annual world average rainfall. The rainfall that we do receive is distributed unevenly - some areas receiving most rainfall and others hardly any. In addition, we face growing demands for water from our natural water availability. Given these factors - and the fact that water is essential to

sustain all forms of life - water management is a major area of concern as far as disaster management is concerned.

Because it takes years, and often decades, to plan for and implement water management schemes - both on the supply and the demand-side - water management must receive continuous attention. This is especially true during times of relative plenty, when we must make provision for the cyclical periods of water scarcity. These cyclical periods of water scarcity are inevitable in South Africa but their exact timing, intensity and duration are less certain. Examples of water **supply** schemes are, for instance, the establishment of water retention structures, interbasin transfer schemes, water distribution systems, etc. An example of a water **demand** management scheme is the establishment of a national water and energy conservation ethic.

Experience has proven that it is futile to base water management schemes on the frequencies and intensities of droughts. Droughts, by nature, differ vastly, depending on aspects such as rainfall characteristics, moisture conditions before the drought, etc. It often occurs that the rainfall during a season is adequate to produce bumper crops, but that the run-off generated by these rains does not substantially improve the water situation in our hydrological systems, leading to so-called hydrological drought conditions. In other words, there is enough rain for the crops, but not enough going into our water supply systems. Effective and efficient water management requires a continuous evaluation and re-evaluation of areas of expected water scarcity. It requires that projects are commissioned in good time to limit vulnerability with regard to water.

South Africa faces a looming water shortage early in the next century. The only way to address this problem is a continuous focus on balanced water management practices. In this regard the unbalanced water-management legacy left by the pre-1994 government poses major disaster management problems. Some of the major water management problems are the following:

_ The Department of Water Affairs and Forestry's focus in the past was almost exclusively on the supply-side of water management.
_ The supply-side (water availability) focus of water management was limited to specific regions, excluding, for instance, the previous homeland areas. This left vast areas and millions of people without even moderately stabilised water resources and basic supply infrastructures.
_ Even where a degree of basic water-supply infrastructure has been supplied in these previously marginalised communities, the communities have not taken ownership of this infrastructure, for various reasons. This has led to inadequate maintenance and operations practices.
_ The demand-side of water management was left to the second and third tiers of government (province and local), basically without incentives from the national level for these authorities to effect water conservation. All efforts to foster a conservation ethic thus have to start from scratch.

Thus, although the water availability (supply-side) seems quite good in some areas and sectors - mainly the few metropolitan areas - the present water management situation has a number of serious deficiencies that the disaster management fraternity must take note of. It will take many years, even decades, to iron out these problems, but even after that, it is envisaged that the disaster management fraternity will have to stay closely involved with water management.

Prevention and preparedness

The new Department of Water Affairs and Forestry, established after the 1994 elections, has been exerting itself to address deficiencies in existing water management approaches, in order to effect sustainable water management practices, for instance:

_ The Department of Water Affairs and Forestry published a White Paper on Water Supply and Sanitation towards the end of 1994, among others describing the endeavours required to bring at least 25 litres of clean water per person per day to the majority of our people within a walking distance of not more than 200 metres.
_ Since 1994, the Department of Water Affairs and Forestry, with a mandate from Cabinet, has been actively involved in establishing water supply and sanitation infrastructure in the rural areas. To date water supply infrastructure to serve between one and two million people in the rural areas has been supplied. This excludes work done under the municipal infrastructure programme, which focuses on urban dwellers and which is also going ahead full steam.
_ On the demand-management side, the Department of Water Affairs and Forestry has various programmes running to further water conservation practices. Very prominent is the "Working for Water" programme with various thrusts, e.g., the programme to eradicate alien invasive vegetation in water-stressed catchments for which more than 8 000 additional jobs have so far been created.
_ Our water law is being revised substantially to afford holistic management of water as an indivisible substance in the whole of the hydrological cycle, and also to effect equity with regard to water availability and its use.
_ The recently passed Water Services Act identifies the responsibilities of the various tiers of government and other roleplayers with regard to the provision of water and sanitation services. This will streamline the functioning of the complex hierarchy of institutions involved with water management, also with regard to emergency measures and water restrictions.

Responding to water shortages

In terms of the Constitution, water supply and sanitation are primary functions of local authorities. These authorities must therefore take ownership of their water supply systems and channel adequate means towards their operation and maintenance.

The Department of Water Affairs and Forestry has a regional office in each of the nine provinces, which can assist local authorities and relevant institutions if they should encounter serious water management problems.

It is essential, however, that partnerships be developed in the water management field. It is trusted that the provincial disaster management focal points will largely contribute towards these endeavours, guided by the proposed National Disaster Management Centre.

4.1.2. Floods and dam failures

Floods are natural phenomena that occur at irregular intervals anywhere in our drainage system of rivers and streams. Although floods cannot be regarded as unexpected, where and when they will strike is highly unpredictable. The scale of the floods also varies widely, from minor flashes to major events.

Flood management in general involves a wide range of measures which can be classified either as structural and non-structural:

_ **Structural measures** are physical measures, such as the construction of flood attenuation dams, river draining works such as levees and urban stormwater systems to control flood run-off and river flows.

_ **Non-structural measures** entail for instance the introduction and enforcement of sensible land-use practices on floodplains, promulgation of dam safety legislation and regulations, furthering flood preparedness and contingency planning, instituting flood warning systems, etc. Non-structural measures are aimed mainly at changing patterns of behaviour.

Local authorities often find that the flood management guidelines and directives from the national and provincial spheres are not forceful enough. At present these guidelines and directives are contained in the Water Act (No. 54 of 1956) and in various provincial ordinances. By incorporating these into local by-laws, local authorities can establish sensible flood management practices.

The Department of Water Affairs and Forestry is the lead agency at the national level with regard to the physical management of rivers (the management of water-related matters). For this reason the Department of Water Affairs and Forestry is also expected to be the lead agency on a national level with regard to floods and dam failures.

However, flood management, and especially non-structural flood management, is much more of a people issue than a water management issue. It would therefore make much more sense to have a multi-sectoral, interdepartmental, integrating body for overall flood management. The Department of Water Affairs and Forestry could feed its largely technical flood management information into such an integrating institution. The integrating institution could then link this technical information with other important information (demographic, social, etc.) and ensure that it is made available in a useful form to target audiences. The Department of Water Affairs and Forestry could then limit its input to only water-related aspects.

Other non-water-related issues such as town-planning and building norms and standards, disaster management contingency planning, etc., would be handled by other bodies or departments with the necessary expertise in those fields.

Prevention and preparedness

By and large disasters resulting from floods can be prevented, as most flood damage occurs because of poor planning, and the settlement of people in high risk areas on floodplains.

_ Although many components of a flood management policy may already exist, they are not clearly described in a single document. There is also not a single lead agency dealing with flood management issues on the national level. The responsibility of a national lead agency will be, for instance, to ensure that a national flood management policy is developed and maintained as part of the envisaged national disaster management structure. Some of the main elements of the policy could include, for instance:
    → Clear identification of the flood management roles and responsibilities of national, provincial and local government, catchment authorities, the private sector (e.g., the insurance industry), individuals and communities.
    → Arranging for a structure of financial assistance to further pre-emptive flood management practices.
    → Providing for the development and enforcement of standard or "default" norms and practices for how floodplains should be used.
    → Arranging for the development and maintenance of a communication strategy.

Measures to safeguard the public against loss of life and property by means of dam safety legislation and flood control guidelines have been developed by the Department of Water Affairs and Forestry.
_ The department has direct access to the best available river flow data, which include water levels during flood events and current and planned releases from dams. Monitoring of rainfall and runoff with the purpose of forecasting flood flow and issuing warnings exists in

only a few places in South Africa. The Department of Water Affairs and Forestry maintains such a system in the Vaal-Orange River system of dams, the Ladysmith Local Council has such a system in the Klip River and the Sandton Local Council monitors the Jukskei River where it passes through Alexandra. Department of Water Affairs and Forestry and the Weather Bureau have developed a pilot project called the "integrated Vaal River forecasting system" to facilitate better flood management in the Vaal River basin.

_ At present the Department of Water Affairs and Forestry is busy with initiatives on our most important rivers to collect and access up-to-the-minute data with the aid of the newest satellite and cellphone technology. Presently, there are 46 observation stations, and the intention is to expand these to 59 to give even wider coverage.

_ The department is also empowered to build government water works for the specific purpose of flood control. The Water Act, 1956 empowers the Department of Water Affairs and Forestry to subsidise the cost of repairing water works damaged by floods.

Responding to floods

Regional or wide-area floods

_ A danger situation typically escalates over days and weeks.

_ The Department of Water Affairs and Forestry monitors river flows and dam levels, but the density and sophistication of monitoring networks available, differ vastly from catchment area to catchment area.

_ The Weather Bureau monitors rainfall on a national basis and routinely issues warnings of expected heavy falls. These forecasts are crucial for flood warnings where rivers are full.

_ The Department of Water Affairs and Forestry issues warnings where it has information of floods escalating. This is done by press releases and, in a few cases, directly to specific large communities at risk. A major shortcoming is the absence of an institution into which the Department of Water Affairs and Forestry can feed its observations and flood forecasts. There is a need for an institution which can take the Department of Water Affairs and Forestry's technical information and transform it into a form which is useful and meaningful to the various target audiences usually involved, and which can direct relevant information and warnings to the respective audiences.

_ In the majority of our rivers, flood warnings from the national level are not possible, largely due to a lack of information at that level. Communities themselves and regional organisations such as irrigation boards, normally play an important role in preparedness and flood warnings. The levels of preparedness of communities vary vastly, even in one catchment area.

_ Depending on the size of the flood escalating, adjacent local authorities, the province(s), the SAPS, the regional component of the SANDF and the national lead agency will be alerted by either a specific local authority or regional organisation. In the past the SAPS and, especially, SANDF helicopters played a crucial role in rescue operations.

_ The following critical services are often interrupted by floods and require emergency reinstatement:
  → Communication systems.
  → Potable (drinkable) water supply.
  → Access along selected streets and roads.
  → Power supply.
  → Sewers.

_ Past floods have shown the need for specialist relief teams to be available to communities during and after floods. These include typically:
  → A coordinator with special skills and authority to establish order and to determine the correct priorities.

→ Medical personnel with emergency supplies to provide (additional) treatment facilities. It appears as if the medical corps of the SANDF is ideally equipped to fulfil this function.
→ Specially trained social workers to deal with the morale of the affected community.
→ Civil engineers to oversee the reinstatement of public buildings, schools, water supplies, sanitation, streets and roads, and electrical engineers to oversee the reinstatement of the power supply.

Flash floods at the local level

_ Local authorities have the responsibility to monitor and warn inhabitants against flash floods and inform the relevant provincial and national governments.
_ Local authorities also have the responsibility to mobilise their emergency services and volunteer institutions or organisations.
_ If the situation is beyond the capacity of the local government to manage, it can call on the assistance of the SAPS, SANDF and other bodies that can provide physical support in dealing with victims and conducting search and rescue missions.
_ The local authority is also responsible for mobilising temporary housing resources from the Department of Housing at the provincial and national levels, the SANDF, non-governmental organisations or the private sector.
_ Finally, the local authority has the task of establishing the extent of damage, and the number of victims.

Dam failures

_ Dam failures occur for a number of reasons. They can either happen during a flood, when the mass of water spilling over the dam wall erodes the structure and causes failure. Or there can be a so-called "sunny-day" failure, when the dam wall fails due to structural instability. This can be caused by, for example, earthquakes or deterioration of materials over time.
_ For many large dams, emergency preparedness plans exist. Such plans are statutory requirements for new category II and III dams. The owner of the dam has the duty to initiate these plans. Local authorities and civil protection organisations downstream should play an important role in establishing and maintaining such a plan. The requirements with regard to emergency preparedness plans should probably be expanded to also make provision for existing dams.
_ The onus is on the owner of the dam to alert people and communities downstream of a dam-break developing, in accordance with the emergency preparedness plan. He/she must also continuously monitor the situation and inform people downstream of developments. From there onwards the situation could be dealt with in the same way as a natural flood event.

Points of debate and key questions

_ Who should be the lead agency dealing with floods, and how should this lead agency involve provincial and local governments in both long-term and short-term strategies for flood disaster management?
_ Is everything being done to ensure that flood potential is closely monitored, and then, local warnings are provided in a useful format for people to respond?
_ What are the main issues and concerns arising from flood disaster management with existing systems in place?
_ Who else at the national level should the lead agency involve in preventative measures against floods, and how?
_ How best can communities be involved in flood disaster management?

4.1.3, Fire hazards

The value of property destroyed by fire is increasing in South Africa. The annual estimate for fire losses is approaching R1 billion. Fire disasters may be caused by a single fire that spreads from the point of origin - such as buildings - or they may be the secondary result of another disaster such as a storm or earthquake that starts fires in numerous locations simultaneously.

Prevention and preparedness

_ Within the urban environment fires are prevented through legislation such as the National Buildings Regulations and municipal by-laws. Other measures include public education and codes of practice issued by the SABS.

_ Fire-fighting, rescue, and emergency medical operations are covered by the Fire Brigade Services Act, 1987. The Act empowers the Premier of each province to take extraordinary measures to allow a fire brigade service to effectively deal with incidents. This is an important operational provision that can take effect in the early stages of an incident, before it is formally declared a disaster.

_ The Fire Brigade Services Act, 1987, confers a wide range of powers on a fire fighter. These include the authority to enter premises, close streets, obtain assistance from the public, and even to demolish buildings.

_ Fire brigade services normally deal with hazardous materials incidents. They are involved in the safety and prevention aspects during inspections and building plan approval as well as the mitigation phase during incidents. Fire fighters receive training in dealing with a wide range of hazardous material incidents. Larger departments have large databases at their disposal as well as protective clothing, hazardous material equipment and chemical monitoring equipment.

_ Fire brigade services are also the agency that responds to disasters caused by road traffic accidents, collapsed buildings and similar large-scale incidents.

_ The current Fire Brigade Act needs to be applied to expand the pool of volunteers that can be used as 'reservists' in cases of emergency. Local government can use the services of non-governmental organisations and other public sector institutions to train these reservists. This provision in the Act has not been sufficiently exploited.

_ There are efforts to establish a national incident data system, which is able to provide quick data and statistics on fires and hazardous materials incidents. This data system should be linked to a national incident management system and should eventually form part of information collated by the IDMC.

In the case of predicting potential weather conditions for fire hazards, such as veld or forest fires, the Weather Bureau plays a critical role in advising the public, agricultural communities, and the forestry sector by giving early warnings.

Responding to fires

In the case of fires, the first people that are likely to respond to a fire disaster are the emergency services units of a local authority. However, it is clear that most of the well-equipped emergency services are based in urban centres, and these are suited to deal with a range of fire-related incidents such as structural fire-fighting, aviation, marine, wildfires, and so on. In rural areas, however, emergency services are weak, and often communication with these areas is difficult. In responding to fires, the local authority does carry out certain actions, and these involve:

_ Mobilising rapid response teams, with some provinces including a combined medical services unit. In towns where these services have been provided in combination, they have been found to be more effective.

_ Calling on intergovernmental cooperation in cases of major disaster. The main roleplayers in this case are likely to be the ambulance department, the Department of Water Affairs and Forestry, Environmental Affairs, university laboratories, the SAPS, traffic authorities, the SABC, hospitals, state veterinary services and provincial health departments.
_ In cases that involve rural areas, local authorities have to work with the Department of Agriculture and Forestry sectors to deal with particular fire hazards.

Points of debate and key questions

_ What are national roles in fire disaster management, and who should be the key agency?
_ What are the main constraints in dealing with fire hazards?
_ What are the main preventative measures that can be taken and who should be involved?
_ How should fire brigade services be funded nationally? Is there a role for the private sector?
_ Have efforts been made to ensure that the Forestry and Agriculture departments cooperate in their responses to veld fires?

4.1.4. Bomb explosions and civil unrest

According to the new Police Act and the Constitution, it is the responsibility of the South Africa Police Service to deal with civil unrest, bomb explosions and the hijacking of aeroplanes.

Prevention and preparedness

There are a number of preventative areas that the SAPS and SANDF are involved in to ensure that civil unrest and terrorism are minimised or detected early on. These include:

_ Developing national contingency plans, policies and guidelines to deal with cases of emergency involving provincial and local governments and other roleplayers.
_ Coordinating intelligence gathering efforts with relevant government departments, non-governmental organisations and other institutions. Currently, the National Intelligence Coordinating Committee is providing a vehicle for this.
_ Coordinating activities and establishing security mechanisms with neighbouring countries to improve the security environment and intelligence gathering. The SAPS has contact with international organisations such as Interpol, the Southern Africa Regional Police Chiefs Cooperation Organisation and bomb data centres, all of which have early warning facilities. The SANDF participates in the Inter-State Defence and Security Committee of the Southern African Development Community (SADC).
_ Ensuring that emergency communication systems are available and that the current national operating coordinating committee structure does provide a useful framework for consolidating and improving on early warning systems and communication to the public, relevant bodies and institutions.
_ The SAPS is developing plans for the continual education of institutions and the public as a whole on how to act during bomb explosions and unrest situations.

In the case of bombings or unrest the SAPS is able to take the following actions:

_ The coordination of activities relating to command and control in the disaster area with roleplayers like the SANDF, and other security agencies. This can involve cordoning off areas and maintaining security patrols.
_ The SAPS, using it's own emergency network (see section on the roles and resources of the SAPS), can call for emergency assistance from rescue agencies, and the support of specialised police units such as rescue dogs, bomb disposal experts, hostage negotiators, and forensic experts.

_ The SAPS will inform relatives in the case of a loss of life and will support other agencies in assisting victims.

Points of debate and key questions

_ Which other agencies are critical in supporting the role of the SAPS?
_ Does South Africa have sufficient resources and trained personal to deal with these kinds of disasters? Especially as regards terrorism involving biological, nuclear and chemical weapons?
_ What are the key preventative measures that can be developed and used to combat these kinds of events?

4.1.5. Refugees and displaced people

The Department of Home Affairs deals with disasters that arise from war, civil conflict or famine that may result in the influx of refugees from neighbouring States and which may have security and resource implications for South Africa.

When there are major conflicts within or outside our country, these often cause people to flee the area of crisis, and seek places of security. For example, refugees came to South Africa from Mozambique during the Mozambican civil war. Famine and other natural disasters can also give rise to refugees.

The Department then takes appropriate measures to control the movement of people, and if necessary, begins the process of seeking national and international support through the United Nations to ensure that the needs of refugees are adequately met. In terms of the UN General Assembly resolution 46/182 of 1997, the UN provides for a co-ordinated humanitarian response.

There are well-established international protocols for dealing with refugees. In 1996 South Africa acceded to the UN Convention Relating to the Status of Refugees (1951), the Protocol to the 1951 Convention (1967) and the OAU Convention on Refugee problems in Africa (1969).

The refugee issue is dealt with comprehensively in a Green Paper on Migration. It will also be covered in a proposed Green Paper on Refugees.

Prevention and preparedness

It is almost impossible to prevent the in-flow of refugees in times of crisis and, for humanitarian reasons, the country is obligated to assist. However, there are certain actions that can be or are being taken to deal with refugee problems in a more effective way:

_ The Department of Home Affairs has to develop a clearer policy on distinguishing between refugees and 'illegal aliens' in order to improve the speed at which humanitarian assistance can be granted to refugees.
_ Effective mechanisms can be developed in neighbouring states to monitor the potential for political conflict or the likely impact of natural and other disasters.
_ There are monitoring mechanisms in place with neighbouring States that help to identify potential areas of political conflict or the likely impacts of natural and other disasters.
_ There are also inter-governmental mechanisms for humanitarian assistance and resource mobilisation, which particularly involve the Department of Home Affairs, Foreign Affairs, and the SANDF.

Responding to a refugee situation

The normal actions that are taken by the responsible departments are:

_ First, to establish the number and needs of the refugees, and to engage the support of appropriate departments such as the SANDF, SAPS, Department of Water Affairs and Forestry, the Health and Welfare Departments.
_ Through Foreign Affairs, international UN humanitarian assistance can be engaged.
_ The Department of Home Affairs has responsibility for the mobility and status of the refugees while they stay in the country.

Points of debate and key questions

Who should be the lead agency and which other department(s) should be involved?

_ Has humanitarian assistance in South Africa been effective?
_ What can the role of civic organisations and the private sector be in dealing with refugee crises?
_ Are there any preventative measures that can be taken?

4.1.6. Epidemics and other health disasters

Health indicators, notably the levels of malnutrition and disease, provide some of the easiest indicators of poverty and vulnerability. They also provide a targeting mechanism for other departments' responses.

An example is the targeting of public works relief programmes during drought to areas where child malnutrition has risen. This increases incomes to poor households, which is an essential back-up to the medical treatment of the malnourished child. Nutrition and health surveillance will therefore be a critical aspect of the wider early warning system, especially for slow-onset disasters.

In the event of rapid onset disasters, the Department of Health will be called upon to play a major role in the management of casualties, in the case of both natural and human-made disasters that cause injury, the contraction of diseases or the outbreak of epidemics.

Prevention and preparedness

Disease and the outbreak of epidemics is related to the level of health planning and support that is provided by the health system of the country. Poverty, informal settlements and the lack of infrastructural development, such as inadequate water and sanitation facilities, can exacerbate or trigger epidemics.

_ At the national level the Department of Health has established a sub-Directorate, National Disaster Services, and as yet no formal system has been put in place. The directorate will establish management systems in conjunction with provincial and local government. The department will review existing disaster management plans and reformulate these to take into consideration the district health system and community involvement.
_ There are other actions that the Department of Health can take, in association with provincial and local government health departments, such as the development of early warning systems in both rural and urban areas. The Department has already embarked on a process of appointing a Communicable Disease Control Officer in each province and Provincial Epidemic Outbreak Response Committees have been established.
_ At present the Department's main strategy is to focus on the most vulnerable parts of the country such as the rural and deep rural areas. Support to communities needs to be provided in the form of capacity building for self support, especially during the early stages

of a disaster, and providing training in first aid, contingency planning and crisis management.

_ Emergency Medical services play a major role in disaster situations, and the majority of services have developed contingency plans and protocols for the mass mobilisation of services. In a disaster, Provincial Emergency Medical Services assume responsibility for the treatment of patients on site, the management of large numbers of shocked but uninjured patients, the removal of patients to health facilities and the inter-health facility referral of patients. Current deficiencies mainly exist in rural areas.

_ Early Warning Systems are being established with other role players and the monitoring of disease patterns and trends in neighbouring countries will form part of this.

_ Plans are being developed in consultation with other State departments and role players, including the Private Sector and NGOs. These would include the involvement of district health centres and clinics forming the local focal points in terms of control and co-ordination, especially in rural areas. Specific emphasis must be placed on the SANDF in providing logistical support at short notice.

_ In addition to the provision of communication systems for health facilities, attention must be given to the establishment of Province-wide radio communication systems for the control and co-ordination of emergency medical services in times of disaster. These communications systems should link with relevant authorities.

_ Contingency plans need to be formulated for acquiring large amounts of medical supplies, surgical supplies, food, and water. Special agreements need to be formalised with the Department of Defence / SANDF, laboratories, medical and pharmaceutical suppliers and major food outlets. These are all matters currently being considered by the Department of Health.

_ The Health Department is also giving consideration to the training of groups of health care reservists who can be called upon to assist in the event of disasters.

_ A weakness in the present Health Act is a total lack of regulations governing emergency medical services, both public and private.

Responding to epidemic outbreaks

_ In the case of an epidemic outbreak, local health centres are required to take the first actions. This includes dealing with patients and identifying the source of the epidemic. The provincial and national governments can assist when there is a request by the local authority to do so. Often, health centres - especially in urban areas - have well trained staff to deal with emergency situations.

_ In dealing with epidemics, especially if quarantine needs to be enforced, health departments often require the support of other departments, and agencies like the SANDF, SAPS, and possibly the DEAT and Department of Water Affairs and Forestry when dealing with pollution and hazardous waste.

_ The local or national departments of health can also mobilise support from the NGO, CBO and private sectors which often have their own contingency plans and management systems in place.

Points of debate and key questions

_ What needs to be done to ensure that nutrition and health surveillance is rapidly integrated into the early warning systems at all levels of government?

_ Who should be the lead agency for dealing with health related disasters? What should the role of a national agency be? Are there overlaps with other departments, in particular with regard to epidemics that are waterborne?

_ What role can the private sector and NGOs play in dealing with health disasters, and how?

_ What kind of early warning systems can be put in place to monitor health trends and the spread of diseases, and which are the key institutions that should be involved?
_ Is there more need for public awareness campaigns, and in which areas?
_ Should HIV/AIDS be considered a creeping 'health' disaster?
_ What social and other measures can be used to provide early warnings on the possible occurrence of a health disaster? Do such systems already exist?

4.1.7.   Earthquakes/dolomite land/nuclear radiation

South Africa has a wide variety of geological formations and these are subject to various development pressures and use by human beings. These geological formations pose various kinds of structural risks and if development is not managed well, can lead to disasters. Typical of these are dolomitic land subsidence or sinkholes. Mining activity can also lead to earthquakes and the contamination of water and other natural resources. Mining waste is stored in large slimes dams, that can lead to disasters like we had with the Merriespruit slimes dam bursting its walls.

Mining dumps often contain material that emits radiation. For instance some dumps contain high concentrations of uranium and thorium. South Africa is also a producer of nuclear fuels and has an atomic energy plant at Koeberg. Radioactive materials can pose special problems for disaster management, and cannot be dealt with in the conventional ways of dealing with disasters. It is expected that in the case of these disasters, the lead agency will be the Department of Minerals and Energy Affairs (DMEA), receiving support from the Department of Environmental Affairs and Tourism.

Preventing geological and mine-related disasters

_ The department regulates the large number of mining activities that take place in the country through the issuing of permits. Before a permit is granted a mining company must conduct an Environmental Management Project Report (EMPR). The EMPR provides for the assessment of risk and the specification of mitigation measures.
_ The DMEA works closely with the Department of Water Affairs in managing potential forms of hazards such as the possible contamination of ground and surface water systems as a result of mining activity or the release of hazardous material.
_ In addition to natural earthquakes, South Africa does have a large number of regularly-occurring mine-related earthquakes. South Africa has on-line a national seismological network which conducts seismic surveillance on a 24 hour basis. This network is linked directly to the main seismological centre in Pretoria and the latter is linked to similar centres in the US and in Europe. The network is administered by the Council of Geoscience.
_ The Council of Geoscience also provides regular advice to City and Town councils on a range of issues related to the building of infrastructure on sensitive geological formations that can pose potential hazards. It also advises on ways to avert possible risks associated with mining activities. In addition, mining companies have their own sets of rules and plans to deal with disaster situations.
_ Certain types of hazards associated with mining, like contamination from waste dumps, is regarded as an incipient (potential) hazard. The DMEA and Department of Water Affairs and Forestry have a legislative framework to deal with these issues.
_ The DMEA and other parastatal institutions in South Africa have over the years developed information systems and data bases on the hazards and risks of various geological formations. These data bases can be used by provincial and local governments to assist with more effective urban and rural planning.
_ In the case of nuclear accidents, the Council for Nuclear Safety plays an important advisory role in the prevention and mitigation of such disasters.

Responding to a disaster

_ In the case of a mining disaster, or any other geologically related disaster, the local authority concerned may be called upon to play a role, and the emergency services and other units will assist in dealing with victims. In relation to structural issues, the engineering departments of a local authority will also assist in ensuring that measures are put in place to make areas stable.

_ Only in the case of a large-scale disaster affecting a large population and and/or infrastructure is there a need for a combined force involving provincial and national government departments.

_ In the event of a nuclear radiological emergency, both at a national or international level, the Weather Bureau will be able to assist local and international emergency organisations. The Weather Bureau has special meteorological instruments that can monitor and forecast the movement and concentration of radioactive gases in the atmosphere. The Weather Bureau is undertaking further research to enhance this capability. It is anticipated that this technology can also be applied in other areas such as large-scale industrial pollution, and large-scale chemical releases.

Points of debate and key questions

_ Who should be the lead agency dealing with mine-related and geological disasters?

_ Can all of these be dealt with adequately by the lead agency, and who else should be involved?

_ Does South Africa have adequate trained personnel and capabilities to deal with nuclear related accidents or disasters? What kinds of support need to be developed to deal with these kinds of disasters?

_ What are the areas of weakness in each of the above areas, where are they, and how can they be dealt with?

_ What are the main risk reduction measures that can be taken to deal with these kinds of disasters?

_ What early warning systems exist to deal with these disasters or what kind of early warning systems should be established?

4.1.8. Aircraft/maritime/road and railway disasters

South Africa has numerous road, rail, air and shipping networks that are used to transport people and goods across towns, cities, provinces and countries. In all of these, accidents resulting from collisions or the carrying of hazardous goods are not uncommon.

Over the years the Department of Transport (DoT) - which takes primary responsibility for national safety on all our transport routes - has developed a number of procedures, guidelines and regulations to ensure that all transport networks are as safe as possible. However, accidents do occur and for these, various emergency procedures are in place as well as response mechanisms and role players.

Prevention and preparedness

_ The DoT - in conjunction with relevant agencies like the Civil Aviation Authorities, Transnet, Spoornet, DEAT, Traffic Departments, provincial and local authorities - is responsible for ensuring that regulations are updated, and appropriate legislation is in place to ensure safe traffic flow on various transport linkages and hubs.

_ The DoT - together with relevant agencies - develops appropriate contingency plans for the various kinds of disasters that can occur in the different media of transport. Certain areas, which can only be dealt with by national government, may require the setting up of interdepartmental co-ordination and communication mechanisms. This would apply

particularly to areas such as oil spills, the transport of hazardous waste, and other materials that require more specialised treatment and clearance mechanisms.

_ The expansion and improvement of the incident management system is a role that the DoT has to fulfil, again with the support of other agencies at the provincial and local levels.

_ The DoT also relies on the services of the Weather Bureau to provide forecasts to the maritime community for safety at sea, and to aviation operators for flight planning and flight safety. These forecasts help to minimise the risk of collisions.

_ In the cases of Aviation and Maritime transport, the DoT is the agency responsible for ensuring that South Africa fulfils and commits itself to international obligations and conventions.

In cases of response and emergency services, the following actions can and are taken in each of the areas of transport:

_ **Road:** In the case of road accidents these are normally dealt with by the appropriate local authority's traffic department, the SAPS and emergency services. Only in cases of major road accidents is special support required from national government (the DoT, the SANDF and the Department of Constitutional Development).

_ **Air:** In the case of aviation accidents, an incident is reported directly to the Commissioner of Civil Aviation where the emergencies service units at airports or from local authorities should be called in to attend to the disaster. If it is within the airport it is dealt with by the Airport Company and if it is outside, by the local authority. The Commissioner of Civil Aviation an also call upon the support of the SAPS and the South African Search and Rescue (SASAR).

_ **Rail:** In the case of rail accidents involving passenger or goods train, emergency warnings are communicated through the rail company or through the Joint Operating Office of Spoornet which then alert the necessary parties for support. The local authority and relevant national departments and private contractors can be called in to assist in cases where collisions involve hazardous chemicals or substances.

_ **Shipping:** Collisions of ships can result in fires, oil spills and loss of life. People may need support. If ships are within the exclusive economic zone of South Africa, or close by, requiring assistance, the DoT - with the support of the DEAT, SANDF and other marine emergency service providers - will be called in to deal with the disaster. It would also be the responsibility of the DoT, in cases involving foreign vessels, to inform the 'flag state' of the vessel about the occurrence of the accident.

In all transport-related accidents the DoT requires that the responsible authorities conduct an enquiry into the cause of the accident and produce a report.

Points of debate and key questions

_ Who should be the lead agency dealing with disasters associated with transport and which are the relevant institutions at the national, provincial and local levels that should be involved?

_ What are current weaknesses and strengths in dealing with transport-related disasters?

_ What are the relevant institutions that should be involved in each of the areas of transport?

_ What other innovative methods can be used to prevent transport-related disasters that are not covered by conventional methods?

4.1.9. Hazardous material/pollution/tropical cyclones and tornadoes

In disasters dealing with hazardous waste and dramatic climatic events, the DEAT is expected to be the lead agency. However, in most of the above cases, local authorities and NGOs, the private sector and other bodies will also play a critical role.

Virtually every industrial area in South Africa generates a variety of hazardous waste and pollution. If this is not managed or contained, human life can be at risk and there can be damage to the environment and critical resources like water.

Presently, South Africa has far too few hazardous waste disposal sites, and illegal dumping is rife as a result of poor enforcement and monitoring.

Prevention and preparedness

Hazardous waste and pollution

The main areas of disaster here are accidental and unauthorised release of hazardous material and other pollutants. The areas of vulnerability are:
⇒ Environmental media such as air, water, and soil.
⇒ Industrial areas and all major transport routes.
⇒ The marine environment including coastline.
⇒ Human life.

_ The DEAT and other responsible agencies like Department of Water Affairs and Forestry and the DoT are developing policies to deal with the generation, transport and disposal of waste and pollution and to clarify who has responsibility over particular areas. The DEAT has already formulated a national policy on integrated pollution control and waste management which must be given effect. Independently of this, Department of Water Affairs and Forestry has begun the development of a national waste management strategy mainly to ensure that the national water resources are protected.
_ The DEAT and Department of Water Affairs and Forestry are also establishing formal management systems to monitor and enforce waste management and pollution control measures, in particular along the main transport routes and in areas where hazardous material and waste are likely to be located. The systems seek to ensure that provincial and local authorities in these areas have sufficient resources to deal with these disasters.
_ DEAT and other relevant departments have recognised the need to establish a national monitoring system for the current waste sites. Such a system must be able to evaluate the potential risk at these sites and - where the risk is high - have contingency plans in place. Currently, the exact number of waste sites is not known, or the dangers they pose.
_ The National Emergency Service Data System being implemented by the Fire Brigade Board includes a data capture structure for hazardous materials incidents.
_ In the case of marine pollution both DoT and DEAT can call on international assistance to support relief efforts.
_ The DEAT has just promulgated regulations that require all new developments that are likely to have considerable impact on the environment and people, to undertake Environmental Impact Assessments (EIAs). These EIAs will be administered directly by the provinces, and will help prevent and mitigate against disasters.

Tornadoes and tropical cyclones

_ The DEAT is regarded as the lead agency to deal with these weather phenomena. The Weather Bureau has developed early warning systems using sophisticated satellite and computer modelling systems that are able to monitor and predict changes in weather patterns.

_ The main weakness at present lies in communicating this information through a central communication system and early warning system to the relevant institutions for them to take the appropriate action.

_ The local authorities in areas that are vulnerable to tropical cyclones and tornadoes need to take special measures, like regulating building and other infrastructure and taking more risk reduction approaches to development initiatives.

Dealing with these disasters

_ In the case of an accident involving hazardous waste that is being transported, the local authorities will deal directly with the matter, or ask for assistance through the DoT. Private waste handling contractors are often also used to do clean-up operations and conduct rehabilitation work in the damaged area.

_ With regards to air and soil pollution, the DEAT is likely to be the more responsible agent at the national level, responding to requests from local authorities for assistance. And in the case of water-related pollution, and the dumping of hazardous waste, it will be Department of Water Affairs and Forestry.

_ In the case of tornadoes and tropical cyclones, the Weather Bureau has the task of communicating an early warning of imminent danger to the responsible authority at the local level. This allows the local authority to mobilise resources in time to deal with the effects of the cyclone.

Points of debate and key questions

_ What needs to be done to ensure that warnings, forecasts, information and advice are quickly channelled into the early warning systems at each level of government?

_ Who should be the responsible agencies for the various areas of disasters outlined above? Should they be dealt with separately, or in joint responsibility?

_ How should NGOs and the private sector be involved?

_ What other kinds of preventative and mitigation measures can or should be put in place?

_ Is the current legislative framework adequate to deal with these problems?

PART TWO

4.2.   Other national departments and agencies involved in disaster management

The following section gives a brief outline of the roles of national departments that do not deal with a specific incident, but provide support in a range of areas across the whole disaster management continuum. The role of the departments of Finance and State Expenditure is referred to later in the section dealing with budgeting for disaster management and financial incentives (see pages 65 - 68).

4.2.1.   Department of Constitutional Development

The Department of Constitutional Development has overall responsibility for the coordination of disaster management issues at the national level. It has no line function role with regards to disaster management in terms of the Constitution, but is responsible for the Civil Protection Act. The Department of Constitutional Development is currently responsible for the interim disaster management centre and is working with other line departments in formulating a strategy to deal with the possible effects of El Nino. The Department of Constitutional Development also serves as the secretariat for the Inter-Ministerial Committee for Disaster Management and the Green Paper process. The Department of Constitutional Development also has responsibility for assisting local government to develop suitable training, including disaster management training.

4.2.2.   The South African Weather Bureau

The South African Weather Bureau - housed within the Department for Environmental Affairs and Tourism - maintains a 24-hour service delivery and a watch of weather developments, with special emphasis on severe weather systems that may lead to loss of life and damage to property. Advice services include:
_ Warnings of weather systems which may result in severe storms at sea and extreme flooding on land.
_ Meteorological information to aviation for flight planning and safety.
_ Advice to forest fire associations for determining favourable environmental and atmospheric conditions which may lead to runaway forest and veld fires.

The Weather Watch service of the Bureau also provides severe weather warnings of dangerous thunderstorms with large hail, extreme heat and cold, gale force winds, etc.

A reasonably close working relationship with local civil protection agencies has been established in the metropolitan areas so that reaction times to emergencies by these agencies are minimised. In other areas, networking is less well developed.

Since 1994, the Weather Bureau has become actively involved in research and the development of monthly and seasonal climate predictions. A small group of researchers known as the Research Group for Seasonal Climate Studies was formed. The techniques used are various statistical models based on climate training periods of up to 40 years of data, and dynamic numerical weather prediction models. The Weather Bureau issues climate predictions (monthly and seasonal outlooks) to a large number of established clients. In order to cater for the growing demand for information from the Bureau, the Bureau established the long-term group operational information centre in October 1996. This centre provides real-time (up-to-the-minute) information to the public and sophisticated end-users of monthly and seasonal climate predictions.

4.2.3.   The South African National Defence Force (SANDF) and the South African Police Services (SAPS)

The primary role of the SANDF is defence. The primary role of the SAPS is crime prevention, crime investigation, and the security of citizens. However, the SANDF and SAPS may be employed for service in the preservation of life, health, or property and for service in the provision or maintenance of essential services and can be requested to provide support by other government departments.

In the past, both have provided valuable support and services to national departments and local government where capacity has been lacking. Their roles therefore are cross-cutting and can be used to enhance existing attempts by other government departments to deal with disaster situations more effectively.

The role of the SAPS
The SAPS has been involved in cases of disaster in crime prevention, control of traffic, maintaining public order and cordoning off and patrolling disaster areas. SAPS also has a more specialised role in security-related disasters such as civil unrest, bomb explosions and acts of terror. In general, the SAPS is involved in most disasters where negligence is suspected and where people are killed.

The SAPS already has well-established nodal points (vital information-gathering centres) which can serve as an early warning system and can be used to enhance preparedness in cases of crisis. These points are linked to a national operating room which is overseen by the National Operational Coordinating Committee. Information about disasters or unrest situations can be passed by computer, fax or telephone to a national operating room which serves as a nodal point for further action.

The SAPS also has units at the provincial and local levels. It is strengthening its networks and can reach all sectors of our society through the existing Community Policing Forums. These networks are important in mobilising voluntary support and disseminating information about disasters to communities. In this way, community preparedness can be rapidly activated.

The role of the SANDF
The SANDF has resources, though limited, to carry out search and rescue operations at land, sea and air, to provide medical support, to transport relief provisions such as food and water, and to undertake the building of bridges, earth removal and road-building. The SANDF can also have access to military assistance in disaster relief operations from the other members of the Southern African Development Community. The SA Air Force also forms part of the SA Search and Rescue Organisation, a directorate of the Department of Transport.

The SANDF has the capability of communicating with the whole defence force and can rapidly distribute information. The SANDF has been responsible for the functioning of the country's only emergency alarm radio system, now known as the national emergency alarm radio system. Its main use in the past was for military purposes. However, this has now been broadened to include the coverage of civil emergencies and disasters.

The SANDF works closely with provinces and at the local level, and cooperates with the SAPS through a system of security committees at all levels. The SANDF also chairs the South African Telecommunications and Electrical Power Supply Authority which currently supports the National Disaster Management Centre.

The existing infrastructure available to the SANDF and SAPS can be easily extended and applied to disaster management when the need arises.

4.2.4. Department of Welfare and Population Development

The Department of Welfare and Population Development has a major role to play in the reduction of gross poverty, and therefore in reducing vulnerability to disasters. Currently, the Department of Welfare and Population Development is examining methods to monitor poverty, and this will become critical to the early-warning systems.

The Department of Welfare and Population Development currently administers the disaster relief fund in terms of the Fund-Raising Act of 1978. The objective of the fund is to give financial assistance to persons, organisations and bodies which suffer damage caused by a disaster. The main target group is poor people who live in rural areas and informal settlements.

In terms of the Act, the Department of Welfare and Population Development is limited to assisting victims of the following disasters:

_ Natural disasters, including floods, windstorms, veld fires and snow.
_ Human-made disasters, for example the Merriespruit slimes dam disaster.

However, the information that the Department of Welfare and Population Development can potentially provide to the early warning systems will assist other departments to target relief, such as public works run by the Department of Public Works (and possibly by the Departments of Agriculture during droughts).

Presently, the main sources of information for the Department of Welfare and Population Development are the media and the relevant Province or local authority. Once information is received, the Department of Welfare and Population Development carries out field assessments to ascertain the magnitude of the disaster and the extent of damages. It is then able to advise the Minister of Welfare and then the President whether an event should be declared a disaster or not. In future, such decisions could be made with coordination involving the most local roleplayers, in which the Department of Welfare and Population Development will also be a player.

The release of funds involves the participation of local authorities or committees, and the Secretariat and the Board for the Disaster Relief Fund determine final amounts. The Department of Welfare and Population Development can also issue the local authority with a temporary fund-raising number to collect contributions from the public.

The amounts of money released from the fund vary. On average R10 million is spent per annum. Where more funds are required, the Treasury Committee can be approached.

In addition to the disaster relief fund, the Department of Welfare and Population Development also administers the following funds in terms of the Fund-Raising Act of 1978 (Act No. 107 of 1978):
_ The State President's Fund: The objective of the fund is to give financial assistance to victims of an act of terrorism.
_ The Social Relief Fund: The objective of the fund is to give financial assistance to organisations that provide social relief to communities that are victims of political violence. Financial assistance is provided in terms of clothing, food, blankets, temporary shelter and trauma counselling.
_ The Refugees Relief Fund: The aim of this fund is to provide financial assistance to refugees. The fund is presently not in operation.

4.2.5. Department of Housing

The Department of Housing is not directly involved in disaster management. Its main role is to assist with the establishment of appropriate housing structures, and programmes in the formal

housing sector. To this end it develops and administers national housing policy and legislation. The Department also administers the National Housing Fund Subsidies, which are provided to household earning R3 500 or less per month by provincial housing boards. The private sector is responsible for the actual building of houses.

Disasters are most evident in areas where there is rapid urbanisation, and where informal settlements occur. Disasters in the housing sector can occur because of improper location of housing due to non-adherence to standards, and inadequate infrastructure such as electricity, water and sanitation which can cause health and other risks.

A prerequisite for the allocation of housing subsidies is that housing must be in accordance with building and planning legislation. In this legislation factors relating to disasters, such as 50-year flood lines, permissible angle slopes, soil stability and housing densities are dealt with.

In cases of emergency, the local authority, or the SANDF deals with temporary housing needs. Other institutions, such as the Salvation Army and religious welfare organisations, provide forms of temporary accommodation or shelter. The involvement of the People's Housing Partnership - a non-governmental organisation programme aimed at supporting community efforts - could also be asked to support with emergency housing needs in times of disasters.

4.2.6. Department of Education

In terms of the National Education Policy Act, the main objectives of the national education system are to promote lifelong learning, redress past imbalances and provide access to education and training. The department of education, in collaboration with all role-players and stakeholders, has developed a national multiyear plan for adult basic education and training. The aim is to create an enabling environment to improve education and training and to incorporate a greater number of learners by opening up the pathways to learning.

Although the Department of Education has no specific programme for education and training in disaster management, it can - in terms of the National Qualification Framework - assist in appropriate curricula development and recognition of qualifications in the disaster management field.

4.2.7. The Department of Public Works

The Department of Public works has an important role to play in times of disaster through its community-based public works programme. This programme was set up in 1994 as one of the Presidential Lead Projects. The community-based public works programme is targeted mainly at rural areas, poor people, women, youth and people with disabilities. The programmes mainly work through non-governmental organisations and private sector partnerships.

Public works programmes have the advantage of being able to offer temporary relief in areas of greatest hardship by creating employment and hence stabilising and improving community livelihoods threatened by drought and other disasters. Public works programmes cannot, however, work in isolation. They must be supplemented by targeted welfare and health programmes as part of an integrated approach to relief.

Targeted public works programmes can also assist with mitigation. For example, CBPWP projects can be designed to improve water harvesting, reduce deforestation and conserve water and soils - all critical in helping to reduce the impacts of drought. Programmes can also be used in rehabilitation after a disaster has taken place. This can be achieved by expanding

existing programmes rather than by creating new or special structures to deal with disaster situations.

Points of debate and key questions

_ How soon, and with what indicators, can the departments contribute to the early warning systems at all levels of government?
_ What is being done to provide coordinated relief preparation with departments such as Welfare, Health and Agriculture and non-governmental organisations?
_ At which levels of government should such preparations be taking place?
_ What other roles can these departments play in risk and disaster management, particularly in the areas of prevention and mitigation?
_ Does the current legislative framework create a sufficient enabling environment for them to get involved effectively?
_ Do these departments have sufficient resources to deal with the various demands that may arise?
_ To what extent do existing policies deal with issues in a way that takes the possibilities of disasters into account - for example, with regard to housing, is there policy that addresses the question of how wait-listing is affected by the sudden reality of hundreds of people without shelter?

PART THREE

4.3.   Summary of general weaknesses and constraints in current disaster management

At the policy, planning and legislative level...
_ In the absence of a clear policy framework, disaster management has no definite planning structure or approach. This is reflected both in the lack of legislation and in the setting of priorities in State Expenditure allocations.
_ Previous policies and strategies did not also take into account the need for adequate personnel at the national, provincial and local levels.
_ The past misconception of disasters as events over which people have no control led to a low priority being given to the civil protection function until such an event occurred. Although it is now understood that people can do much to prevent or mitigate against disasters, the low prioritisation still remains.
_ Many authorities are reluctant to move away from the Civil Protection-mode, until new directives and legislation materialise.
_ The existing legislation is inadequate and sometimes confusing and does not meet both the political, institutional and socio-economic concerns that disaster management strategies have to deal with in South Africa.
_ The absence of or limited available guidelines to public and private sectors at national and provincial levels, on what their roles are in disaster management needs to be addressed.
_ Contingency plans are an important element involving both public and private sectors. In some cases there is an absence of such planning and in other cases the plans are designed without reference to preventative and mitigation measures that are already underway.
_ Previous criteria for state intervention were based on the magnitude of the event instead of the needs of the communities affected by the events.

As part of the broader development strategy of the country...
_ Disasters in the past were seen in the context of emergency responses and not part of the long-term planning and development programmes of government. Therefore in times

of disaster the response was one directed at the provision of emergency needs; rescue and evacuation and also attending to the recovery phase.

_ The concept of disaster management needs to be integrated into the country's development strategies, as vulnerability to disasters can create development set-backs and hence continue to allow poverty and other causal factors to persist.

_ Disasters usually make underdevelopment and poverty more apparent, by drawing attention to the lack of maintenance of basic infrastructure, such as water supply systems - particularly in poor rural areas.

_ Although the whole population is susceptible to risk in a disaster situation, special consideration must be given to those people in rural and deep rural areas.

At the level of preparedness and response...

_ The criteria for declaring a disaster or a disaster area are not clearly defined. In the past, each case has been judged on its own merits rather than according to a clearly defined set of criteria.

_ It is also clear from recent and past experiences that the population at large is ill-prepared to cope with disaster situations. For instance, public awareness campaigns have tended to be launched only after commencement of disaster measures. The most vulnerable sectors of our community like farm workers and small-scale farmers were ill informed or did not have easy access to information, due to language and other barriers. There is therefore a need for greater public education, preparedness, awareness and participation.

_ In many cases, disasters have also highlighted a lack of data and knowledge related to disaster management and impacts. Information on vulnerability - for example, in terms of nutrition - and poverty during drought periods is lacking. This creates difficulties when trying to identify and target those who need relief, especially amongst the rural poor.

_ The lack of coordinated early-warning systems for several potential disasters in South Africa is surprising, considering how frequently some of these disasters occur.

_ Data on known hazards and risks is not readily available at the various levels of government. Effective implementation of disaster management policy requires central reporting points where disaster management functionaries can receive and process data relating to known hazards and risks.

_ Existing civil protection organisations have an important role to play in the dissemination of warnings. However, their ability to do this is severely limited by the lack of reliable and clearly defined channels of communication.

_ The provision of weather forecasts and warnings in South Africa by the Weather Bureau is well-structured. However, in the absence of accepted national or regional policies, existing warning arrangements for disseminating information to the public are poorly structured and mostly informal. Consequently, these arrangements cannot be relied upon in an emergency. On a local level, some civil protection agencies have a limited capability to reach the local population.

At the institutional level...

_ The lack of clear coordination at the political and departmental level has led to ineffective systems of management. This is often reflected in the poor responsiveness to dealing with disasters, and mixed signals from sources of expert information.

_ Past experience has shown that there is a need for some kind of permanent risk reduction focus and disaster (emergency) management or coordination capability at national, provincial and local levels. This is necessary to ensure that planning, data collection, mobilisation of expertise and setting up of disaster management structures can be done rapidly rather than in a reactive manner. In particular, there is a need for national and provincial departments of Public Works, Welfare, Health and Agriculture to develop integrated proposals for relief at a local level throughout the country whenever there is a major loss of livelihoods (e.g., through drought, floods).

- Many functionaries do not understand what the holistic meaning of disaster management and risk reduction entails.
- The new Constitution has led to some line functions being centralised (at national level) and others holding concurrent powers within the provinces. The formation of nine provincial governments, and some 840 or so local government bodies has posed a number of challenges in terms of creating a coherent mechanism for disaster management and ensuring that roles and functions are clearly defined.
- The ability of government to deal with disasters is based on the idea that there is adequate institutional capacity. However, the biggest weakness in institutional capacity lies at the provincial and local levels. In some cases local government structures lack resources and are often not functional or have little or no planning in place should disasters occur.
- In most cases metropolitan communities are more fortunate than their rural counterparts. They have a higher level of accessibility to emergency services and resources. Also, given the racial divisions that have informed the country's past allocation of resources, what were formerly known as black areas are generally under-serviced.
- Budgetary constraints often result in departments (both those who have a primary role and those who have a secondary or support role) having limited capacity to respond effectively with minimum resources.
- In cases of emergency the release of funds often takes a long time due to complex state procedures, like tendering rules. This makes it difficult to mobilise additional resources outside of the state in time to allow adequate relief measures to be taken.

PART FOUR

4.4. Legislative framework

What legislation is currently in place?

The Civil Protection Act, 1997, and the Fund Raising Act, 1978 are the two pieces of legislation which currently deal with disasters (see box below for details). However, these two Acts do not provide an adequate or comprehensive legislative framework for dealing with disasters in an holistic and proactive manner. One of the main shortcomings of current legislation is that it refers only to Civil Protection issues. It places great emphasis on dealing with the consequences of disasters (a reactive approach) and disregards the approach required for disaster management, which includes the proactive, or risk reduction approach.

A legislative framework is often a critical factor for any function. This is certainly true for the disaster management approach. Legislation needs to create an enabling environment, in particular at local government levels, which are institutions at the forefront of disaster management.

What our current legislation provides for:

In terms of the Civil Protection Act:
- If the disaster is at the local level, the prime responsibility for handling the problem rests with the specific local government.
- When the severity of the event is greater than the local government can handle, it must inform the province and request appropriate kinds of assistance.
- If a "state of disaster" must be declared, the premier of the relevant province may take appropriate steps in terms of the ordinances to deal with the situation for a period of four days. He/she may also provide financial assistance.
- The Minister for Provincial Affairs and Constitutional Development has the power to declare a "state of disaster".
- In terms of the Act, there is no provision for funding from national government.

In terms of the Fund-Raising Act:

_ If persons, organisations, or bodies suffered damage as a result of a disaster, the local government concerned can, according to this Act, request the premier of the relevant province to approach the Department of Welfare to take necessary steps to declare the event to be a disaster.

_ The Department of Welfare will advise the President who can declare an event to be a disaster.

_ Financial assistance can be given from the disaster relief fund to victims of a disaster on an ex gratia basis for damages or losses.

The main problems with our legislation

_ The present legislative framework can be a source of confusion as it introduces many levels where decisions could be taken. It does not provide a clear-cut delineation of authority and process for the declaration of a "state of disaster". In other words there are no clear criteria for when the state should intervene.

_ For instance, the Civil Protection Act gives the Minister of Constitutional Development the power to declare a state of disaster, but no further powers to instruct other line Ministries which actions need to be taken by them.

_ A further weakness is that in the event of a disaster, fund-raising and the provision of financial disaster relief to victims cannot be undertaken within the framework of "Civil Protection" legislation but is addressed under a separate Act - the Fund Raising Act (Act No 107 of 1978).

Conclusion

New legislation must eliminate confusion. It should provide the framework for allowing provincial laws (old ordinances), regulations, and directives and, where necessary, by-laws, to spell out what each role player must consider and/or undertake. This is particularly necessary if the roles of National, Provincial and Local Government reflected in this Green Paper are to be fulfilled.

Legislation is usually of two kinds: a comprehensive legal instrument giving authority to the elements of the disaster management policy and plans; and, legislation granting emergency powers to government during times of emergency.

Points of debate and key questions

_ Should there be a review of international and existing national legislation on disaster management?

_ Should there be specific legislation for each of the disaster areas, or a general enabling legislation, that is proactive, and ensures that risk reduction is the main focus and premise of the new Act?

_ Should such legislation be development-orientated?

_ What emergency powers should be granted by the new legislation and to whom?

_ What elements of risk reduction should be incorporated into new legislation?

_ How should existing legislation dealing with various disasters be dealt with, and how can proactive approaches be introduced?

_ Who should administer the new Act?

_ What are the key principles that should inform the Act?

_ What should be the main elements of a new Act?

_ Should the departments of Finance and State Expenditure develop legislation to deal with disaster management funds, and, if so, what should this involve?

5. Ensuring that a system for disaster management is in place

5.1.   Analysing the problem with the current system

It is clear that in many cases where disasters are recurrent, the level of disaster planning and management is more advanced. In areas where there is thought to be no risk, the level of preparedness or the taking of preventative measures may not be well established, enforced or revisited.

The management of disasters by government departments at various spheres of engagement is almost entirely reactive in nature. It is also clear that the full continuum necessary for disaster management, such as prevention, mitigation, preparedness, response and rehabilitation is not an integral component of current disaster management systems. Rather, each disaster is treated as a crisis, and preparations are conducted to deal only with emergency situations.

There is a clear distinction between disasters that occur spontaneously, and those that are a result of cumulative effects. Such distinctions require different kinds of planning and management of risk. How do we deal with issues such as Aids, violence, and road traffic accidents? These are not seen as disasters but as individual incidents. However, statistically and cumulatively they impact significantly on our population growth and affect our gross domestic product (the country's total productive output). Should these be considered to be areas of risk and so form part of a new disaster management system?

While the current disaster management system may suffer from a lack of new thinking and clear vision, there are other practical problems that the current system is faced with. Some of the main areas of concern are:
_ The lack of coordination and integration of plans, strategies and resources at the national, provincial and local level.
_ Lack of capacity, and knowledge of how to deal with disaster management, in particular with implementing preventative and mitigation measures.
_ No integration of disaster management into development planning.

Disaster management also requires a shift of thinking away from the use of only physical and technological measures in dealing with disasters. It must also incorporate and creatively explore the use of sociological and other human science approaches to dealing with disasters as part of long-term strategies.

5.2.   Integrative supporting mechanisms for disaster management

The section below outlines some of the ways in which disasters can be dealt with as a continuum, rather than a specific event. Within this chapter some key cross-cutting areas of support for dealing with disasters in a comprehensive manner are outlined. Many of these areas outlined here are aimed at enhancing the proactive or preventative side of disaster management. The set of questions that are placed here is an attempt to engage participants to identify gaps and ways in which these different areas can be used to support the various aspects of disaster management - from prevention to response and rehabilitation.

5.2.1.   Better resource management

During the post-disaster phase (reactive phase) resources are not only taxed to the hilt, but are limited (due to the extensive demands placed on them) and are usually extremely costly. In most instances, only limited funds are readily available. With the pre-disaster phase (proactive phase) resources can and often do get wasted by services that work in an uncoordinated way. Resource management is thus a critical aspect of disaster management

and must be effectively applied in two fields: namely, optimal usage of manpower and skills; and, equipment. Resource management can be improved through better coordination by departments.

One of the key factors in any contingency or strategic plan to manage an emergency or disaster is operational self-sufficiency. Self-sufficiency implies a capacity to establish units or groups that can continue functions and tasks with minimum dependence on lifeline infrastructure. This is especially important for those times when supply and re-supply of resources may be erratic and disrupted as a consequence of the disaster.

Better resource management is needed for the following reasons:
_ The "overload" placed on national resources may impact over a prolonged period after the disaster.
_ "Red tape" and the fact that it is the same departments which will constantly be under financial pressure, may make it difficult for these departments to achieve high levels of effectiveness.
_ Some resource suppliers may encounter difficulty in providing a satisfactory disaster relief role and at the same time maintain an acceptable level of service to other communities/regions not affected by the disaster, which in turn could compound and expand the problems.
_ There is a lack of knowledge on the capabilities and shortcomings of private sector and voluntary services and non-governmental organisations. This tends to lead to hesitancy in calling for assistance and inhibits open cooperation and effective coordination.

Points of debate and key questions

_ What are the most effective ways of ensuring that resource management is an integral part of any plan or strategy?
_ What are the main "bottlenecks" to effective resource management at the various levels of disaster management?
_ What are the most effective ways of using the services of non-governmental organisations, community-based organisations and the private sector in resource management?

5.2.2. Use of early-warning systems and information systems

Fundamental to any disaster management policy and strategy is the availability of good information. Efficient management of disasters requires such information in order to decide on appropriate action. Good information allows good targeting, and thus ensures that the right people are assisted for the lowest cost.

In the past, early warning systems were set up to enable the ongoing detection and monitoring of hazards. They concentrated on physical indicators - of rainfall, crops, flooding, etc. Now that it is accepted that people vary in their vulnerability to the effects of disasters, the mapping and tracking of vulnerability is also required. A good early warning system will require the following characteristics:
_ Forecasting and monitoring of physical indicators from a wide range of sources.
_ Risk mapping and prediction, analysing information on the duration, severity, spatial extent, probability of occurrence and time of occurrence of a hazard(s).
_ Vulnerability mapping and monitoring (both social and environmental).
_ Information on the progress of relief and its effects.
_ Rapid integration of information.
_ Production of early warning in an appropriate form (neither too much nor too little information).

- Rapid transfer of information to appropriate decision-makers.
- Preparation of suitable advice for affected parties.
- Communication to the media and public, especially non-governmental organisations and communities in affected areas, so that they may take action to prepare for and mitigate a disaster, or assist in a suitable response to the data.

Most of the information needed for the early-warning system is data already collected by government departments for their own monitoring needs and planning. The strength of the early-warning system comes from the integration of data from different sources, and from the predetermined channels for ensuring that information is in a useful format, and reaches decision-makers promptly.

Once established, the early warning system can be inexpensive to run, and can be quite simple. The only new information that needs to be created is the data bases on social and environmental vulnerability. Social vulnerability can be estimated from nutrition statistics and from indicators on poverty and incomes, as well as proximity to hazards (such as riverbanks), etc. This still requires more work (though the Department of Welfare is already examining the poverty issue).

The early-warning system can be quite simple. However, with modern computer technology, quite complex data can be handled as well. In addition, advances in telecommunications allow data from remote areas to be quickly incorporated and other data to be sent to them.

Small disasters may be evaluated and responded to at a local level. There needs to be further work done to develop appropriate technology and equipment. However, more widespread disasters will certainly require assessment at provincial and perhaps national levels. Thus data need to be moved between levels of government and aggregated (compiled/organised) as appropriate. In addition, some data is better collected nationally (or regionally in the Southern African Development Community - SADC) and must then be passed to other levels in the system. This would apply to satellite data particularly.

It is essential that those at grass-roots level be incorporated into the creation of an early-warning systems. Communities often know who is most vulnerable. Existing development forums in rural areas could be asked to collect and monitor early-warning data required for their area. Early-warning systems therefore ideally work best at the local level. Early-warning systems should also be able to integrate information and early warnings mechanisms from regional states.

Vulnerability tracking and risk mapping: Risk analysis involves the assessment of the different types of hazards to which an area may be subject. This will inform the kind of decisions that need to be taken about a particular hazard and the institution of plans that an authority can realistically deal with in different phases of a disaster. Vulnerability analysis shows how a hazard will act on different groups. Together, these can be used to guide development interventions that can be taken either to prevent or mitigate against risks.

Vulnerability and risk assessment require that there is sufficient capacity and technical expertise to gather and analyse various kinds of information. This information can be set out in the form of planning tools like risk maps.

Improving on information systems: A key to having good information systems is to invest in mechanisms and capacity for surveillance, monitoring and evaluation. Given the limited resources in the country, and also the large amount of duplication that takes place, there is still room for rationalisation, and the sharing of resources once responsibilities and management plans are put in place. The creation of "inter-agency" assessment, monitoring and evaluation teams can increase the rate of information-gathering and can possibly

accommodate most of the critical needs of the population. In some areas there is a need to place equipment and other resources in under-resourced (probably rural) areas that often lack suitable communication systems: telephones and/or radio.

There is a need for a national strategy for the development and dissemination of information required at all levels of decision making which can be dealt with by a national disaster management centre. It is also important that information about where financial and other assistance can be obtained is made available to support planning decisions.

Key players in early-warning systems:
Major players in integrated early warning will include the following:

For information on hazards:
_ The Weather Bureau (climate forecasts, satellite information).
_ The Department of Water Affairs and Forestry (flood warnings, dam and river levels, water supplies).
_ Department of Agriculture (crop forecasts, staple food availability, forage availability, water for irrigation and livestock).

For information on vulnerability
_ Department of Health (nutrition surveillance, health indicators).
_ Department of Welfare (poverty surveillance).
_ Department of Public Works (location and extent of relief works).
_ National Department of Agriculture (situations of farm workers, relief work).

Many others want to be included from time to time, e.g., Forestry (fire hazards), and Wildlife (during drought).

Points of debate and key questions

_ What are the main sources of information that are required or need to be developed in the different sectors?
_ How best can various types of information be integrated?
_ Where are the main weaknesses in information gathering and dissemination?
_ Are there well-developed procedures for information dissemination at the national, provincial and local levels?
_ Should there be one national early-warning system, is this possible, or should there be a separate early-warning system for each of the sectors, and if so how best can information from them be linked?
_ What are the key elements of an early-warning system, and what is the best way to structure these?
_ What role can the private sector play in the development of an early-warning system?

5.2.3. Communication

Communication of information to the correct people and in time for decisions to be made is the key to giving operational effectiveness to disaster plans and strategies. South Africa lacks a coherent national communication strategy to deal with either "creeping" or the sudden occurrence of disasters.

Prior to the general election in 1993, the South African government promulgated an Act for the installation of a national emergency number system, the 107 emergency telephone number. All emergency calls on this number would be linked to a 107 reporting centre. However, progress in this area has been hampered due to the local government elections in

1995. The elections introduced a major restructuring of local government structures and boundaries. In addition, little priority was given by provincial and local governments to ensuring that sufficient financial resources were allocated to establish these centres as other issues took priority. Only a few municipalities have established 107 emergency number systems.

The 107 number system may work well in areas that have electricity and telephone infrastructure - mainly urban areas. Rural areas, or settlements without these systems, can be paralysed for days with no ability to communicate with the outside world. However, the national emergency alarm radio system which was previously used mainly for defence purposes was expanded for use during the 1994 national elections and then in 1995-96 for the local government elections. The national emergency alarm radio system, which is nationally based, was used to cover rural and deep rural areas which had no communication networks and telephone infrastructure. The main purpose of the national emergency alarm radio system was to provide direct radio access to emergency service providers by anybody in possession of a national emergency alarm radio system. The national emergency alarm radio system was found to be very effective as it could operate independently of an external power supply, and was less vulnerable to environmental conditions, sabotage and theft compared to a land-line system. After the elections the use of the system has been neglected, and there is no adequate funding to ensure that the system is reinstalled, and made further use of for disaster management purposes.

There is a great potential to combine the national emergency alarm radio (a radio system) and 107 systems (a land-line system) to develop a national system of communication for disaster management, and other uses. Infrastructure is in place. A communication strategy will have to undertake the following measures:
_ Reinforce and upgrade existing systems.
_ Install new systems where they do not exist.
_ Give special attention to rural areas and informal settlements.
_ Improve communication between agencies and between urban and rural centres - a national disaster radio frequency for public radio broadcasts is being considered for this purpose.

Points of debate and key questions

_ Who should be responsible for a national system of communication? Should this be decentralised to the provinces and local government?
_ Who should take responsibility for the national emergency alarm radio system?
_ Are there other communication systems that can be combined with national emergency alarm radio and the 107 systems?
_ What should be the main elements of a national communication strategy? How should they deal with slow onset and sudden onset disasters?
_ Who should fund a communication system, and how?

5.2.4. The role of the media

The media comprise an important and powerful instrument that can be used for changing perceptions and public awareness concerning disaster. In particular, we need to move away from a "relief culture" to one which better understands the need to adapt to climatic and other variabilities. All sectors of society need to adopt risk aversion strategies.

The role and power of the media, in particular with disaster management issues, must not be under estimated. The various forms of communication can be successfully used:
_ To promote the function.
_ To communicate warnings.

_ To prepare communities.
_ To report accurately what has happened (during and after a catastrophe).

National strategies and contingency plans must involve the media both in creating awareness around risk reduction and managing in situations of disaster.

Points of debate and key questions

_ What are the key roles that the media can play? How can these roles be used in taking preventative measures, in mitigating against disasters and in responding to a crisis?
_ Which forms of media should be considered as the best vehicle for risk reduction and disaster management?
_ How can media be used with an early-warning system?

5.2.5.   Budgeting for disaster management and Insurance

To successfully address the various facets of disaster management, budgeting will become and remain a key factor.

Provision will have to be made to more effectively fund the consequences of a disaster. With an improved process of identifying disasters and mitigating against them, the medium-term expenditure process can be used to support disaster management.

State funds allocated for disaster management can be allocated in the following ways:
_ Within the medium-term expenditure framework (planning phase of the budget) for the prevention and mitigation of disasters.
_ During a specific financial year in the event of sudden onset disasters. Provision has been made for a contingency reserve to the amount of R2 billion per year for the next three financial years (1998-99, 2000-01).
_ Funds can be provided in both cases on the responsible spending agency or province's budgets.

How the disaster relief fund works

_ This is administered by the Department of Welfare and is different from the contingency reserve allocated by State expenditure.
_ The disaster relief fund, which falls under the Fund-raising Act, only provides for financial assistance to victims of a disaster on an ex-gratia basis for damages incurred or loss of personal belongings.
_ The Fund-raising Act does not make provision for infrastructure, agricultural damages, etc.
_ The disaster relief fund is provided on the request of the Cabinet to the Department of State Expenditure.
_ The Fund-raising Act does not make provision for a contingency reserve.

However, expenditures to support disaster management are inevitably constrained. This will require that current resources from all roleplayers are rationalised and used more efficiently within and between services and departments. In the long-term, effective hazard and risk assessments and mitigation measures should reduce the severity of disasters, and the requirement for large emergency funds. Funding for such measures should become a part of all development programmes.

The mobilisation of state financial resources in a pre-emptive manner allows the state to respond quickly in utilising available and allocated resources to cushion against the impacts

of disasters if they occur. However, it should be noted that relief for disasters is not automatic; each disaster must be assessed. For instance, farmers will not receive state assistance if they have failed to take mitigating measures, however severe a drought may be.

State central functions or a national disaster management centre can also assist in coordinating international sources of funding if the severity of a disaster is beyond the resources of the government (this is only likely to happen in the case of wide regional disasters).

It is important, however, to note that the state only usually becomes involved in relief when whole communities are afflicted with a disaster. It is also very difficult for the state to give a priority undertaking as to the cover it offers for potential flood damage. State assistance is determined on the merits of each case.

Insurance cover is another mechanism to protect individuals, companies and the public sector against damage. In general, the state does not provide cover to individuals and private entities - this is largely the role of the private sector. Presently, the private sector does have a range of insurance products mainly against fire, hail, to some extent flood and other forms of disasters that may cause damage to property or the loss of life. There is still a lot of room to find ways of integrating insurance policies in an innovative way as part of an overall disaster management strategy.

Points of debate and key questions

_ Should the state provide funding for disasters as part of its medium-term expenditure frameworks, or what is the best way for the state to support disaster management and risk reduction, both in it's proactive and reactive forms?
_ Should the state continue to provide blanket disaster relief? In what ways can the state reduce this burden?
_ How should the state make funding available for disaster relief?
_ How should line departments responsible for disasters areas create budget provisions for departments that are supporting agencies and have no budget lines for disaster management?
_ To what extent can or should the state provide incentives to the insurance industry to extend and develop new forms of coverage?
_ Should preventative action be funded from development funds on the national and provincial budgets?
_ Should disaster relief to a country immediately adjacent to South Africa be funded from the special contingency reserve if it affects both South Africa and the neighbouring country equally?

5.2.6.   Use of financial incentives

There are possible incentive mechanisms such as tax rebates and the use of targeted subsidies that can be applied by government to shift away from dependency on state provision of relief assistance. Such incentive measures should also be designed to encourage the implementation of mitigation and prevention strategies, thus also enhancing a speedy recovery where disasters could not be prevented.

The financial assistance, for instance, given to farmers as part of drought relief does not, in its present form, encourage implementing mitigation strategies.

During droughts, the use of blanket subsidies led in the past to the perpetuation of an agricultural system of production that was not obliged to adapt to the occurrence of periodic drought phenomena in this part of the world. On the other hand, Insurance cover in cases of

drought encourages early recovery from disasters, which is consistent with long-term sustainable goals. Proposals within the agriculture sector are being explored to examine the possibilities for using part subsidisation of insurance policies of small farmers as a way of reducing their vulnerability to drought effects.

Considerable research and work needs to be done to identify the appropriate incentive mechanisms and how best they could be applied administratively.

Points of debate and key questions

_ What are the main types of financial instruments that can be applied?
_ Who should they be targeted at?

5.2.7. Use of research

The greater the vulnerability of the population to natural disasters, and the smaller the budget available for disaster reduction measures, the greater the need for research required to determine the most cost-effective measures for risk reduction. Consequently, the need for research and training increases as the availability of funds decreases. Presently, very little research on disaster management is being undertaken in South Africa, especially in the human sciences, as most risk reduction and disaster management approaches have relied on technological or engineering solutions.

Research is a key support mechanism for any activity and thus disaster management should also undertake research projects or study those aspects that have already been researched.

Every region, department or activity will have to determine its own research needs. However, key aspects could include:
_ Identifying key common characteristics of each hazard (which would then make a common approach more cost effective).
_ How to integrate research on risks and hazards into development planning.
_ Research on livelihood strategies in communities at risk.
_ Long-range weather prediction methods, early warning and monitoring systems, decision support tools for disaster management.
_ Research into new forms of technology, such as cloud-seeding.
_ Disaster history of each area.
_ Reports on actual disasters and lessons learned.
_ How other areas or countries have successfully implemented prevention, mitigation, preparedness and awareness programmes.
_ Research into existing human resource capacity.

Points of debate and key questions

_ What are the main areas of research that need to be conducted to support disaster management in the country?
_ What are the relevant institutions, groups, both formal and informal?
_ What are the main forms of technologies that can be applied in risk reduction?

5.2.8. Training and education

Training: It is clear that many institutions ranging from health, fire to others have training programmes that are designed to ensure personnel are able to deal with emergency situations. Given that disaster management involves a wide ranging field of expertise, the question is: should future training needs be best met with a dedicated programme of training

for disaster management, or should training needs be designed that augment and integrate into existing programmes? The use of existing entry routes may help to cover a wider constituency than having a dedicated training programme specifically for disaster management. The main emphasis here being on integration.

Many services and training institutions have compiled, or are in the process of compiling, various training courses and modules that address or impact upon disaster management issues.

Careful consideration should be given as to how best to comprehensively address the training and education requirements for disaster management. Considerations should include:
_ Formal training.
_ Informal training.
_ Community preparedness and awareness training.
_ Orientation of councillors and other key elected representatives (on the need for disaster management).
_ Training of disaster management functionaries (and prospective functionaries).
_ Possible incorporation of disaster management into the curriculum of primary and secondary education.
_ Orientation of chiefs of disaster management (at local government level) (to include the implementation of disaster management).
_ Orientation of senior staff at all levels of government.
_ Training of development workers.

Education and public awareness: Education is critical at the more general level. There is a dire need to improve public awareness and education, especially regarding preparedness and risk reduction and what to do in cases of disaster. Awareness campaigns could be targeted at primary, secondary and tertiary education.

Less formal mechanisms such as media and other public forums should be used to carry the disaster management message to the broader public. Public awareness programmes for disaster management are more cost-effective if they make use of existing resources such as current institutions and other platforms for sharing information.

Such public awareness campaigns around disaster management can be a component of health, environmental and other forms of awareness programmes already being conducted by government institutions, non-governmental organisations, and the private sector. Public awareness programmes are aimed at reinforcing the relationship between functionaries and society.

Points of debate and key questions

_ What should the main objectives of training be in disaster management?
_ Should there be a national disaster management training centre?
_ Who should be responsible for training: government or non-governmental organisations or the private sector? Why?
_ What kind of training and education needs are required to meet the needs of various stakeholders?
_ What can the role of the Department of Education be?
_ Who should be the target group(s)?
_ What design or form should this take?
_ What elements are the most important that can build on existing systems?
_ What form should public awareness programmes take?
_ How can local communities be assisted or strategies enhanced to mitigate disasters?

5.2.9. Planning and setting of standards

Planning is required to reduce vulnerability. It is also required to ensure that mechanisms are in place to reduce the risks and impacts of disasters when they occur. A major feature of the new disaster management approach is that it attempts to understand the causes of vulnerability and risk. This includes taking into account socio-economic, environmental and others factors that worsen the impacts of recurrent threats. Based on the assessment of risks and hazards that the country faces, planning for such things as building dams or improving water storage capacity in the face of El-Nino can be structured in advance.

Depending on the geographic location and targeting the most vulnerable sectors of our society, plans can be put in place that can be implemented at the national, provincial, local or community level. Mitigating against disasters requires implementation and participation at all levels. The development of contingency plans at different layers of government intervention must be designed to meet the needs and specificity of each agency and area. Planning for disasters is even more crucial in South Africa given the range of social, economic and cultural diversity that exists in the country. This diversity presents unique problems for disaster management.

A typical plan provides for the following:

_ The assignment of duties and responsibilities among government agencies.
_ Identification of risks and areas of vulnerability.
_ A reporting system suitable for rapid receipt of reports and for the notification of other authorities.
_ The establishment of a focal point to provide coordination and direction for the implementation of the plan.
_ The identification of expertise and response resources that may be of assistance in the implementation of the plan.
_ Policies for emergency provision.
_ A link to the international community for the acquisition of assistance required.

There is also a need for a systematic set of guidelines and standards that are adhered to within the different sectors. Several departments and agencies have established these. There is, however, a need for greater coordination between departments and agencies undertaking certification and the issuing of licenses or permits. For instance the South African Bureau of Standards (SABS) investigates and approves various products that are imported into the country. By working more closely with relevant ministries, the SABS can set criteria for products which meet the risk reduction criteria that departments set for managing or mitigating against disasters.

Points of debate and key questions

_ What kinds of plans are needed or need to be developed and at what level?
_ What are the critical issues that need to be addressed for planning?
_ What kind of standards should be set, and in which sectors or areas of disaster management and planning?

5.2.10. International agencies for liaison and cooperation

Disasters often do not happen within the confines of national boundaries. South Africa is party and signatory to a number of international and regional conventions and protocols that either allow it to access international assistance or act on request to assist international efforts.

International humanitarian assistance should be seen in the broader context of peace, democracy, human rights, good governance, development, confidence building, conflict prevention, and peace keeping. Failure to render humanitarian assistance could, in some cases, lead to instability and violence, which could spill over into neighbouring countries and lead to a far greater problem in the region as a whole. Humanitarian assistance and disaster relief by South Africa should form part of a United Nations (UN) Security Council-sanctioned peacekeeping operation or be given in response to a UN, Organisation for African Unity or SADC appeal for assistance. It should also be undertaken in response to a request from the affected state or interest group (e.g., refugees or victims of a disaster/conflict).

It therefore makes good sense to establish and enhance regional cooperation and liaison, structures. The establishment of a core Southern Africa disaster management centre, attached to one of the SADC countries' disaster management structures at its national level is thus a priority. South Africa already has cooperative agreements with SADC member states in the areas of defence, policing, intelligence, drought and health. These are also being extended in other areas of relevance to disaster management, such as communication, transport, etc.

International and regional cooperation should also be expanded - in particular with UN agencies rendering international relief aid and giving advice on implementing disaster management. The exchange of information could lead to a broadening of the research network and so boost the planning process and make it potentially more cost-effective.

It is becoming increasingly difficult for international organisations to provide aid efficiently and effectively. This is because, apart from logistical problems, the responsibilities of some of the actors are not clearly defined and coordination is inadequate.

The UN acknowledged the need to coordinate responses to disasters at a global level, when, in 1992, it established the Department of Humanitarian Affairs. Under this department a project for humanitarian assistance - the military and civil protection/defence assets project - was launched. This project requires that every participating country establish a single coordination point for its participation in UN-led humanitarian assistance and disaster relief operations.

In South Africa all requests for humanitarian assistance and disaster relief from the international community should be coordinated by the Department of Foreign affairs. Similarly, all assistance to other states afflicted by a disaster should be coordinated by that department. The department budgets annually for funds for international humanitarian assistance.

Points of debate and key questions

_ Is there a need for guidelines that help provincial and local governments to access international sources of funding?
_ How can private sector funds be accessed and coordinated during disasters?
_ To what extent can or should South Africa be more actively involved in disaster management work internationally?

6. Intergovernmental and civil society cooperation and coordination

6.1.   Role of national government

National government must set out its role in order to ensure that the following objectives are met:
_ Risk reduction measures are incorporated which lead to sustainable development.
_ Environmental degradation is addressed where this is within the disaster management framework.
_ There is a reduction in loss of life, in damage or destruction of essential resources on which communities depend and in damage to property.
_ There is effective coordination, participation and cooperation among all roleplayers nationally, regionally and internationally.
_ The necessary infrastructure is created, affordably and cost effectively, to implement, monitor and test the various phases of disaster management.

It is envisaged that a lot of key coordinating and supporting functions that are the role of national government will be provided by a dedicated body such as a national disaster management centre. Each department that has responsibility for the various areas of concern in disaster management will identify its own set of plans and activities for implementation.

It is essential that disaster management functions at national level and by doing so, facilitates and coordinated the process down to provincial and local government levels and with other structures essential to sustain the process (non-governmental organisations, community-based organisations, commerce, industry, churches, trade unions, etc.). In this regard, the following roles of national government are of paramount importance:

Some of the main roles of national government will be to:

_ Ensure that a national disaster management policy is developed and maintained as part of the envisaged national disaster management structure.
_ Develop a risk assessment programme and emergency plans that focus on disaster preparedness, responses and mitigation.
_ Establish an effective disaster management structure that can implement, monitor and compile plans, in support of national policy.
_ Incorporate disaster reduction, prevention or mitigation in socio-economic development planning based on risk assessments.
_ Give recognition to and ensure that provincial and local authorities are able to enforce safety standards and rules, and strengthen their institutional capacity to deal with disasters and implement disaster management plans.
_ Streamline the development, implementation and maintenance of emergency and contingency planning, and ensure that lifeline support systems are in place or enhanced.
_ Further the development, implementation, and maintenance of warning systems, especially at the local level, and in particular the use of the national emergency alarm radio system and the institution of emergency communication networks like the 107 emergency numbers
_ Enhance the existing capacity to limit damage by improving surveillance systems and by making early-warning systems in the different areas of disaster and disaster management more effective.
_ Establish an enabling legislative and financial framework for disaster management, with due attention to the role of the different tiers of government, the private sector and individuals.
_ Establish educational and information programmes to raise public awareness with special emphasis on risk reduction and preparation.

_ Stimulate the active involvement of communities, local groups, women, and disabled people in disaster management programmes with a view to facilitating the capacity of communities to deal with disasters.
_ Promote and support the development of research, new technologies and the use of local knowledge in measures that are aimed at supporting risk reduction and disaster management activities.
_ Ensure that regional and international experience, knowledge and resources are made available to support national and local efforts in risk reduction and disaster management.

Points of debate and key questions

_ Who should be responsible as the main focal point for disaster management at the national level?
_ What should national government's main role be in terms of prevention, mitigation, response and rehabilitation? And, in terms of its relationship with provincial and local government?
_ How should national government ensure enough resources are allocated for planning and mobilisation of relief?
_ How best can national government play a coordinating role?

6.2.   Role of provincial government

Many areas that are national government responsibility - such as environment and agriculture - are also "concurrent powers" (exercised jointly by national and province) in terms of the new constitutional framework. For this reason, the role of provincial government in some areas is well established, and in others it is not.

It is possible that each line department within the provinces will work with national government to take responsibility over issues that affect their sector. Alternatively, provincial government may choose to appoint or establish coordinating structures of their own to ensure that there is an integrated approach to disaster management at the provincial level.

The situation in provinces and main issues faced by them

In terms of administrative capacity...

_ Recently, the local government MinMec and the Intergovernmental Forum agreed to locate responsibility for disaster management under the Members of the Executive Council dealing with local government and their heads of department.
_ Since the creation of the nine provincial administrations under the new constitutional dispensation, disaster management at the provincial level has become more fragmented. In some administrations, like Gauteng and the Western Cape, disaster management continues to be a line function because it existed there previously. In areas where new administrative systems had to be created, no line function or clear responsibility over disaster management exists. Hence, in these cases disaster management is either ignored, or simply no capacity and resources exist to fulfil obligations in this area.
_ In many of the new provincial administrations, officials lack knowledge on how to deal with disaster management issues.
_ In the case of funding, some provinces have budgets to accommodate staff and project costs, whilst others have funding only for staff or have no dedicated budgets to deal with disaster management.
_ The level of disaster management varies from province to province, and therefore no uniform implementation strategy is in place, or is possible, given the current disparities in institutional capacity and resources between the different provinces.

In terms of coordination and cooperation...

_ By and large those provinces which have active programmes in disaster management play a facilitative and coordinating role by working closely with local government authorities. These provinces review joint emergency and contingency plans, and conduct simulation exercises.

_ Provincial governments that are active often facilitate community training, awareness programmes and the installation of emergency facilities with the support of local government, non-governmental organisations, and the private sector.

_ In some provinces the general experience has been that there is very little or no inter-department coordination on disaster issues.

_ At the inter-provincial level, coordination mechanisms are weak, even though an inter-provincial committee for disaster management exists. At the political level, local government MinMec is beginning to give attention to the issue of disaster management, and ensure that national and provincial coordination becomes more effective.

_ The main links with national government occur through line function areas rather than cross-sectorally. No mechanism for cross-sectoral approaches between national and provincial governments exists.

_ Provinces that have active programmes in disaster management also assist other provinces that lack capacity or knowledge in certain areas of disaster. Cross-border forums, or informal agreements for cooperation between provinces exist in some cases. However, there is no formal structure or national strategy in which inter-provincial cooperation can be conducted and assisted.

In terms of authority...

_ While provinces can provide support to local government, there is no existing legislative framework that allows provincial authorities to ensure that there is a review of emergency plans and guidelines, or that local authorities implement various measures.

_ Provincial administrations that work in disaster management often cannot implement preventative or mitigatory measures, as current legislation does not empower them to influence decisions taken by other line departments responsible for overall provincial planning and development.

Points of debate and key questions

_ What should the role and functions of provincial government be in the areas of prevention, mitigation, response and rehabilitation? And, in terms of its relationship with national government?

_ Should provincial government set up its own structures, or rely on national mechanisms while itself only maintaining focal points?

_ How should or can provincial government support local government initiatives?

_ Should provinces manage their own disaster funds?

6.3.   Role of local government

Introduction

Mitigation is the most important foundation upon which to create a disaster resistant community. This in turn is the first step to creating more sustainable communities. This can only be done by involving communities in the planning and development process. Planning and development are the main vehicles through which local government is able to achieve these objectives.

Local governments - municipalities, district councils, and transitional local governments - must be involved in developing their own mitigation strategies. This includes educating themselves and their citizens about the importance of mitigation and the overall social, economic and environmental benefits associated with it. They must develop these plans in accordance with their own particularities, capacities and needs, but it is important that the community as a whole - business, neighbourhood associations, builders, the media etc. - are involved in this effort. Often at the time of disasters ordinary people respond spontaneously to the need to assist others in need. This kind of humanitarian gesture can be an important resource and needs to be mobilised effectively by local government.

As local authorities are also the most direct link with key service delivery to their communities they should also be the best informed with regard to hazards and risks and thus develop and implement mitigation and prevention programmes.

Some of the main problems that local authorities are faced with:

The Green Paper disaster management task team undertook a survey in which a questionnaire was sent to about 830 local authorities in the country. About 200 responses were received. The following issues were the main concerns raised by all the respondents. In addition, the Green Paper task team was able to draw on the provincial consultations and meetings with local authorities about the key issues and concerns facing local government.

General:
Most of the towns are taking a reactive approach to disaster management. Only a few towns specifically mentioned that they are looking at preventative measures. This can be attributed to the lack of awareness and training to provide effective guidelines to communities. The general trend is towards providing effective emergency services and dealing with disasters as events.

Also, each town faces different types of disaster, which require different kinds of plans, strategies and resources. Some towns have assumed that a contingency plan exists at the national level, and hence there was no need for them to undertake any responsibility in the area. Towns that have faced major disasters in the past are more prepared for dealing with emergencies than towns that have had few or no disasters.

There is also a clear discrepancy between urban-based towns and rural areas. Urban areas tend to have more experience and resources, while rural areas tend to have less resources and plans in place. In the former homeland areas the situation is worse, with no plans and resources to deal with emergencies.

The survey and provincial road show highlighted key issues that need to be dealt with at the local government level in order for more effective disaster management to take place. These key issues are:
_ Linkage to town planning.
_ The need for an official in each structure to be assigned a responsibility.
_ The need to ensure consistent and clear local authority demarcations.
_ The need to revisit/reassess contingency plans.

What is the nature of local government involvement?

_ Some local authorities have disaster plans in place and are implementing them.
_ Some have disaster plans, but have not reviewed or updated them.
_ Some have no disaster plans in place and nothing is being done.
_ Some towns have recognised the importance of planning and are giving it attention.

_ Some towns deal with disasters in an ad hoc manner.

Some of the strengths in towns that have disaster plans:
_ Some towns have identified civil protection officers and volunteers to assist in various ways.
_ Some towns also have civil protection committees.
_ The SAPS and SANDF are called upon for assistance.
_ One town had a 24-hour radio centre for emergencies.
_ Some towns have very good urban and rural networks and have sound structures, in the form of coordinating committees, in place to deal with disasters.
_ Some towns actively involve communities in disaster management strategies.
_ Some towns have identified relief stations and have secured emergency supplies, such as food, blankets, and equipment.

The main constraints cited by all local governments:
_ No funds for training or the purchasing and maintenance of equipment.
_ Lack of a legislative framework as old Civil or Emergency Services Acts are regarded as outdated.
_ In some cases provincial MECs have not allocated civil protection functions to local authorities.
_ Some towns have indicated that they lack real support from central and provincial government.
_ Uncertainties over when to declare a situation a disaster or not, mainly because there are no clear guidelines in place.
_ Uncertainties as to whether to act in cases where demarcated areas are the responsibility of another local authority.
_ Different departments have different demarcations for the same area.
_ Current legislation does not provide for disaster management staff input into many areas of proactive decision making by other municipal departments.
_ Some local authorities have undergone mergers with others, and this has affected emergency planning.
_ Former black local authorities have not been adequately covered by civil protection contingency planning, training, communications and operations.
_ The proliferation of local authorities in large metropolitan areas and in the country in general has made the overall coordination of civil protection services difficult, particularly in respect of regional disaster planning.
_ The optimum utilisation of civil protection skills has not been achieved because of the high degree of fragmentation of civil protection resources.
_ No formal structures or coordinating mechanisms are in place in some areas.
_ Lack of commitment from volunteers and some volunteers want to be paid.
_ Lack of training of both officials and community.
_ Experience red tape when other national departments are called in for assistance.
_ No dedicated staff or lack of funds to appoint full-time civil defence people.
_ Some towns have no resources and so they rely on the district council or other towns for support - both of which are often too far away. These provide support on an agency basis.
_ Some towns use existing staff to carry out civil defence work on top of their other functions.
_ Some towns do not consider disaster management a priority and hence have not budgeted for it.
_ No proper communications systems in place, and most contingency plans only involve local agencies and not the provincial administrations. There are for instance no emergency sirens or radio communication systems in place.

_ There is a need to extend disaster management awareness to historically disadvantaged communities, and here the biggest constraint is recruiting staff that are able to speak local languages.
_ Equipment, especially fire-fighting equipment, is out of date and in poor condition.

Points of debate and key questions

_ What are the key roles and functions of local government?
_ How best can preventative measures be incorporated into the integrated development strategies of local government? At which stages of disaster management should local government be active: prevention, mitigation, response and rehabilitation?
_ What sort of funding should be made available for disaster management at the local authority level?
_ What are the weaknesses and strengths at local government level and how can these be overcome?
_ What would the main role of local government be in the different disaster areas?
_ Are the current roles clear and effective?
_ What support does local government require?
_ How best can local government involve community support in prevention, mitigation and responding to disasters?

6.4   Role of non-governmental organisations, community-based organisations and the private sector

Role of non-governmental organisations and community-based organisations

Non-governmental organisations and the private sector have often played an important relief role in disasters, particularly drought. Some evaluations of past involvement of non-governmental organisations and community-based organisations during disasters have shown that non-governmental involvement has generally been positive. This is not to say that all community committees worked well. Some have been more successful than others. Conflicts between government and non-governmental organisations, and between community groups, can arise, delaying and hampering disaster management activities.

Community groups have played and continue to play a major role in disaster management. They are quick in response, have local knowledge and expertise to their advantage and can also act as important channels for awareness raising and education. disaster management therefore needs to be a coordinated effort between government, various institutions, non-governmental organisations, community-based organisations and the commercial sector. Where communities are not directly involved and are passive recipients of relief, the result may be the aggravation of a "dependency" syndrome. Existing community networks and agencies can therefore play a major role in disaster management, but the pressing need is for such groups to expand their roles in disaster reduction and mitigation activities and not merely to focus on relief activities.

Because non-governmental organisations can often provide relief more quickly - and in the case of small disasters, more appropriately - it is important that the government ensure that non-governmental organisations receive information promptly. At the same time, non-governmental organisations have much useful information to offer to the local early-warning system. Non-governmental organisations should therefore be a formal part of the local early-warning system. Even when disasters are so large that they are beyond the resources of the non-governmental organisations, these organisations are often able to provide assistance that is complementary to government. Good links with non-governmental organisations should therefore be promoted at all levels.

Private sector participation

The commercial and private sector can also play an essential role in disaster mitigation. Usually the role of such players has been in the field of relief and recovery. While the value of such contributions is great, the commercial sector should play a greater role in the mitigation of disasters through training, education and capacity building. Involvement by this sector can also be expanded from that of relief to proactive mitigation.

International non-governmental organisations

There are also a number of international non-governmental organisations like the International Red Cross and others who provide humanitarian assistance and are linked to the United Nations. Collaboration with these is important in ensuring that international assistance in disaster management is coordinated and can be used to maximum effect.

Conclusion

Disasters are often large and unwieldy events to manage, and cannot be tackled by an individual sector alone. The coordinated team efforts of a number of role players are an essential part of the management of a disaster.

Points of debate and key questions

_ What are the key roles that non-governmental organisations, community-based organisations and the private sector can play?
_ What are the resources available to non-governmental organisations, community-based organisations and the private sector?
_ Which areas of disaster management can non-governmental organisations, community-based organisations and the private sector play the best role in?
_ What role can international non-governmental organisations play, and who should coordinate assistance from them?
_ How can non-governmental organisations be best integrated into early-warning systems at all levels of government?

6.5.   The creation of a national disaster management centre

Introduction

One of the main problems with civil protection (now disaster management) in the past was the lack of a central or national facility to coordinate activities at national level. Recognising this shortcoming, cabinet approved that the previous interim disaster management centre - established initially with El Nino in mind - could possibly evolve into a permanent structure and be called the national disaster management centre for all disaster-related events.

The exact roles and the operational mode that the centre will take is something to be fleshed out and debated in this Green Paper process. Even the idea of having a national centre or a more flexible structure is still open to debate, and there are proponents who take different positions on this matter. The following, however, are the main premises for the national disaster management centre:

The main reasons for a national disaster management centre or similar structure:

_ Effective, pre-emptive disaster management is not possible if it is not facilitated and maintained by a dynamic and purposeful organisation, from the central government level, through the provinces to local government.
_ There is a need for a visible disaster management institution at the national level.

_ There is a need to coordinate and streamline the flow of information concerning disaster management from and, especially, to the public.
_ There is a further need to coordinate responses to actual disasters, rather than the ad hoc approach to recent floods, fires, etc.
_ It is also necessary to plan for disaster eventualities at a national level.
_ There are many aspects of disaster management that are not related to the functions of state departments, provinces, etc. These should be catered for by a dedicated body.
_ Such a body will also have to promote pre-emptive disaster management practices, coordinate the actions and contributions of the multitude of players in the disaster management field, and add value to such contributions to enhance their public value. It is advisable that the national disaster management centre should remain - to some extent - remote from the institution under whose jurisdiction it falls. This will enable the centre to steer clear of departmental or line-function bias, and thus to better perform its integrating function.
_ In terms of size, it is envisaged that the disaster management centre be in the order of a chief directorate with four directorates.

From the above it is clear that the main functions of the disaster management centre should be to plan, coordinate, facilitate, assist and to give advice in the areas of risk reduction and disaster management. Only once there is agreement on its functions can concrete recommendations be set in place on its size and structure.

The possible roles, functions and responsibilities of the centre are:

_ To act as coordinator between all roleplayers.
_ To develop a national communication strategy and serve as a communication base to receive information and distribute information to the decision-makers concerned.
_ To ensure that all relevant departments are providing timely and appropriate information for integrated early warning systems at all levels of government.
_ To facilitate the implementation of risk reduction and disaster management measures and to monitor and evaluate these.
_ To identify the lead role departments in the event of a disaster and constantly ensure that information flows to and from vulnerable areas so that potential risk areas and situations can be identified and monitored.
_ To provide national contingency plans and to ensure that provinces have contingency plans for every type of possible disaster incident that may occur in a specific province by developing a national disaster action plan.
_ To provide early warning to the role players concerned regarding:
    → Slow onset disasters, e.g., El Nino.
    → Sudden onset disasters, e.g., floods.
_ To ensure that the warning reaches all people concerned via the provinces, right down to the inhabitants by way of spelling out the consequences and providing information regarding timeous measures that can be taken.
_ To evaluate the damage after a disaster.
_ To provide guidance regarding proactive and reactive measures by developing guidelines.
_ To assist in the establishment of a national disaster management capacity building mechanism.
_ To meet regularly, but to convene at short notice to plan strategies in the event of a probable disaster, etc.
_ To gather data about existing skilled personnel.

Where should the national disaster management centre be based?

It is envisaged that the national disaster management centre could be housed under the auspices of the Department of Constitutional Development. It will have an advisory committee made up of key government departments, non-governmental organisations and private sector bodies. The centre itself can form various working committees to advise in areas of technical support and improvements in the disaster management systems. These working groups can be based around specific areas of disaster that are most prevalent or recurrent in South Africa.

Points of debate and key questions

_ Should there be a national centre, or should this rather be a coordinating function at national level with the key activities located in decentralised centres (processes)?
_ What should the key roles and responsibilities be at each level?
_ Who should be linked and involved with such a body?
_ Should the body only have government representation or representatives from the private, non-governmental organisation and community-based organisation sectors as well?

7. Glossary

Civil protection organisation - Any organisation at national, provincial or local level that makes it its business to assist with the sequence of actions associated with a disaster and includes civil defense and disaster management organisations.

Climate - Meteorological conditions, including temperature, rainfall and wind, that characteristically prevail in a particular region.

Contingency planning - This is a forward planning process, in a state of uncertainty, in which scenarios and objectives are agreed, managerial and technical actions defined, and potential response systems put in place to prevent, or better respond to, an emergency situation.

Criteria - A standard, rule or test on which a judgement or decision can be based.

Deforestation - This involves the large scale removal of trees or forest and can lead to land degradation.

Development - In terms of disaster management, this can be defined as "the process by which a nation's capabilities are increased and its vulnerabilities reduced".

Disaster - Any event (happening with or without warning) causing or threatening death, injury or disease, damage to property, infrastructure or the environment, or disruption to the community and which exceeds the ability of the affected society to cope using only its own resources.

Disaster management - The body of policy and administrative decisions and operational activities which pertain to disaster prevention, mitigation, preparedness, response, recovery and rehabilitation at all levels of government.

Disaster continuum - A conceptual framework for depicting disasters and the proactive and reactive processes and showing how one phase leads into the next.

Dolomite - A type of porous rock formation (limestone) that erodes easily.

Drought - Occurs when rainfall is so low (or unreliable) that natural vegetation and/or farming activities are damaged or destroyed.

Earthquakes - Vibrations produced in the earth's crust as a result of sudden ruptures or explosions deep beneath the earth's surface.

Ecological - An ecological system is a collection of organisms and their environment. This would include the earth's systems such as the atmosphere, the oceans, the water, the land, and biodiversity.

Equity - Equity is the fair, impartial and equal treatment of all people.

Emergency - A sudden and usually unforeseen event that calls for immediate measures to minimise its adverse consequences

Epidemic - An outbreak of a contagious disease that spreads rapidly and widely amongst people and/or animals.

Early warning - The identification, interpretation, and recognition of events that would indicate a potential emergency.

Erosion - Natural, physical and chemical processes by which the soil and the rocks of the earth are continuously abraded (worn down) and corroded.

Evacuation - Evacuation involves the temporary relocation of a population from zones of risk of an imminent disaster to a safer location.

Expenditure - The day-to day expenses of government, things such as salaries, postage, printing, etc.

Floodline - A floodline is at best an estimate of the level to which water may rise on average, say, every 50 years. These estimates are based on factual information and the professional judgement of experts.

Floodplain - A floodplain is the area of land adjacent to a river that is inundated by floods occurring in the river. Because there is no upper limit to the magnitude of a flood, there is also no definite boundary to the floodplain, but the higher the elevation of a point on the floodplain the smaller is the probability that it will be inundated by floods.

Green Paper - A government policy document that is at discussion phase.

Hazards - Hazards are threats to life, well-being, material goods and the environment. Extreme natural processes or technology causes them. When a hazard results in great suffering or collapse, it is usually termed a disaster.

Hazardous substance - A substance that can cause harm or damage.

Human-made disasters - Disasters or emergency situations that are caused directly by identifiable human actions, deliberate or otherwise (e.g., violence).

Incident - A relatively minor occurrence or event (that leads to a public crisis).

Infrastructure - Such things as roads, sewerage, water supplies, recreational spaces, and electricity supply.

Integrated planning - Planning which takes into account all the conditions and circumstances which will play a part in the successful outcome of the plan, and involves all the people or organisations which have a role to play or a contribution to make.

Landslides - The large displacement of land as a result of rain storms or flash floods, particularly land that slopes steeply, as in a mountain area.

Line function - Line functions refer to the departments which carry out or implement government policy, such as Water Affairs, Land, Transport and so on.

Local authority - A democratically elected institutional body at the sphere of local government (also referred to as a "municipality") whose status, objects, powers and functions are more fully described in Chapter 7 of the Constitution and defined as a local government body in the Local Government Transition Act, 1993 (Act 209 of 1993).

Magnitude - The size or impact of an incident. For instance, in the case of a bomb explosion the magnitude would be measured by the number of people injured or killed and the scale of damage to buildings and the environment.

Marshy - A marshy area is a low lying area that is constantly wet or muddy.

Mitigation - Action taken to reduce the effects of a disaster on a nation or community.   The term normally implies that while it may be possible to prevent some disaster effects, other effects will persist and can be modified or reduced, if appropriate steps are taken.

MinMec (Local Government) - The Ministers and Members of Executive Committees forum responsible for local government. The forum is convened bimonthly to look at policy issues facing national and provincial governments in particular line areas. It also provides a forum to coordinate technical issues related to policy.

Monitoring - A system of checking and observing to make sure that the correct procedures and practices are being followed.

Natural disasters - Extreme climatological, hydrological or geological processes that pose a threat to persons, property and the economy.

Policy framework - A set of policies which, together, form the basis for making laws and give overall direction to planning and development.

Pollution - Something is regarded as polluted when it is unfit for human and animal consumption - when too much waste or other matter is found in a natural system, like water for instance. Pollution in water often causes the water to smell and change its colour and can lead to the death of fish and other organisms that live in the water.

Preparedness - Measures which enable governments, communities and individuals to respond rapidly and effectively to disaster situations.

Prevention - Measures aimed at impeding the occurrences of disasters and/or preventing such occurrences from having harmful effects on communities.

Private sector - The private sector refers to everything which is privately owned and controlled, like business, the banks and insurance companies, the stock exchange, private schools and clinics.

Public sector - The public sector refers to everything which is publicly owned and controlled. It includes government, state owned companies (like Iscor and Eskom), national agencies like the CSIR, the SAPS, public schools and hospitals.

Recovery - The rehabilitation and reconstruction activities necessary for a rapid return to normality.

Rehabilitation - Actions taken in the aftermath of a disaster to enable basic services to resume functioning, to assist victims' self-help efforts to repair dwellings and community facilities, and to facilitate the revival of economic activities.

Relief - This refers to activities aimed at supporting victims of disaster through shelters, provision of essential supplies such as medicine, food, and water, and rescue, etc.

Response - This refers to activities that are arranged to deal with emergency situations, and can involve the evacuation of people, dealing with accidents, fires etc.

Risk and risk assessment - Risk may be defined as the expected damage or loss caused by any hazard. Risk usually depends on a combination of two factors:

_ How often and severe the hazard (e.g., a flood or drought).
_ Vulnerability of the people exposed to these hazards.

Risk perceptions are very complex as they are rooted in history, politics and economy. Therefore finding suitable solutions to those at risk is not a simple, straightforward process.

Risk reduction - Measures taken to reduce long-term risks associated with human activity or natural events.

Sanitation - Facilities for the disposal of sewage and refuse.

Sinkholes - The name given to the sudden subsidence of the earth. For instance, if there is a gap under the land surface and too much pressure is applied from above, the earth can collapse from below, creating a big hole.

Slow-onset disasters - Slow-onset disasters or "creeping emergencies" (so named because they takes months to reach a critical phase), result when the ability of people to support themselves, and sustain their livelihoods, slowly diminishes over time. Such disasters may also be aggravated by ecological, social, economic or political conditions. An example of a slow-onset disaster is drought, or the El-Nino effect.

Sudden or rapid-onset disasters - A "sudden-onset" disaster is often caused by natural events such as earthquakes, floods, storms, fires and volcanic eruptions. Although such events are more sudden, the impact can also be heightened by underlying problems associated with poverty. Communities living in overcrowded areas, especially along the banks of rivers, are particularly at risk during sudden floods.

Strategy - Different actions or steps that can be taken to reach the aims of policy.

Tornadoes - A description of the weather phenomenon that results in the formation of heavy wind storms that take on a circular motion and can suck up even large objects in their path, such as a car, the roof of a house, a cow, etc.

White Paper - A government policy document that is final and adopted by parliament and Cabinet.

Volcanoes - A volcano is the eruption of a mountain that releases fluids (molten rock) and other extremely hot material from deep beneath the earth's surface. This molten material is called lava. The flow of lava from the volcano destroys everything in its path.

Vulnerability - No matter where one is located, whether in an urban or rural environment, one's chances of experiencing a disaster are usually strongly linked to one's vulnerability to the event. The more vulnerable a community, the greater the physical, economic and emotional costs of a disaster. Vulnerability, then, "is the degree to which an individual, family, community or region is at risk of experiencing misfortune following extreme events".