Assessment report on mainstreaming and implementing disaster risk reduction measures in Southern Africa

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Economic Commission for Africa

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The United Nations Office for Disaster Risk Reduction
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SADC

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Acronyms and abbreviations

CPC	Civil Protection Committee
CRED	Centre for Research on the Epidemiology of Disasters
ECA	Economic Commission for Africa
ENSO	El Niño Southern Oscillation
FAO	Food and Agriculture Organization of the United Nations
GTZ	German Technical Cooperation
HDI	human development index
INGC	National Institute of Disaster Management of Mozambique
IPCC	Intergovernmental Panel on Climate Change
NDMO	National Disaster Management Organization
NEPAD	New Partnership for Africa's Development
NGO	non-governmental organization
OCHA	Office for the Coordination of Humanitarian Affairs
SADC	Southern African Development Community
SWAp	sector-wide approach
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNICEF	United Nations Children Fund
UNFCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNISDR	United Nations Office for Disaster Risk Reduction
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WASH	water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization
WRI	World Risk Index

Acknowledgements

The present report on mainstreaming and implementing disaster risk reduction in Southern Africa was prepared within the framework of the United Nations Development Account project on strengthening the capacities of African policymakers to mainstream natural disaster risk reduction into national and regional development policies and strategies in Africa. The project was conceived and implemented by the Economic Commission for Africa (ECA) and the United Nations Office for Disaster Risk Reduction (UNISDR).

The report was prepared under the overall guidance of Fatima Denton, Director of the Special Initiatives Division of ECA, and Sharon Rusu and Pedro Basabe, the current and former heads of the UNISDR Regional Office for Africa. Isatou Gaye, Chief of the Green Economy and Natural Resources Section of the Special Initiatives Division, provided substantive guidance and supervision in the preparation of the report.

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Executive summary

Introduction

This assessment report on mainstreaming and implementing disaster risk reduction measures in Southern Africa was prepared within the framework of the United Nations Development Account project on mainstreaming disaster risk reduction in national and regional development strategies in support of efforts to meet the 106Millennium Development Goals and achieve sustainable development goals in Africa. The project was jointly conceived by the Economic Commission for Africa (ECA) and the United Nations Office for Disaster Risk Reduction (UNISDR). The report was commissioned by the SADC secretariat, ECA and UNISDR.

The report presents the findings of the assessment of progress and experiences in mainstreaming disaster risk reduction into national and subregional development frameworks in the Southern Africa subregion.

The Southern African Development Community (SADC) is increasingly vulnerable to disasters triggered by a combination of natural and human-induced hazards. Common hazards include severe storms, drought, floods, cyclones, environmental degradation, earthquakes, conflict, political instability, poverty, and food and livelihood insecurity. Mainstreaming disaster risk reduction in development processes will contribute to building resilience in the subregion.

Findings

The assessment findings are summarized below.

Hazard trends are on the increase

The hazard trend between 1900 and 2013 was generally upward, with hydrometeorological hazards, such as drought, cyclonic storms and floods, having the highest frequency. The increase in hydrometeorological hazards can mainly be attributed to the impact of climate change. Increased hydrometeorological hazards have, in turn, increased the risk of biological hazards, particularly water-borne diseases, such as malaria, cholera and dysentery. At the same time, although the risk of environmental hazards was low, destruction of vegetation through, for example, wild fires, has increased the risk of drought and flooding. Geophysical hazards, such as earthquakes and volcanic activity, have the lowest frequency. However, technological hazards, including industrial, traffic and miscellaneous accidents, are now a major cause for concern, with South Africa having the highest frequency.

Increasing vulnerability to disasters

High levels of poverty, increased exposure to hazards, cross-border influx, weak social protection policies and relatively weak institutional capacity undermine disaster risk reduction measures in the SADC subregion. The majority of SADC countries (9 out of 15) fall within the low human development index (HDI) category, with Lesotho, Zambia, Malawi, Zimbabwe, Mozambique and the Democratic Republic of the Congo falling below the sub-Saharan Africa HDI of 0.475. These pover-

ty levels are accompanied by increasing exposure to climate change-related hazards, the impact of HIV/AIDS, inadequate social protection policies to provide safety nets for the poor, increasing urbanization, and transboundary risks, which have exacerbated vulnerability to disasters.

Limited sustainability of resilience and capacity development efforts

The SADC subregion has continued to enhance its capacity and resilience to disasters and climate change impacts, notably through policy and institutional frameworks. In 2001, SADC adopted a five-year disaster risk reduction planning cycle to strengthen policy and institutional capacity at regional and national levels. The 2001-2006 strategy was followed by the 2007-2012 strategy and the 2012-2016 strategy. Clarity on how SADC draws lessons from the implementation of these strategies would add value, particularly by informing and strengthening the strategic options. In relation to institutional capacity development, SADC has continued to strengthen hazard, vulnerability and capacity analyses, information management and early warning systems. Lack of a clear resource mobilization strategy and reliance on external funding from international cooperating partners for policy, institutional capacity and programme development appears to be the major challenge at both the subregional and national levels.

Low and irregular self-reporting on the implementation of the Hyogo Framework for Action 2005-2015

While Mauritius, Mozambique and the United Republic of Tanzania have submitted Hyogo Framework for Action progress reports for all three periods, three countries appear not to have submitted a report at all, two countries have reported twice, and six countries have reported once. This suggests that the countries that have not reported at all or reported only once or twice either have limited disaster risk reduction technical or institutional capacity, or do not know how to complete the Framework monitor. Inconsistencies in self-reporting make it difficult to generalize about the extent of progress across SADC in implementing the Hyogo priorities. Nonetheless, the countries that have submitted two or all three reports generally show some progress in each of the five priorities, with Mozambique scoring 5 for two of the indicators.[1] However, as the self-progress reports were not subject to external review, it is possible that countries reported a more positive picture than the reality on the ground for political and economic reasons. For this reason, peer review may not only be an added value and innovation for the Hyogo Framework, but also more beneficial to member States in sharing lessons and good practices than the current individual self-reporting system, which appears to be an end in itself.

Progress in disaster risk reduction mainstreaming, but inadequate resources

Limited mainstreaming of disaster risk reduction across SADC directorates and units

While disaster risk reduction mainstreaming in Southern Africa rests with member States, an example of how this is done at the SADC directorate level might accelerate the process. SADC's main strategic policy document, the Regional Indicative Strategic Development Plan, identifies disasters as among the major underlying causes of poverty and vulnerability in the subregion and yet disaster risk reduction is not among the key priority action areas of the Plan. The results suggest that there is more awareness of disaster risk reduction policies in the Organ on Politics, Defence and Security Cooperation, which is responsible for disaster risk reduction, than in the other three directorates. Furthermore, while most of the documents reviewed, including protocols, policies and strategies, implicitly incorporate disaster risk reduction,

1 The scores range from 1 to 5, 1 being the lowest and 5 the highest.

they still maintain the 'silo syndrome' whereby disaster risk reduction is viewed as a mandate of the Organ on Politics, Defence and Security Cooperation, rather than a cross-cutting issue that should be mainstreamed across directorates and units. Underlying these challenges are the limited disaster risk reduction human resource capacity of the SADC secretariat, limited financial and material resources, lack of subregional and national guidelines on disaster risk reduction mainstreaming, limited disaster risk reduction advocacy to create disaster risk reduction awareness, and increased focus on response, rather than prevention and mitigation.

Mainstreaming disaster risk reduction and disaster risk management in national legal frameworks

The disaster risk reduction legal frameworks that have either been passed or are in draft form incorporate the elements of the Hyogo Framework for Action. They provide national coordination mechanisms, decentralize power to subnational authorities and are generally explicit on the role of sectors in mainstreaming disaster risk reduction. However, there are slight variations in the power and authority accorded to the national disaster management organization effectively to mainstream and implement disaster risk reduction: in Zimbabwe and South Africa, it is a ministry directorate, which suggests limited power and authority, while in Namibia and Zambia it is located in the Office of either the President or the Prime Minister. With regard to funding, the legal frameworks are explicit on response but less explicit on prevention, with the former regarded as the responsibility of the national disaster management organization, while the latter is assumed to be a sector ministry responsibility.

Mainstreaming disaster risk reduction in national policy frameworks

The disaster risk reduction policies adopted or still in draft form generally provide the basis for disaster risk reduction mainstreaming. The policies are consistent with the global, regional and national frameworks and incorporate disaster risk reduction tools, including risk assessments, such as hazard, vulnerability and capacity assessments and environmental impact assessments. The policies are more explicit than the legislation on sector responsibilities, stakeholder and affected community participation, multi-hazard early warning systems, risk-sharing transfer mechanisms, transboundary risks, preparedness, response and recovery. While policies appear to be clear on sources of funding, they are less clear on the proportion of the national budget allocated to disaster risk reduction. As a result, disaster risk reduction appears to be skewed towards response rather than prevention.

Mainstreaming disaster risk reduction in national strategies and plans

Of the sampled countries, only Mozambique, Namibia and South Africa had a Government-approved plan, while Zimbabwe's disaster risk reduction strategy was in draft form. This suggests that SADC member States were still facing challenges implementing disaster risk reduction mainstreaming. All three plans are underpinned by disaster risk reduction conceptual and global, regional and national policy frameworks but differ in many respects. It is worth noting that, while South Africa and Namibia's plans provide detailed information about what needs to be done, they would be much more focused if they had time frames differentiating them from a generic risk management plan. In contrast, the Zimbabwe draft disaster risk management strategy has a time frame (2012-2015) to allow disaster risk reduction stakeholders to review successes, share good practices and lessons learned in 2015.

Disaster risk reduction mainstreaming in national and sector policies and strategic plans

In the sampled countries, disaster risk reduction mainstreaming across sectors appears to be generally low. There are, however, some variations. With the exception of United Nations Development Assistance Framework (UNDAF) and climate change policy documents, key sectors, such as health and education, rarely refer to disaster risk reduction global, regional or national policy frameworks. Nonetheless, because of the nature of their mandate, health sector policies and strategies implicitly incorporate disaster risk reduction tools and activities, such as risk assessments, malaria prevention, disease surveillance, early warning, and emergency preparedness and response.

Good practices can be replicated by adapting them to specific contexts

The good practice case studies on disaster risk reduction provide tools, lessons learned, key success factors, challenges, and potential for replication. While the good practice case studies are context-specific, they can be adapted to other contexts to provide evidence to policymakers at regional, national and subnational levels.

Recommendations

To facilitate disaster risk reduction mainstreaming across its directorates and Member States, SADC should consider revising the Regional Indicative Strategic Development Plan, the Community's main strategic policy document, to reflect disaster risk reduction as a key priority for the subregion.

The technical capacity of the SADC disaster risk reduction unit needs to be strengthened by increasing human, material and financial resources in order to generate and disseminate strategic information to support advocacy activities within the SADC secretariat and across member States. To this end, SADC should mobilize resources from member States, international cooperating partners and through public-private sector partnerships.

The SADC plan of action on disaster risk reduction mainstreaming should be developed, supported and implemented with one of its key features being the development of subregional and national guidelines on disaster risk reduction mainstreaming to facilitate disaster risk reduction integration across SADC directorates and units, as well as in national and subnational disaster risk reduction frameworks.

The disaster risk reduction capacity of sectors and decentralized bodies should be strengthened, (a) through stand-alone projects, in order to increase knowledge, skills and expertise to form the basis for disaster risk reduction mainstreaming into sector policies, programmes and projects, and (b) by supporting them to establish baselines on disaster risk reduction to ensure that gaps are identified, thus helping to guide the budgeting process.

The SADC secretariat should establish disaster risk reduction focal points across its directorates and units to facilitate disaster risk reduction mainstreaming into subregional frameworks. Similarly, disaster risk reduction focal points across sectors in member States should be developed and strengthened in national and subnational bodies.

Subregional and national level training on disaster risk reduction mainstreaming, informed by capacity needs assessments, should be enhanced to increase cross-sector awareness, with increased focus on the planning and finance sectors to facilitate allocation of resources.

In countries where disaster risk reduction legislation, policies and strategic plans are either non-

existent or in draft form, consideration should be given to strengthening advocacy measures to influence policymakers to accord them high priority on their agenda.

As disaster risk reduction is a cross-cutting issue, in countries where the national disaster management organization is a directorate under a line ministry, the SADC secretariat and partners should consider advocating their location in the Office of the President or the Prime Minister in order to increase their power and authority over sector ministries.

To add more value to the Hyogo Framework for Action monitor self-reporting system, the SADC secretariat should consider establishing regional peer review of disaster risk reduction progress to, (a) reduce the possibility that countries report a more positive picture than the reality on the ground, and (b) share and disseminate lessons learned, good practices, tools and methodologies.

To address transboundary risks, specific resource mobilization should take a region-wide approach rather than be by individual country or individual donor, which might reduce efficiency and timeliness.

To ensure disaster data consistency with international organizations, SADC should engage with the organizations that maintain disaster databases, particularly the Centre for Research on the Epidemiology of Disasters (CRED).

Definition of key terms

Adaptation	The adjustment of natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Climate change	A change in the state of the climate identifiable (for example, by using statistical tests) by changes in the mean and/or the variability of its properties, that persists for an extended period, typically decades or longer (IPCC, 2001).
Climate change adaptation	The adjustment of human and natural systems in response to present or expected stimuli and their effects which reduce the damage or exploit the opportunities favorable to development (IPCC, 2001).
Disaster	A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. It is normally represented by the equation (risk) = hazard x vulnerability.
Disaster risk management	The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.
Disaster risk reduction	The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.
Early warning system	The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage (Table 1).
Prevention	The outright avoidance of adverse impacts of hazards and related disasters.
Resilience	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.
Risk	The combination of the probability of an event and its negative consequences.
Risk assessment	A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.
Risk transfer	The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Table 1: Hazard classification

Origin	Examples
Hydrometeorological hazards Natural processes or phenomena of an atmospheric, hydrological or oceanographic nature	Floods, debris and mudflows; tropical cyclones, storm surges, wind, rain and other severe storms, blizzards, lightning; drought, desertification, wild fires, temperature extremes, sand or dust storms; permafrost, avalanches
Geological hazards Natural earth processes or phenomena that include processes of endogenous origin or tectonic or exogenous origin, such as mass movements.	Earthquakes, tsunamis; volcanic activity and emissions; mass movements, landslides, rockslides, liquefaction, sub-marine landslides; surface collapse, geological fault activity
Biological hazards Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic microorganisms, toxins and bioactive substances.	Outbreaks of epidemic diseases, plant or animal contagion and extensive infestations
Technological hazards Danger associated with technological or industrial accidents, infrastructure failures or certain human activities which may cause injury or loss of life, property damage, social and economic disruption or environmental degradation, sometimes referred to as anthropogenic hazards.	Industrial pollution, nuclear release and radioactivity, toxic waste, dam failure, transport, industrial or technological accidents (explosions, fires, spills)
Environmental degradation Processes induced by human behaviour and activities (sometimes combined with natural hazards) that damage the natural resource base or adversely alter natural processes or ecosystems. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards.	Land degradation, deforestation, desertification, wild fires, loss of biodiversity, land, water and air pollution, climate change, sea level rise and ozone depletion

Source: UNISDR (2009)

1. Introduction

Mainstreaming disaster risk reduction into national policies and strategies to reduce vulnerability and build resilience to disasters remains a central issue in the Southern African Development Community (SADC). SADC recognizes that "disasters are a development problem". The development process does not necessarily reduce vulnerability to natural hazards. On the contrary, "development failures" can be the root cause of disasters (SADC, 2011). Development processes can even create new forms of vulnerability or exacerbate existing ones, impeding efforts to reduce poverty and promote growth. Mainstreaming disaster risk reduction in development processes is likely to contribute to the resilience of the SADC subregion to disasters, particularly those triggered by multiple hazards, including drought, floods, cyclones, fires, earthquakes, landslides, livestock disease, pest infestation and epidemics. Moreover, the economies of the SADC member States are closely interlinked – Botswana, Lesotho, Swaziland, Namibia and South Africa, for example. Many hazards in SADC transcend boundaries. The Southern African floods of 2000 affected Mozambique, Madagascar, South Africa, Zimbabwe and Botswana, highlighting the need for a subregional disaster risk reduction coordination strategy.

This assessment report on mainstreaming and implementing disaster risk reduction in Southern Africa was prepared within the framework of the United Nations Development Account project on mainstreaming disaster risk reduction in national and regional development strategies in support of efforts to meet the Millennium Development Goals and achieve sustainable development goals in Africa. The project was jointly conceived by ECA and UNISDR. Key partners in project implementation included SADC, the Economic Community of West African States, the African Union Commission and the United Nations Development Programme (UNDP).

The report presents findings on the assessment of progress and experiences in mainstreaming the planning and implementation of disaster risk reduction measures as part of national and subregional development strategies, plans and programmes in the Southern Africa subregion. The assessment was commissioned jointly by the SADC secretariat, ECA and UNISDR.

This report provided input to the preparation of the Africa regional assessment report. It also served as a key resource for the subregional disaster risk reduction capacity development workshop, which, among others, showcased and promoted good practices to scale up both mainstreaming and implementation of disaster risk reduction measures as part of development frameworks. The findings of the report were disseminated at the Disaster Risk Reduction Mainstreaming and Investment for Resilient Structural Transformation in Africa event, held in May 2014 and jointly organized by ECA and UNDP, in the run-up to the Fifth Africa Regional Platform.

1.1 Conceptual framework and methodology

1.1.1 Conceptual framework

The framework used for the assessment is provided in Annex 1. It is based on the Hyogo Framework

for Action 2005-2015, the Africa Regional Strategy for disaster risk reduction, conceptualization of disaster risk reduction mainstreaming and key principles for disaster risk reduction mainstreaming

1.1.2 Methodology

The report is based on an extensive desk review of disaster risk reduction legislation, policies, strategies and programme reports and stakeholder consultations, mainly from Malawi, Mozambique, Mauritius, Namibia, South Africa, Zambia and Zimbabwe, and cooperating partners at national and subregional levels.

Table 2 : Countries included in the study

Country	Reason for selection	
	WRI	HDI
Malawi*	High	Low
Mauritius	Very High	High
Mozambique*	High	Low
Namibia	Medium	Medium
South Africa	Low	Medium
Zambia	High	Low
Zimbabwe	High	Low

1.1.2.1 Sampling

The study was based on the secondary and primary data derived from consultations with sampled countries, institutions and organizations in the subregion. The country selection criteria were the level of disaster risk as measured by the World Risk Index (WRI), and the level of development as measured by the human development index (HDI). Table 2 shows that the WRI and HDI for the countries selected ranged from low to high or very high. It was assumed that these criteria would ensure the results were as representative as possible. However, Malawi and Mozambique were assessed as in-depth studies and the extent to which they have mainstreamed disaster risk reduction is included in this report.

1.1.2.2 Data collection tools

The study adopted two main data collection approaches: desk review, and stakeholder consultations.

Desk research and review

The secondary data were derived from both the academic and grey disaster risk reduction literatures. These included data from international, regional and national policy documents and reports. Most of these documents were available electronically on websites such as CRED, ReliefWeb and PreventionWeb. Table 3 lists some of the key documents and sources consulted.

Table 3: Some key documents reviewed

Global documents	
Name	Source
Hyogo Framework for Action 2005-2015	UNISDR Prevention Web
Hyogo Framework for Action mid-term review	UNISDR Prevention Web
Global Assessment Report on Disaster Risk Reduction, 2009, 2011 and 2013	UNISDR Prevention Web
UNFCC/IPCC –various reports	UNFCC/ IPCC websites
Hyogo Framework for Action Words into Action	UNISDR/World Bank
World Disaster Reports	International Federation of the Red Cross
Human Development Reports	UNDP
Natural Hazards and Unnatural Disasters	World Bank
Tools for Mainstreaming Disaster Risk Reduction	PreventionWeb
Country progress reports on Hyogo Framework for Action implementation	UNISDR
Making Development Climate Resilient: A World Bank Strategy for Sub-Saharan Africa	World Bank
Regional and subregional documents	
Africa disaster risk reduction strategy	UNISDR website
Africa Guidelines for Mainstreaming Disaster Risk Reduction2004	UNISDR website
Africa Regional Platform Reports	UNISDR website
UNFCC/IPCC various reports on Africa	UNFCC/IPCC websites
African Union Hyogo Framework progress reports	UNISDR website
SADC Disaster Risk Reduction Strategy and reports	SADC secretariat
SADC Climate Change Strategy and reports	SADC secretariat
National documents	
Disaster risk reduction legislation, policies and strategies	National Disaster Management Organization (NDMO)
Sector policies	NDMO
UNDAF documents	UNDP websites
Programme reports	Emails
Good practice case studies (reports)	Emails
Partner documents	
Policy documents and reports	Partners through emails
Good practice case studies (reports)	Emails

The literature and documentation review served two main purposes:

i) It provided background information on hazards, vulnerability and capacity to implement disaster risk reduction in the SADC subregion – thus providing justification for the ECA/UNISDR project intervention; and

ii) It helped identify the main tools and approaches, gaps, synergies and good practices in mainstreaming and implementing disaster risk reduction in the SADC subregion.

Stakeholder consultations

Consultations with stakeholders were in two forms:

i) *Semi-structured questionnaire*: A semi-structured questionnaire was the main primary data collection tool (Annex 1). Out of about 80 people who were contacted by email, only four returned questionnaires.

ii) *Feedback workshop*: The preliminary findings were presented at a workshop involving over 50 participants in Gaborone, not only to strengthen their knowledge on disaster risk reduction mainstreaming, but also to gather further data from participants.

Thus, this study used at least three sources of data to allow for triangulation, a generally accepted technique for increasing the validity and reliability of research findings.

Data analysis

Data were analyzed in three steps:

Step 1 – Literature review: A review of literature on disaster risk reduction mainstreaming and implementation, which included the grey literature from the SADC secretariat, member States, United Nations agencies and NGOs.

Step 2 – Content analysis: The contents of legal, policy, strategy, programme and project documents were reviewed, guided by questions in Figure 3. Each document was subjected to a search for the key words in Box 1.

Box 1: Key words used for searching documents

adaptation, assessments, cholera, climate change adaptation, climate change, cyclone, disaster risk management, disaster risk reduction, disaster, disease, drought, earthquake, emergency preparedness, emergency response, emergency, epidemic, fire, flood, hazard, humanitarian, Hyogo Framework, livelihoods, mainstream, malaria, mitigation, prevention, reconstruction, recovery, rehabilitation, relief, resilience, risk, safety nets, social protection, storm, vulnerability.

After the key word search and reading of the document, each of the indicators in Figure 3 was sought and then scored from 1 to 5 (Table 4). To ensure consistency with the general disaster risk reduction policy and practice, the document scoring matrix is a simplified Hyogo Framework monitor used by countries to monitor progress. The scores for each document were added up to indicate the extent to which the document reflected disaster risk reduction and climate change adaptation mainstreaming. These were summarized in templates: national legal framework; national policy; national strategy and plan; and sector policies, plans and strategies (see tables 24-30).

Table 4: Document scoring matrix

Description	Score
Poor, indicator not fulfilled	1
Weak, indicator only partially fulfilled	2
Fair, indicator somewhat fulfilled	3
Good, indicator almost fulfilled	4
Excellent, indicator fulfilled	5

Step 3 – Questionnaire: The questionnaire was assessed according to the way it was structured: national legal framework; national policy; national strategy and plan; and sector policies, plans and strategies.

Good practice case studies

Twelve good practice case studies were chosen on the basis of their use of disaster risk reduction tools, key success factors and challenges, lessons learned and potential for replication. The choice of the case studies was based on the extent to which they had a combination of the following attributes, among others:

- Addressing/managing cross-border disaster risks and disasters;
- Ownership of the practice/measures/interventions by various stakeholders;
- An adequate statistical and information foundation;

- Participation and involvement of all stakeholders, including non-traditional disaster risk reduction interest groups;
- Effective institutional arrangements for disaster risk reduction;
- Consideration of the social, economic and environmental dimension;
- Moving from policy/strategy and plans to concrete results on the ground;
- Effective and successful disaster risk reduction and enhancing resilience;
- Replicability of the intervention/practice, where applicable;
- Sustainability of proposed/adopted measure/practice.

1.2 Limitations of the study

The challenges faced in conducting this study are the familiar limitations of studies that are largely desk-based. There were two main limitations:

- *Limited access to data*: Although disaster risk reduction legal and policy frameworks were easily accessible through PreventionWeb, access to sector policies, strategies and good practice case studies was problematic. Using key words to search for documents through the Google Search Engine and visiting the web pages of government ministries and departments did not generally yield the required results. National disaster management organizations were asked by email and phone to provide documents and good practice studies before and after the workshop held in Gaborone but little was forthcoming.
- *Limited consultations:* The study would have benefited from wider consultations, including field-based individual and group interviews involving disaster risk reduction actors, had the resources been available.

1.3 Structure of the report

This report is divided into nine chapters. Chapters 2 and 3 give an overview of the hazard and vulnerability profiles of the SADC subregion in order to place disaster risk reduction mainstreaming in the SADC subregion in context. Chapter 4 presents past and ongoing measures on disaster risk reduction in SADC. Chapter 5 documents SADC subregional progress in implementing the Hyogo Framework using the Framework monitor. Chapter 6 describes progress in disaster risk reduction mainstreaming, setting out the extent to which legal frameworks, and national, sector and cooperating partner policies and strategies mainstream disaster risk reduction in development. Chapter 7 provides examples of good practice in disaster risk reduction mainstreaming and implementation. Chapter 8 highlights the tools and approaches used for disaster risk reduction mainstreaming and implementation. The findings of the assessment are summarized in Chapter 9, while Chapter 10 sets out conclusions and recommendations for consideration by member States to accelerate progress in disaster risk reduction mainstreaming and implementation in the SADC subregion.

2. Southern Africa hazard profile

This chapter presents the hazard profile of the SADC subregion. The first section outlines the level of disaster risk in SADC while the second focuses on the hazard profile using the UNISDR classification (Table 1). Hydrometeorological hazards tend to be the most common triggers of disasters in the SADC subregion.

2.1 Levels of disaster risk in the SADC subregion

Table 5 shows variations in the level of risk, exposure,[2] vulnerability, susceptibility[3], coping[4] and adaptive[5] capacities in SADC. Risk is defined using the shorthand notation [Risk = Hazard x

Table 5: Level of disaster risk in SADC

Country	World rank (out of 173)	Risk Index	Exposure	Vulnerability Index	Susceptibility	Lack of coping capacities	Lack of adaptive capacities
Madagascar	13	14.46	20.68	69.91	67.51	85.65	56.57
Mauritius	26	11.91	29.59	40.24	19.57	60.08	41.08
Mozambique	40	9.98	13.86	71.95	68.19	86.16	61.52
Zimbabwe	42	9.63	14.3	67.33	55.7	89.03	57.26
Malawi	53	8.99	13,.73	65.48	56.63	86.05	53.76
United Republic of Tanzania	56	8.64	12.91	66.97	65.43	83.03	52.46
Zambia	59	8.41	12.89	65.27	61.63	81.72	52.47
Angola	62	8.02	12.88	62.28	53.64	82.84	50.35
Lesotho	64	7.86	12.46	63.12	52.04	83.46	53.86
Democratic Republic of the Congo	68	7.71	12.19	63.28	50.98	87.39	51.45
Swaziland	74	7.37	11.98	61.56	48.56	83.1	53.02
Namibia	92	6.63	11.76	56.41	48.32	75.21	45.69
South Africa	107	5.71	12.42	46.02	31.04	67.72	39.31
Botswana	108	5.56	11.52	48.26	30.25	68.14	46.4
Seychelles	157	2.68	6.09	43.97	21.16	71.65	39.1

2 Exposure to five hazards: earthquakes, storms, floods, droughtsand rising sea level.

3 Susceptibility: public infrastructure, housing conditions, nutrition, poverty and dependencies, economic capacity and income distribution.

4 Coping and coping capacities include the capacities of societies and exposed elements (such as systems and institutions) to minimize the negative impact of natural hazards and climate change through direct action and resources. These include the coping capacity of government and authorities, disaster preparedness and early warning, medical services, social networksand material coverage.

5 Adaptation includes capacities, measures and strategies that enable communities to change in order to address expected negative consequences of natural hazards and climate change. These include education and research, gender equity, environmental status/ecosystem protection, adaptation strategies, and investments.

6 Source: United Nations University, World Risk Report (2011) http://www.ehs.unu.edu/file/get/9018

Vulnerability] as the interaction between a natural hazard event and the vulnerability of the exposed element or society. Vulnerability includes social conditions and processes in terms of susceptibility as well as coping and adaptive capacities.

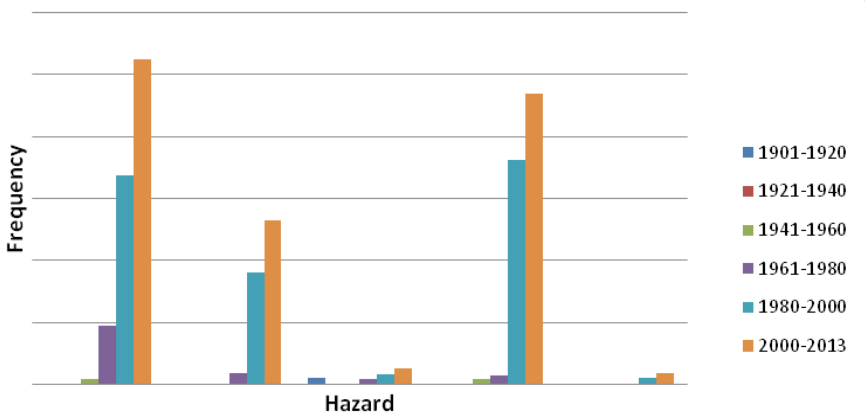
The top five countries vulnerable to disasters in SADC are Mozambique, Madagascar, Zimbabwe, the United Republic of Tanzania and Malawi. Seychelles, Botswana, South Africa, Namibia and Swaziland have relatively lower risk indices compared with the other SADC countries. Mozambique has the lowest adaptive capacity, while Zimbabwe has the lowest coping capacity in the SADC subregion. As island states, Mauritius and Madagascar have higher levels of exposure to hazards than inland states. Thus, although Mauritius has the lowest vulnerability index (40.24 per cent) as a result of its low susceptibility and relatively higher coping and adaptive capacities, it is a high-risk country because of its exposure to hazards, particularly rising sea level and storms.

2.2 Hazard trends in the SADC subregion

Figure 1 shows the hazard occurrence trend between 1900 and 2013. The trend is upward, hydrometeorological hazards having the highest frequency. The increase in the frequency of hydrometeorological hazards may be associated with climate change. Technological hazards have also become a major concern. There has been a sharply rising trend of technological hazard occurrence since the 1980s. This could be a result of technological advance in SADC, which has increased the risk of industrial and traffic accidents.

The frequency of biological hazards has also increased over the decades. Climate change and rapid urbanization in SADC could have increased the risk of biological hazard occurrence. Heavy rains, storms and cyclones tend to trigger flooding, which increases the risk of water-borne diseases such as malaria and gastrointestinal infections. Water scarcity resulting from drought also tends to increase the risk of gastrointestinal infections, including cholera, typhoid and dysentery. Although the occurrence of environmental haz-

Figure 1: Hazard trends



Source: CRED, 2013

ards is generally low, these can increase the risk of flooding and drought hazards, particularly when vegetation is destroyed through, for example, wild and veldt fires, which have become a major concern in SADC. Geophysical hazards have the lowest frequency of occurrence, but have also generally increased. The upward trends of hazard occurrence mean SADC needs to put in place a combination of structural and non-structural measures to prevent, prepare for, respond to in a timely fashion, and recover from disasters triggered by these hazards.

While the CRED data reflect the general hazard trend, it may differ slightly from national data. It was difficult to verify the validity of the data from national disaster management organizations. This raises questions about the relationship between CRED and those national organizations. In this regard, SADC should engage with CRED in order to ensure consistency between CRED data and SADC member State data.

2.3 Hydrometeorological hazards

Climate change is expected to increase hydrometeorological hazards in the subregion further. With large river basins such as the Limpopo and the Zambezi, flooding is a regular occurrence in countries such as Mozambique and Malawi.

Drought

Of all the hydrometeorological hazards, drought is the most common hazard in SADC. A drought is a slow-onset event that can cause agricultural and ecological damage and disrupt the socioeconomic status of a country or subregion. Droughts occur when rainfall is well below average or when there are mid-season dry spells. Technically, there are three types of drought: meteorological, hydrological and agricultural droughts. Table 6 shows the frequency, number of people killed and affected, and the damage caused by droughts across the SADC subregion between 1900 and 2013.Table 6 shows that Mozambique has the highest frequency of drought occurrence and loss of life, while Malawi has the highest number of people af-

Table 6: Drought in SADC 1900-2013

Country	Frequency	Killed	Affected	Damage $
Mozambique	12	100,068	17,757,500	50,000
United Republic of Tanzania	10	0	12,737,483	-
South Africa	8	0	17,475,000	1,000,000
Namibia	7	0	1,083,200	51,000
Angola	7	58	4,443,900	-
Malawi	7	500	21,578,702	-
Botswana	6	0	1,344,900	3,000
Lesotho	6	0	2,736,015	1,000
Madagascar	6	200	3,515,290	-
Zimbabwe	6	0	14,822,618	51,000
Swaziland	5	500	1,630,000	1,739
Zambia	5	0	4,173,204	-
Democratic Republic of the Congo	2	0	800,000	-
Seychelles	-	-	-	-

= no data

Source: CRED (2013)

fected by drought. In nominal terms, South Africa incurs the highest economic losses from drought, with almost double the losses of Mozambique, Namibia and Zimbabwe. All of these droughts were linked to the occurrence of El Niño Southern Oscillation (ENSO) in the Pacific Ocean. ENSO is a complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts over many months, such as altered marine habitats, rainfall changes, floods, drought, and changes in storm patterns (UNISDR, 2009). El Niño is the warm oceanic phase, which accompanies high air surface pressure in the western Pacific. The extremes of the El Niño phenomenon cause extreme weather, flooding and drought. SADC has been struck by four major droughts in recent decades: 1991-1992, 1994-1995, 2000-2001 and 2005-2006. To the credit of SADC member States, while droughts tend to trigger food insecurity due to reductions in subregional food production, these droughts have not led to famine, suggesting some level of resilience.

Floods

Floods have been increasingly frequent in recent decades. Flooding is a temporary inundation of land that is not normally under water. It is caused by several factors, including high rainfall intensity, generally flat terrain, rivers bursting their banks, dam breach and backflows. In SADC, social vulnerability to flooding is a function of community exposure to rivers, especially river confluences, terrain configuration, and building types. Table 7 presents the frequency and socioeconomic impacts of flooding in the SADC subregion between 1900 and 2013. It shows that, although the United Republic of Tanzania has the highest frequency of flood occurrence, Mozambique has the highest number of people affected, while South Africa suffers most economic loss.

The worst floods were in 1999-2000, triggering a subregion-wide disaster in Southern Africa. Half a million homes were destroyed, affecting more than a million people, with a high risk of waterborne diseases, including gastrointestinal infections. Climate change is likely to increase the frequency of flooding.

Table 7: Floods in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected	Damage $
United Republic of Tanzania	35	705	290	1,002,455	7790
Malawi	33	589	1	2,149,847	32,489
South Africa	32	1227	49	565,150	1,621,029
Mozambique	30	2054	15	9,281,899	967,600
Angola	29	492	47	1,197,624	10,000
Democratic Republic of the Congo	20	204	668	261,210	-
Zambia	16	71	913	5,158,108	20,900
Namibia	13	264	0	1099450	20,490
Zimbabwe	9	273	0	341,520	276,500
Botswana	9	31	7	171,109	5050
Madagascar	6	52	17	164,210	150,000
Lesotho	5	66	0	185,000	-
Swaziland	2	0	0	274,500	50
Seychelles	1	5	2	1237	1700
Mauritius	1	11	82	82	-

- = no data

Source: CRED (2013)

Cyclonic storms are now a major concern in SADC. Cyclonic storms are areas of low pressure over tropical and subtropical water that build up into huge, circulating masses of wind and thunderstorms up to hundreds of kilometres in diameter. Tropical cyclones affecting SADC mainly form in the south-west Indian Ocean between October and April. These tropical cyclones are associated with strong winds, lightning and thunderstorms. The surface winds can exceed 200 km/hr, killing people and destroying livelihoods and property.

Mass movement

Mass movement is the movement of surface material downhill under force of gravity, with the aid of agents such as water, wind and ice. Landslides and rock falls are examples of mass movement. Although Table 9 shows that mass movement occurrence has a low frequency and causes negligible economic damage, the impact of climate change and environmental degradation may cause it to increase. High rainfall over a short period may add weight to soils and decrease resistance, resulting in mass movement, particularly in degraded environments.

Table 8: Storms in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected	Damage $
Madagascar	50	2535	4373	9,554,793	2,077,301
South Africa	26	275	1339	644,015	764,041
Mozambique	22	684	2181	3,689,326	113,550
Mauritius	18	70	1914	1,029,263	626,373
Lesotho	6	1	1	6751	-
Democratic Republic of the Congo	5	49	2650	103,036	-
United Republic of Tanzania	4	4	7	3782	-
Swaziland	3	54	0	640,185	54,152
Zimbabwe	3	19	0	0	1200
Malawi	2	11	8	6008	-
Seychelles	2	0	0	8000	9300
Botswana	1	0	0	400	-
Angola	-	-	-	-	-
Namibia	-	-	-	-	-
Zambia	-	-	-	-	-

- = no data
Source: CRED (2013)

Table 8 shows the frequency and impacts of storms in SADC between 1900 and 2013. Madagascar has the highest frequency of storm occurrence, almost double second-placed South Africa. As a result, Madagascar has the highest number of people killed and affected, and the most economic loss from storms. Although Mozambique is ranked third in terms of frequency of storm occurrence, it ranks second to Madagascar in terms of number of people killed, injured and affected by storms. South Africa ranks second in terms of economic damage.

2.4 Geophysical hazards

The main geophysical hazards affecting SADC are earthquakes and volcanoes. Countries along the Rift Valley (stretching from Eritrea to Mozambique)

Table 9: Mass movement in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected
Democratic Republic of the Congo	4	212	7	2083
Angola	1	13	0	0
Mozambique	1	87	0	2500
South Africa	1	34	0	0
United Republic of Tanzania	1	13	0	150
Zambia	1	9	0	150
Botswana	-	-	-	-
Lesotho	-	-	-	-
Malawi	-	-	-	-
Mauritius	-	-	-	-
Namibia	-	-	-	-
Seychelles	-	-	-	-
Swaziland	-	-	-	-
Zimbabwe	-	-	-	-

-= no data

Source: CRED (2013)

are particularly vulnerable to earthquakes. An earthquake is a sudden, sometimes violent, movement of the earth's surface caused by the interaction of plate tectonics, usually triggered by the release of underground stress along fault lines. The shaking or trembling is caused by a sudden release of energy. Vibrations called seismic waves are generated and travel both through the earth and along the surface. These seismic waves cause the movement we call earthquakes. Earthquakes are associated with faulting or breaking of rocks. After an earthquake, continuing adjustments results in aftershocks. Vibrations of the earth spread in waves from point of rupture or epicentre and may extend over several hundreds of kilometres. Shaking of the ground may or may not be felt, depending on several factors such as distance from the epicentre and soil types. Table 10 shows the countries recorded by CRED to be prone to earthquakes. Although Table 10 reveals that the United Republic of Tanzania has the highest frequency of earthquake occurrence, more people are affected in Malawi, while Seychelles suffers most economic damage.

Countries along the Rift Valley and on Indian Ocean islands are at risk of volcanic events. Several volcanoes are known to be active, including Mount Nyiragongo in the Democratic Republic of the Congo and Mount Karthala in the Comoros.

Table 10: Earthquakes in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected	Damage $
United Republic of Tanzania	10	19	6	8991	-
South Africa	8	70	163	1448	20,000
Malawi	3	13	286	70,836	28,000
Democratic Republic of the Congo	3	44	661	21,266	7200
Seychelles	1	3	0	4830	30,000
Mozambique	1	4	36	1476	-

- = no data

Source: CRED (2013)

Between 1900 and 2013, the Democratic Republic of the Congo experienced three volcanic eruptions, resulting in 347 deaths, 170,000 people affected and $9 million in economic damage (CRED, 2013).

2.5 Biological hazards

Common biological hazards in SADC include gastrointestinal infections, malaria, measles and HIV/AIDS, crop pests and animal diseases or zoonotics. Cholera is the most common gastrointestinal infection. According to a 2007 WHO Report, sub-Saharan Africa accounts for over 90 per cent of total cases of cholera worldwide. In SADC, cholera has become endemic, particularly in Angola, Malawi, Mozambique, Zambia and Zimbabwe. In these five countries alone, an estimated 318,400 cases of cholera were reported between 2006 and 2012.[7] The unprecedented cholera outbreak in Zimbabwe in 2008-2009 resulted in about 100,000 cases and 4,000 deaths. This suggests that SADC is at high risk of gastrointestinal infections, particularly cholera, typhoid and dysentery. HIV/AIDS is also a major concern in SADC. Sub-Saharan Africa remains the most heavily affected subregion in the global HIV epidemic. In 2011, an estimated 23.5 million people living with HIV resided in sub-Saharan Africa, representing 69 per cent of the global HIV burden. In addition, 92 per cent of pregnant women living with HIV and more than 90 per cent of children who acquired HIV in 2011 lived in sub-Saharan Africa.[8] As for malaria, approximately 80 per cent of cases and 90 per cent of deaths are estimated to occur in sub-Saharan Africa, with children under five years of age and pregnant women most severely affected. In 2010, the Democratic Republic of the Congo, a member State of SADC, and Nigeria accounted for 40 per cent of malaria deaths worldwide.[9] Table 11 summarizes the frequency of epidemics that have occurred in SADC between 1900 and 2013. Crop pests common in SADC include quelea birds, ar-

Table 11: Frequency and impact of epidemics in SADC, 1900-2013

Country	Frequency	Killed	Injured	Affected
Democratic Republic of the Congo	68	9528	33	715,647
United Republic of Tanzania	29	6673	0	96,389
Mozambique	26	3037	0	366,864
Zimbabwe	21	6337	0	622,778
Zambia	18	1244	0	65,545
Malawi	13	1670	0	63,010
South Africa	7	336	0	112,385
Namibia	6	274	0	12,656
Swaziland	3	142	0	3677
Mauritius	2	0	0	2661
Seychelles	1	0	0	5461

- = no data

Source: CRED (2013)

7 OCHA (2012),Humanitarian Bulletin, Southern Africa Issue 12, August 2013 http://reliefweb.int/sites/reliefweb.int/files/resources/ROSA per cent20Humanitarian per cent20Bulletin_August per cent202013_Cholera.pdf

8 UNAIDS (2012) fact sheet http://www.unaids.org/en/regionscountries/regions/easternandsouthernafrica

9 World Malaria Report (2012) www.who.int/malaria/publications/world_malaria_report_2012/report/en/index.html

myworm, locusts and the larger grain borer, while the zoonotics include rabies, anthrax, Foot and Mouth, Newcastle Disease, blackleg, botulism and emerging dangerous diseases such as Bird Flu and Swine Flu.

2.6 Technological hazards

These include industrial and traffic accidents. Tables 12-14 present data on industrial, traffic and miscellaneous accidents in SADC between 1900 and 2013. In all cases, South Africa has the highest frequency of technological hazards in SADC. However, although Mozambique ranks only sixth for frequency of traffic accidents, it has the highest number of people affected by them. Similarly, although the United Republic of Tanzania ranks second for miscellaneous accidents, it has the highest number of people affected by them.

Table 12: Industrial accidents in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected	Damage $
South Africa	18	1213	377	2212	67,700
Democratic Republic of the Congo	13	325	36	36	0
Zambia	5	155	0	1300	0
Mozambique	3	171	100	200	3700
United Republic of Tanzania	2	142	0	0	0
Angola	1	5	100	100	0
Zimbabwe	1	20	1	1	0
Botswana	1	0	0	0	0

- = no data

Source: CRED (2013)

Table 13: Traffic accidents in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected
South Africa	133	2636	4887	5481
Democratic Republic of the Congo	100	5147	1373	3130
United Republic of Tanzania	62	2901	1512	2343
Angola	39	1644	541	541
Zimbabwe	31	840	1089	1689
Mozambique	22	950	599	50,706
Zambia	22	994	259	349
Malawi	15	412	526	526
Madagascar	8	240	46	60
Mauritius	2	170	0	0
Namibia	2	39	0	9
Swaziland	2	52	59	59
Lesotho	1	40	60	60
Seychelles	1	0	0	0

- = no data

Source: CRED (2013)

Table 14: Miscellaneous accidents in SADC 1900-2013

Country	Frequency	Killed	Injured	Affected
South Africa	15	311	301	13,335
United Republic of Tanzania	8	197	1123	20,989
Angola	5	130	204	204
Democratic Republic of the Congo	5	206	308	308
Zimbabwe	3	42	300	300
Madagascar	2	14	5	505
Zambia	2	15	79	229
Malawi	1	11	0	0
Mozambique	1	117	450	450

- = no data

Source: CRED (2013)

2.7 Environmental degradation

Environmental degradation is caused by veldt fires, pollution (air, water and land pollution), mining, deforestation, land degradation (gully formation, erosion and land collapse), stream bank cultivation, improper wetland utilization, alien invasive species, over utilization of arable land and human-wildlife conflict.

Veldt fires have become a frequent phenomenon resulting in loss of life and livelihoods. Angola, Zambia, Mozambique, the Democratic Republic of the Congo and the United Republic of Tanzania were the top five countries with the most fire activity between 2001 and 2007.[10] Over 50 per cent of the land area of these countries is affected by fire, and much of this area burned more than four times in the eight-year period (a return period of approximately two years).

Deforestation is a growing concern in SADC and a priority area for subregional action. The average deforestation rate, the rate of loss of cover, in the SADC subregion is about 0.6 per cent, which translates to about 1.4 million hectares lost per annum. Deforestation is highest in Zambia and Malawi, where it is estimated at 2.4 per cent. Nevertheless, there were positive improvements in forest cover of 1.2 per cent in Swaziland in 2001. Deforestation in the SADC countries is mainly the result of clearing forestland for cultivation, a high dependence on wood as an energy source and uncontrolled frequent, but very late, fires. In Malawi, for example, the main causes of deforestation are cited as a high population growth rate in relation to available land, poverty, market and policy failures, drought, uncontrolled tree-felling for fuel to cure tobacco in both the small and large-scale farming sectors, opening up new gardens and farming areas, firewood for commercial purposes, overstocking and infrastructure development.[11]

10 SADC (2010) Regional Fire Management Programme.

11 See FAO www.fao.org/docrep/005/ac850e/ac850e06.htm#bm06and SADC Policy Paper on Climate Change 2012.

3. Vulnerability profile

A natural hazard event becomes a disaster partly as a function of its magnitude, but the vulnerability and resilience of communities also play a substantial role. Communities that have put in place prevention, mitigation, preparedness and response systems can substantially lower the occurrence and impact of disasters.

Key determinants of the vulnerability of the SADC subregion to disasters include poverty, institutional capacity, climate change, social protection and cross-border influx.

3.1 Poverty: an underlying cause of vulnerability in SADC

Disasters affect everyone. But they impact the poor and vulnerable most. Poverty is a major factor in human and social vulnerability to disasters, and tends to underlie reduced coping and adaptive capacity following a disaster. At least 94 per cent of all people killed by disasters between 1975 and 2000 were from low-income or lower-middle income groups. The poorest people accounted for 68 per cent of deaths from disasters.[12] Low-income countries account for more than 70 per cent of the world's disaster 'hotspots'. The world's poor, a third of whom live in multi-hazard zones, are the most vulnerable to disaster risks. Since 1980, low-income countries have accounted for only 9 per cent of disaster events but 48 per cent of fatalities.[13] Vulnerability to disasters and poverty are intricately linked in SADC. Table 15 uses a few poverty indicators to illustrate the level of development in SADC compared with the rest of the world.

With the exception of Seychelles and Mauritius, which are very high and high HDI countries, SADC countries have either a medium or low HDI. Of the low-HDI countries, Lesotho, Zambia, Malawi, Zimbabwe, Mozambique and the Democratic Republic of the Congo are below the sub-Saharan Africa average HDI of 0.475. Similarly, countries with low HDI tend to have a high percentage of people living on less than $1.25 per day, Madagascar and the Democratic Republic of the Congo having more than 80 per cent. Moreover, with the exception of Zimbabwe, the majority of low-HDI countries have high infant mortality rates. In addition, the majority of low HDI countries also have a high corruption ranking. In addition, although there has been progress, more than half of SADC countries have an HIV/AIDS prevalence rate of above 10 per cent, with Swaziland having the highest, at 26.5 per cent. This suggests that high levels of poverty are hindering disaster risk reduction progress in SADC.

12 UNISDR and UNPD (2008). Linking disaster risk reduction and poverty reduction good practices and lessons learned. Global Network of NGOs for Disaster Risk Reduction, Geneva http://www.unisdr.org/files/3293_LinkingDisasterRiskReductionPovertyReduction.pdf

13 World Bank (2013) http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21924919~menuPK:34480~pagePK:64257043~piPK:437376~theSitePK:4607,00.html

Table 15: Some surrogate indicators of vulnerability

World category	Country	HDI	Life expectancy	Population on less than $1.25/day	Infant mortality rate	HIV prevalence rate	Corruption Perceptions Index Ranking (N=174)
Very high HDI	Seychelles	0.806	73.8	0.3	11.6	-	51
High HDI	Mauritius	0.737	73.5	..	10.89	1.2	43
Medium HDI	Botswana	0.634	53	..	9.90	23.0	30
	South Africa	0.629	53.4	13.8	42.15	17.9	69
	Namibia	0.608	62.6	31.9	45.62	13.3	58
	Swaziland	0.536	48.9	40.6	57.19	26.5	88
Low HDI	Angola	0.508	51.5	..	81.75	2.3	157
	Madagascar	0.483	66.9	81.3	46.13	0.5	118
	United Republic of Tanzania	0.476	58.9	67.9	45.1	5.1	102
	United Republic of Tanzania	0.476	58.9	67.9	45.1	5.1	102
	Lesotho	0.461	48.7	43.4	51.93	23.1	64
	Zambia	0.448	49.4	68.5	68.58	12.7	88
	Malawi	0.418	54.8	73.9	76.98	10.8	88
	Zimbabwe	0.397	52.7	..	27.25	14.7	163
	Mozambique	0.327	50.7	59.6	74.63	11.1	123
	Democratic Republic of the Congo	0.304	48.7	87.7	72.45	1.1	160

Source: Human Development Report (2013); UNAIDS (2013); CPI (2013)

3.2 Climate change is increasing exposure to disaster risks

SADC is likely to be one of the subregions hardest hit by the impact of climate change. Annex 2 provides a summary of likely climate change impacts. Temperature and rainfall are the two main climate parameters used to detect global warming and changes in climate. Temperatures in SADC are generally rising, especially minimum temperatures. Temperatures are expected to rise by between 1.0 and 3.0ºC by 2080. Changes in rainfall also present great challenges to the subregion, particularly in relation to agriculture, water, health and other key socioeconomic sectors. Changes in rainfall are best expressed as changes in intensity and extreme rainfall events (storms) and changes in the rainfall season (onset, cessation and length). Moreover, since 1950, the SADC subregion has also witnessed a downward trend in rainfall, with a number of countries experiencing changes in the length of the growing season. A combined change in temperature and rainfall will increase the exposure of communities to disasters in the SADC subregion, for example:

- Warmer temperatures will increase malaria risks in places where malaria is not endemic, particularly in South Africa and Zimbabwe.
- A combined change in temperature and rainfall will have a negative impact on the productivity of rangeland, grazing and food production.[14] More heat stress to natural ecosystems and agricultural crops, and rainfall variability will result in a drop in yields from rain-fed agriculture of up to 50 per cent between 2000 and 2020 and up to 90 per cent by 2100, with small-scale farmers being the most severely affected.
- Increased desertification, particularly in northern South Africa, Angola and Zambia.
- Increased health problems, particularly the gastrointestinal infections that will be exacerbated by reduced access to safe drinking water and sanitation and depletion of underground water due to changes in run-off and hydrology.
- Increased pressure on economies in responding to humanitarian crises resulting from increased frequency and intensity of hydrometeorological hazards such as cyclones, floods and droughts and associated biological hazards, particularly gastrointestinal infections.

14 SADC Policy Paper on Climate Change 2012

3.3 Social protection policies

Social protection policies and programmes aim to protect poor and vulnerable households from the shocks and stresses[15] that have negative impacts on their well-being.[16] Jones and others (2010)[17] differentiate social protection into social risk management strategies and protective, preventive, promotive and transformative measures (Box 2).

Box 2 : Social protection strategies and measures

Social risk management strategies	Protective, preventive, promotive and transformative measures
• ***Preventive strategies*** are public measures to reduce the probability of risk. • ***Mitigation strategies*** decrease the impact of a probable risk. • ***Coping strategies*** relieve the burden of risk once it has occurred.	• ***Protective measures*** provide relief from deprivation. • ***Preventive measures*** seek to avert deprivation. • ***Promotive measures*** aim to enhance the real incomes and capabilities of the poorest and most vulnerable populations, while remaining grounded in social protection objectives. • ***Transformative measures*** seek to address vulnerabilities arising from social inequity and exclusion of the poorest and most marginalized groups.

15 According to Chambers and Conway (1991), these are pressures which are cumulative and continuous, such as seasonal shortages and climate variability, soil degradation, population pressure, and sudden events such as floods, epidemics and droughts, but also wars, persecution and civil violence. Chambers, R. and Conway, G. (1991) Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. Discussion Paper 296. Brighton: IDS].

16 Lindsey Jones, Susanne Jaspars, Sara Pavanello, Eva Ludi, Rachel Slater, Alex Arnall, Natasha Grist and SobonaMtisi (2010) http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5860.pdf

17 Ibid.

SADC has made attempts to reduce vulnerability to disasters through social protection-related instruments. These include the Declaration and Treaty of the SADC, the Charter of the Fundamental Social Rights in SADC, the Code on Social Security, the Protocol on Gender and Development, the Protocol on Health, and the Protocol on Education. As SADC is at risk of disasters, article 18 of the Code on Social Security urges member States to ensure that their social security systems provide protection against special and collective risks, including political conflict and natural disasters. Member States should provide for special interventionist approaches to disaster relief at subregional and country level, including prevention, relief, reconstruction and rehabilitation.[18] While SADC member States have made progress in social protection policies and programmes, particularly in relation to HIV/AIDS and access to antiretroviral therapy, there are still some challenges with implications for disaster risk reduction.

a) *Access to health care:* Health care in SADC countries is largely provided through a two-tier system comprising private and public sectors. The private health care system tends to be adequately resourced and accessible to those with medical insurance or covered by medical aid schemes. The unemployed and the rural poor who cannot afford the private health care system mainly rely on the public health care system, which in the majority of cases, suffers from inadequate infrastructure and a shortage of skilled personnel. In addition to these challenges, the absence of national health insurance systems in SADC countries increases the vulnerability of communities to the preventable diseases of poverty[19] such as malaria, tuberculosis and HIV/AIDS.

b) *Income security for children:* In many SADC countries, there are social protection programmes that target orphans and vulnerable children. These include Orphan Care Benefit in Botswana, Minimum Income for School Attendance in Mozambique, Child Protection Programme in Zambia, Basic Education Assistance Module in Zimbabwe and Child Support Grant, Care Dependency Grant, Foster Care Grant, and Social Relief of Distress in South Africa.[20] However, despite the progress, particularly in South Africa, the value of the social security benefits for children is generally low across the SADC subregion,[21] meaning that children are inadequately protected against shocks and stresses arising with both natural and human causes.

c) *Assistance for the unemployed and the poor:* With the exception of Mauritius, which has an Unemployment Hardship Relief programme whereby an unemployed person with family responsibilities is paid an income to meet household needs, none of the SADC countries has an unemployment assistance programme.[22]

d) *Income security for the elderly and people with disabilities:* SADC countries operate various schemes to assist the elderly and people with disabilities. South Africa has a social assistance programme that includes social grants for the indigent elderly members of the population and people with disabilities. Botswana has a universal old age pension programme covering all citizens of Botswana aged 65 and over.

18 Code of Social Security in the SADC (2007), Lusaka.

19 Nyenti. M and Mpedi, L.G. (2012) The Impact of SADC Social Protection Instruments on the Setting Up of a Minimum Social Protection Floor in Southern African Countries, Potchefstroom Electronic Law Journal, Volume 15(1), pp. 244-281http://dx.doi.org/10.4314/pelj.v15i1.8

20 Ibid.

21 Ibid.

22 Ibid.

Disability benefits in Botswana are provided under the destitute programme. Unlike Botswana, Mauritius' universal programme makes provision for an old age pension, a disability pension and a survivor pension. In Namibia, cash benefits are provided for old age, disability, child support and foster-parent care.[23] However, these grants tend to:

e) Have an urban bias – much to the neglect of the rural poor.
f) Have low monetary value, meaning that the benefits fail to meet beneficiaries' needs adequately.
g) Face administrative and institutional challenges, such as poor levels of service, corruption and fraud.[24]

3.4 Urbanization

Africa is the world's most rapidly urbanizing continent.[25]UN-Habitat forecasts that Africa will have more people living in urban than rural areas by 2025.[26]Southern Africa is urbanizing faster than any other subregion on the continent. By 2020 Angola, Botswana and South Africa will be more than two-thirds urbanized and, by 2030, another five southern African countries (Mozambique, Zimbabwe, Namibia, Mauritius, and the Seychelles) will be more than 50 per cent urbanized, while another four (Zambia, Lesotho, Madagascar, and Democratic Republic of the Congo) will be over 40 per cent urbanized. Similarly, over a third of the population will be urbanized by 2030 in countries such as Swaziland, the United Republic of Tanzania and Malawi. By 2050, the majority of countries in Southern Africa are projected to be over 50 per cent urbanized, with Angola and Botswana being over 80 per cent urbanized.[27]

Urbanization provides both opportunities and challenges for disaster risk reduction. Unplanned and rapid urbanization provides the conditions for natural events such as earthquakes to become disastrous, and also modifies the physical environment, thus increasing the risk of flooding, fires, public health concerns, traffic and industrial accidents. While urban areas can provide critical mass for human skill and capacity for resilience, they are increasingly becoming disaster hotspots.[28] The 2000 floods in Mozambique displaced about 4000 people in Maputo, disrupting transport networks. Horrific fires in Alexandra, Johannesburg, are a product of informal settlement lay-out, overcrowding, highly combustible building materials and inadequate strategies for fire prevention, compared with upperclass areas like neighbouring Sandton. In Harare and other cities in Zimbabwe, for instance, the geography of a major cholera outbreak in 2008-2009 shows that the majority of both cholera cases and fatal impacts were concentrated in deprived high-density suburbs. The capacity to provide services and infrastructure, as well as to plan, invest and create jobs, has declined in Maputo, Harare, Luanda and Lusaka.[29]

3.5 Transboundary risk

SADC has significant cross-border population flows which are increasingly contributing to vulnerability in the subregion. Southern African has had a culture of legal, illegal and refugee migration for more than 150 years, a pattern that continues to grow despite official attempts to

23 Ibid
24 Ibid.
25 Pelling, M and Wisner B. (2009),Disaster Risk Reduction: Cases from Urban Africa, London: Earthscan.
26 UN-Habitat (2010) The State of African Cities: Governance, Inequality and Urban Land Markets.
27 UN-Habitat(2010) The State of African Cities: Governance, Inequality and Urban Land Markets, Nairobi; Crush, J. and others (2012) The Crisis of Food Insecurity in African Cities Hunger & Environmental Nutrition 7 (2-3) 271-92.
28 Pelling, M and Wisner B. op. cit.
29 UN-Habitat (2010), op. cit.

regulate it.[30] The SADC States can be divided into migrant-sending States (Mozambique, Malawi and Lesotho) and migrant-receiving States (South Africa and Namibia). A few, such as Botswana and Swaziland, fall into both categories. Others, such as the United Republic of Tanzania and Zambia, have experienced major refugee influxes in the last decade but tend not to send or receive large numbers of labour migrants.[31]

These population movements fall into three following categories: seasonal displacement due to natural disasters, mainly flooding, primarily from Mozambique to Malawi and between Angola and Namibia along the Caprivi Strip; refugees and asylum seekers; and migrants of humanitarian concern who, according to the Office for the Coordination of Humanitarian Affairs (OCHA), are people who cross borders fleeing extreme deprivation or generalized violence against themselves or their families. The 2008/9, the cholera epidemic in Zimbabwe became a subregional disaster as it demonstrated how infectious diseases can quickly spread across borders. Eight SADC countries were affected by cholera, either as a result of the Zimbabwe outbreak or independently of it: Angola, Botswana, Malawi, Namibia, South Africa, Swaziland, Zambia and the Democratic Republic of the Congo.[32] According to Said and others (2011),[33] the situation was aggravated by the influx of illegal immigrants into South Africa, coupled with inadequate water and sanitation facilities and poor hygiene at temporary processing centres for asylum seekers.

The vulnerability of the SADC subregion to disasters is summarized by UNDP (2012)[34] as follows:

- Approximately 40 per cent of the population are classified as chronically food insecure;
- The impact of HIV/AIDS, especially on livelihoods – an estimated 35 per cent of all new HIV/AIDS infections and 38 per cent of all AIDS deaths globally occur in nine SADC countries;
- Failure of state services (i.e. health, water and infrastructure);
- Poor governance (i.e. weak land reform policies, poor fiscal and economic policies);
- Inappropriate arable land management systems (i.e. over-cultivation of land resulting in infertile soils and erosion of rural and urban livelihood systems);
- Over-dependency on natural resources;
- Reliance on rain-fed agriculture; and
- Transboundary risk.

30 Said, M.D and others(2011) The case of cholera preparedness, response and prevention in the SADC region: A need for proactive and multi-level communication and co-ordination http://dx.doi.org/10.4314/wsa.v37i4.15

31 Crush, J and others (2005) Migration in Southern Africa: A paper prepared for the Policy Analysis and Research Programme of the Global Commission on International Migration www.iom.int/jahia/webdav/site/myjahiasite/shared/shared/mainsite/policy_and_research/gcim/rs/RS7.pdf

32 OCHA (2012) Humanitarian Bulletin, Southern Africa Issue 12, August 2013 http://reliefweb.int/sites/reliefweb.int/files/resources/ROSA per cent20Humanitarian per cent20Bulletin_August per cent202013_Cholera.pdf

33 Said, M.D and others(2011). The case of cholera preparedness, response and prevention in the SADC region: A need for proactive and multi-level communication and coordination http://dx.doi.org/10.4314/wsa.v37i4.15

34 UNDP (2012) Institutional Capacity Assessment in Disaster Risk Reduction of the Southern African Development Community (SADC), Gaborone.

4. Past, ongoing and future resilience measures

The SADC subregion continues to improve its disaster risk management institutional capacities in order to strengthen resilience to disasters. For the purpose of this study, those capacities have been divided into policy and institutions, and programmes and projects.

4.1 Policies and institutions

4.1.1 SADC disaster risk management and climate change strategies

In 2001, recognizing that the subregion is at risk from multiple disasters, SADC was the first African regional economic community to draft a disaster risk reduction strategy to enhance disaster risk reduction coordination at the subregional level (African Development Bank, UNISDR and NEPAD, 2004). The 2001 SADC Disaster Risk Reduction Strategy pre-dated the Africa Disaster Risk Reduction Strategy (2004) and the Hyogo Framework for Action (2005). However, subsequent SADC disaster risk reduction strategies, for 2006–2010 and 2011-2015, have been aligned with the priority areas and objectives of the Hyogo Framework (UNISDR 2005), the Africa Regional Strategy for Disaster Risk Reduction (UNISDR 2004) and the Plan of Implementation of the Africa Regional Disaster Risk Reduction Strategy (African Union 2010).

Most countries have either adopted or are drafting climate change policies but they tend not to be linked with disaster risk management policies as they are housed in different ministries and there is little interaction between them.

4.1.2 Subregional and national vulnerability assessment committees

Established in 1999, the SADC Regional Vulnerability Assessment Committee, a multi-agency body, was tasked with strengthening national and subregional vulnerability analysis systems in order to inform the policy formulation, development programmes and emergency interventions that lead to a reduction in vulnerability. The SADC subregion and its member States are committed to addressing food insecurity in its broader context of poverty and livelihood vulnerability. Some of the work is being done through the Regional Vulnerability Assessment and Analysis system consisting of Regional Vulnerability Assessment Committee and national vulnerability assessment committees.

For more than a decade now, the Committee and national vulnerability assessment committees have been conducting a series of vulnerability assessments in the southern African subregion. The vulnerability assessments use livelihood-based approaches to vulnerability assessment by, among other things, assessing the interactions between food production, prices, income, expenditure patterns and exposure to various hazards in determining different dimensions of livelihood vulnerability and poverty. These vulnerability assessments have enhanced understanding and now inform responses to food insecurity and livelihood vulnerability in Southern Africa.

The assessments use both qualitative and quantitative methods, such as household surveys and key informant interviews, using such tools as the livelihoods analytical framework and household

economy assessments. They also use secondary data from previous years, data from national statistics offices, baseline livelihoods data, crop estimates, and nutrition surveys. The household economy approach has been used since 2008 to establish livelihoods zones and baseline household profiles. As result, Namibia developed a food security risk map in 2008 to strengthen food security monitoring. However, the results may not reflect the true picture on the ground as they tend to, (a) face resource constraints and therefore rely heavily on support from cooperating partners, and (b) be subject to political acceptance before results can be made public.

4.1.3 Disaster risk reduction institutions in SADC

a) **Climate Services Centre:** Established in 1990 as the Drought Monitoring Centre, the Centre provides subregional services for monitoring and predicting extreme climate conditions. One of four such centres in Africa and housed at Botswana Meteorological Services, the Centre develops and disseminates meteorological, environmental and hydrometeorological products. It has improved preparedness for hydrometeorological hazards, and the conservation and protection of natural resources. However, the Centre's operations depend on support from cooperating partners such as UNDP, WMO, the World Bank, National Oceanic and Atmosphere Administration, Office of Global Programmes (NOAA-OGP), United States Agency for International Development (USAID) and Belgium.

b) **Regional Climate Data Processing Centre:** The Climate Services Centre is setting up a Climate Data Processing Centre that will consist of four main subcomponents:
   - Climate Data Management System: Will store a variety of climate data for Southern Africa. It will integrate real-time data through telecommunications systems and historical data made available through bilateral agreements between the Centre and each SADC member State.
   - Climate Data Processing and Production System: Comprised of two parts: the Data Centre and the Task Centre. The Data Centre stores meteorological data, including monthly forecasts, long-range forecast data, climate scenario and satellite data. The Task Centre runs specific tasks and processes within a secure and monitored operational environment, including: elementary tasks such as cropping of global model fields and previews, and satellite data processing.
   - Extreme Weather and Climate Monitoring System: A powerful integrated tool for weather and climate monitoring will be installed at the Centre to gather, visualize, interact and add value to all meteorological data on a single workstation.
   - Integrated Climate Information Dissemination and Early Warning System (IDIS): Provides the Centre with the tools to generate and disseminate productions to end-users. This system will meet Public Weather System (PWS) requirements and early warning system requirements.

In addition, there are three operational climate data processing centres in the Southern Africa subregion. Two subregional Specialized Meteorological Centres are located in Pretoria, South Africa, and La Reunion Tropical Cyclone Centre, in Reunion. The SADC Thematic Action on African Monitoring of Environment for Sustainable Development provides satellite data processing information outputs for crop monitoring, drought

prevention and fire alert to SADC member States. The African Centre of Meteorological Application for Development also provides weather and climate information relevant to the SADC subregion on a continental scale.

c) **Regional Early Warning Centre:** Launched in 2010, the Regional Early Warning Centre integrates inputs from national early warning centres. The Centre compiles strategic assessments and analyses of data collected at regional level; shares information on major issues threatening the security and stability of the subregion; and proposes ways and means of preventing, combating and managing such threats.

d) **Regional Peacekeeping Training Centre:** Established in Zimbabwe in 1996, the Centre:
   - promotes regional cooperation in peace and security among SADC member States;
   - builds capacity in conflict prevention and conflict management;
   - trains peacekeeping practitioners and provides training;
   - develops and delivers peacekeeping trainin-g.

e) **Regional Poverty Observatory:** The Observatory, which has yet to be established, is intended to provide adequate and meaningful monitoring services. It will function as a forum where all the stakeholders working in poverty eradication at the subregional and national levels meet to evaluate and monitor the implementation of the Regional Poverty Reduction Framework. It is designed as a multi-stakeholder consultative forum for monitoring the objectives, targets and actions identified in the SADC poverty reduction programme. The objectives of the Observatory are: to help member States by: harmonizing standards, methods and indicators; speeding up reforms and execution of national poverty reduction strategies; providing regional best practices to supplement the benchmarks of the Millennium Development Goals; allowing comparative performance analysis across member States.

e) **Centre for Coordination of Agricultural Research and Development:** Coordinates the implementation of agricultural research and development in SADC. Its goal is to reduce food insecurity and poverty in the SADC, paying particular attention to increasing smallholder productivity and competitiveness.

4.2 Programmes and projects

There are several disaster risk management and climate change adaptation projects at the subregional, national and subnational levels. Table 16 lists the programmes and projects that have been implemented in Mozambique, some of which have been implemented across the subregion.

Table 16: Disaster risk management and climate change adaptation programmes in Mozambique

Programme/ project	Funding source	Intervention	Year
Pilot Programme for Climate Change	Strategic Climate Fund	Integration of climate risk and resilience into core development	2011
Environment Mainstreaming and Adaptation to Climate Change	Spanish Millennium Development Goal Achievement Fund	Mainstreaming climate change polices and enhancing adaptive capacity in the Limpopo Region	2008
The African Adaptation Programme	Japan-UNDP Framework for Building Partnership to Address Climate Change in Africa	Capacity development for data and information management, leadership, disaster risk management, climate change analysis and knowledge management, and innovative finance	2008
Livelihood Protection and Promotion Programme	Dutch, Canadian and US Governments	Addressed the impact of natural, social and health risks through the integration of food assistance	2008
Strengthening Local Disaster Risk Management and Mainstreaming in Mozambique	UNDP (UNDAF) in partnership with the National Institute of Disaster Management of Mozambique (INGC)	Strengthening disaster risk reduction and emergency preparedness in Mozambique	2007
Floodplain Management in the Zambezi Valley	Save the Children	Enhancing sustainable livelihoods resilience in Caia, Mopeia, Morrumbala and Tambara	2009
Adaptation in Coastal Zones of Mozambique	Ministry for the Coordination of Environmental Affairs, UNDP, INGC and others	Institutional capacity development for disaster risk management and climate change.	

Source: Mozambique Report

5. Progress in implementing the Hyogo Framework for Action

The countries that signed up to the Hyogo Framework for Action 2005-2015 are required to report on progress every two years. Reporting does not necessarily reflect the extent to which the country has mainstreamed disaster risk reduction but maybe an indicator of its capacity to implement it. Table 17 shows variations in the degree to which countries have fulfilled their reporting duties, the fewest reports from SADC countries were produced for 2011-2013. The Democratic Republic of the Congo, South Africa, Swaziland and Zimbabwe appear not to have submitted progress reports using the Hyogo Framework monitor at all. Mauritius and the United Republic of Tanzania are the only countries to have submitted progress reports for all three periods; two countries have reported twice, and six countries have reported only once. The differences in compliance with reporting requirements may reflect limited disaster risk reduction technical or institutional capacity, particularly the national platform, or lack of awareness as to how to complete the monitor.

Table 17: Hyogo Framework progress reporting by SADC countries 2007-2013

Country	Reporting period		
	2007-2009	2009-2011	2011-2013
Angola	x		
Botswana		x	
Democratic Republic of the Congo			
Lesotho		x	
Madagascar		x	
Malawi	x		x
Mauritius	x	x	x
Mozambique	x	x	x
Namibia		x	
Seychelles		x	
South Africa			
Swaziland			
United Republic of Tanzania	x	x	x
Zambia	x	x	
Zimbabwe			
Total	6	9	5

5.1 Hyogo Framework progress: Priority 1

Table 18 shows that most countries that reported generally rated themselves between 3 and 4 for the Priority 1 indicators. This suggests that they have made remarkable progress in the implementation of Priority 1 but, while Malawi rated 3 and 4 for indicators 1 and 2 in 2007-2009, the rating was downgraded to 2 and 2 in 2011-2013**.** Similarly, the United Republic of Tanzania downgraded the rating for indicator 2 from 3 in 2007-2009 to 2 in 2011-2013. As there are gaps in data, it is difficult to generalize about progress on Priority 1 in SADC countries.

Table 18: Hyogo Framework progress in SADC – Priority 1

Country	Reporting period											
	2007-2009				2009-2011				2011-2013			
	A1	A2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4
Angola	3	3	2	4								
Botswana					4	2	2	4				
Democratic Republic of the Congo												
Lesotho					3	3	2	2				
Madagascar					4	3	4	4				
Malawi	4	3	4	1					4	2	2	3
Mauritius	3	4	4	3	3	4	4	3	4	4	4	4
Mozambique	3	3	4	4	4	4	4	4	4	4	4	4
Namibia					4	3	3	4				
Seychelles					4	4	4	4				
South Africa												
Swaziland												
United Republic of Tanzania	4	3	3	4	4	3	3	4	4	2	3	4
Zambia	2	3	4	4	4	3	4	4				
Zimbabwe												

5.2 Hyogo Framework progress: Priority 2

Table 19 shows that the countries that reported on Priority 2 generally rated themselves between 3 and 4. Of the countries that submitted reports for all the reporting periods, the United Republic of Tanzania made no changes in rating for any indicators, suggesting there had been limited progress. The results also show that Lesotho generally had the lowest ratings for progress against all the indicators of all the countries that reported.

Table 19: Hyogo Framework progress in SADC – Priority 2

Country	Reporting period											
	2007-2009				2009-2011				2011-2013			
	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4
Angola	2	3	3	2								
Botswana					4	2	5	3				
Democratic Republic of the Congo												
Lesotho					2	2	3	1				
Madagascar					4	4	4	2				
Malawi	3	4	2	1					3	4	4	4
Mauritius	3	3	4	4	3	3	4	4	3	3	4	4
Mozambique	3	4	3	3	3	3	4	3	4	4	4	4
Namibia					4	3	4	3				
Seychelles					4	4	4	4				
South Africa												
Swaziland												
United Republic of Tanzania	3	3	3	3	3	3	3	3	3	3	3	3
Zambia	1	1	4	4	2	2	4	4				
Zimbabwe												

5.3 Hyogo Framework progress: Priority 3

Table 20 shows general progress in the implementation of Priority3, most countries' rating being between 3 and 4 for all the indicators. Most progress is reported for indicator4, which has ratings of 5 for Botswana and Mozambique**.** Little progress is reported for indicator 3 compared with the rest of the indicators. In fact, Malawi downgraded its rating for indicator 3 from 3 in 2007-2009 to 2 in 2011-2013. Similarly, Zambia downgraded its rating from 3 in 2007-2009 to 1 in 2009-2011.

Table 20: Hyogo Framework progress in SADC – Priority 3

Country	Reporting period											
	2007-2009				2009-2011				2011-2013			
	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4
Angola	3	3	3	4								
Botswana					3	2	1	5				
Democratic Republic of the Congo												
Lesotho					2	3	1	2				
Madagascar					4	4	3	4				
Malawi	3	4	3	4					4	4	2	3
Mauritius	4	3	2	3	4	3	2	3	4	4	2	4
Mozambique	2	3	2	2	3	2	2	4	4	4	3	5
Namibia					3	3	3	2				
Seychelles					1	1	2	4				
South Africa												
Swaziland												
United Republic of Tanzania					3	3	3	3	4	3	3	3
Zambia	3	3	3	3	4	2	1	4				
Zimbabwe	4	2	1	4								

5.4 Hyogo Framework progress: Priority 4

Table 21 shows variations in the implementation of Priority 4 across the region, ranging from the lowest rating of 1 for Lesotho to an average rating of 4 for Mozambique and Zambia. Moreover, Zambia gave itself a rating of 5 for indicator 6 for 2007-2009 and 2009-2011, meaning that it has sustainable procedures in place to assess disaster risk impacts for all major development projects, including infrastructure. In contrast, Malawi downgraded its ratings for indicators 1 and 3 from 4 and 5 in 2007-2009 to 2 and 3 in 2011-2013. Although gaps in data make it difficult to generalize about the extent of progress, it is clear that Mauritius, Mozambique, the United Republic of Tanzania and, to some extent, Zambia have made some progress in implementing Priority 4 of the Hyogo Framework.

Table 21: Hyogo Framework progress in SADC – Priority 4

Country	Reporting period																	
	2007-2009						2009-2011						2011-2013					
	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6	P1	P2	P3	P4	P5	P6
Angola	3	3	2	4	3	3												
Botswana							1	5	1	2	2	4						
Democratic Republic of the Congo																		
Lesotho							1	1	1	1	1	1						
Madagascar							3	2	3	2	4	2						
Malawi	4	3	5	1	2	3							2	4	3	2	3	3
Mauritius	3	3	2	2	3	2	3	3	2	2	3	2	4	4	3	4	4	3
Mozambique	4	4	3	4	4	3	4	3	2	3	4	4	4	4	3	3	4	4
Namibia							4	4	3	3	4	3						
Seychelles							4	2	2	4	4	4						
South Africa																		
Swaziland																		
United Republic of Tanzania	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	4	3	3
Zambia	4	4	4	4	4	5	4	4	4	4	4	5						
Zimbabwe																		

5.5 Hyogo Framework progress: Priority 5

With the exception of Lesotho, the scores in Table 22 show that the countries that reported generally rated themselves between 3 and 5 across the indicators for Priority 5. Mozambique and Zambia have scores of 5 for indicator 2, suggesting that in these countries disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes. Malawi, on the other hand, downgraded its rating for 2 and 3, from 4 and 4 in 2007-2009 to 3 and 3 in 2011-2013. Similarly, the United Republic of Tanzania downgraded its rating for indicators 3 and 4 from 4 and 4 in 2007-2009 and 2009-2011 to 3 and 3 in 2011-2013. As regards availability of financial reserves and contingency mechanisms to enable effective response and recovery when required, with the exception of Botswana, most countries, particularly Madagascar and Malawi, still face challenges. As with the other priorities, although gaps in data make it difficult to generalize about the extent of progress, it is clear that Mauritius, Mozambique, the United Republic of Tanzania and, to some extent, Zambia have made some significant progress in implementing Priority 5 of the Framework.

Table 22: Hyogo Framework progress in SADC – Priority 5

Country	Reporting period											
	2007-2009				2009-2011				2011-2013			
	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4
Angola	3	3	2	3								
Botswana					4	4	5	1				
Democratic Republic of the Congo												
Lesotho					1	2	2	2				
Madagascar					4	4	2	4				
Malawi	4	4	4	4					4	3	3	4
Mauritius	4	3	2	4	4	3	2	4	4	4	3	4
Mozambique	4	5	4	4	3	4			4	5	4	4
Namibia					4	3	3	3				
Seychelles					4	3	4	4				
South Africa												
Swaziland												
United Republic of Tanzania	4	4	4	4	4	4	4	4	4	4	3	3
Zambia	5	5	4	3	5	5	4	3				
Zimbabwe												

6. Disaster risk reduction mainstreaming in policies and programmes

6.1 Disaster risk reduction mainstreaming across SADC policies, strategies and plans

While disaster risk reduction mainstreaming in Southern Africa is a task for member States, an example of how this is done at the SADC directorate level would help to accelerate the process. SADC protocols, policies and strategies, particularly those related to disaster risk reduction, were reviewed in order to establish the extent to which SADC has endeavoured to mainstream disaster risk reduction. The review covered environment, tourism, gender and development, science and technology, forestry, fisheries, water, health, education, energy and mining. Apart from health, which has implicit disaster risk reduction interventions, the rest of the protocols made during the late 1990s are, not surprisingly, silent on disaster risk reduction. Moreover, apart from those listed in Table 23, it was difficult to access the policies and strategies related to the protocols as they are not listed on the SADC website. Nonetheless, consultations established that some policies and strategies, for example climate change and social protection, were yet to be formulated.

Table 23: Mainstreaming disaster risk reduction in SADC policies, strategies and plans

Question	SADC policy, plan or strategy					
	Regional Indicative Strategy Development Plan	Strategic Indicative Plan - Organ on Politics, Defence and Security Cooperation	Disaster risk reduction strategy	Regional Water Policy 2005	Agriculture Regional Policy 2013	Climate Change Adaptation Strategy for the Water Sector
The policy at least refers to any of the following: the Hyogo Framework for Action; the Africa Region Disaster Risk Reduction Strategy; the SADC strategy	1	5	5	2	3	1
The policy explicitly incorporates disaster risk reduction aspects such as hazard, vulnerability and capacity assessments; disaster education; disaster prevention; mitigation; climate change adjustment; safety of critical infrastructure; risk-informed land-use planning; preparedness; response; and recovery.	3	5	5	4	2	3
The policy/strategy clearly identifies disaster risk reduction roles and responsibilities for directorates and units	2	2	2	4	2	3
Resources are identified to achieve identified tasks	1	1	1	1	1	1
Total 20	7	13	13	11	8	8

Consistency with global, regional and subregional policies: While the SADC Disaster Risk Reduction Strategy and the Strategic Indicative Plan for the Organ scored 5, the others scored 3 or less. The Strategy and the Plan fully articulate the elements of global and regional disaster risk reduction policies. The agriculture policy refers to the SADC policy but does not detail how this relates to the overall policy. The rest of the documents either mentioned or implicitly included disaster risk reduction. The results suggest that there is more awareness of disaster risk reduction policies in the Organ on Politics, Defence and Security Cooperation, which disaster risk reduction strategy and the Strategic Indicative Plan come under, than in the other three directorates. It is a matter for concern that, although the Regional Indicative Strategic Development Plan identifies disasters as among the major underlying causes of poverty and vulnerability in the SADC subregion, yet disaster risk reduction is not one of the key priority action areas. According to stakeholder consultations, in order to address these challenges, the capacity of the SADC disaster risk reduction unit needs to be strengthened in order effectively to generate and disseminate strategic information to support advocacy activities in the SADC secretariat and in member States.

Extent to which documents contain disaster risk reduction elements: The scores range from 3 to 5, suggesting that the documents either explicitly or implicitly incorporate disaster risk reduction elements. The Regional Water Policy, the SADC Disaster Risk Reduction Strategy and the Strategic Indicative Plan contain most of the elements of disaster risk reduction, including tools such as environmental impact assessment and hazard and capacity assessments. While the Climate Change Adjustment Strategy for the Water Sector the Regional Indicative Strategic Development Plan and the Agriculture Regional Policy implicitly use disaster risk reduction tools such as vulnerability and capacity assessment and the disaster cycle, the other elements are implied as they tend to be related to disaster risk reduction.

Disaster risk reduction as a multi-sector responsibility: The scores range from 2 to 5. The Disaster Risk Reduction Strategy has a score of 5 and the Regional Water Policy a score of 4, while the rest have scores of 2. Both recognize that disaster risk reduction is a multi-sector responsibility that should be spread across directorates and sectors but the other documents reviewed, including protocols, policies and strategies, still maintain the 'silo syndrome', whereby disaster risk reduction is viewed as a mandate of the Organ on Politics, Defence and Security Cooperation. Recognizing this challenge, consultations with stakeholders through the questionnaire and workshop suggested that the SADC secretariat should establish disaster risk reduction focal persons across its directorates and units to facilitate disaster risk reduction mainstreaming into subregional frameworks. To this end, the SADC disaster risk reduction unit should develop subregional and national guidelines on disaster risk reduction mainstreaming. In this way, the SADC secretariat would provide a framework for advocating for disaster risk reduction mainstreaming at the subregional, national and subnational levels.

Availability of resources: Funding mechanisms are based on contributions from member States and international cooperating partners. In practice, the bulk of disaster risk reduction funding is provided by international cooperating partners, which raises questions about the sustainability of disaster risk reduction programmes. According to stakeholder consultations, one major challenge is limited disaster risk reduction awareness in ministries responsible for economic planning and finance, which impacts resource allocation in support of disaster risk reduction mainstreaming. Stakeholders sug-

gested subregional and national level training on disaster risk reduction mainstreaming as one way of increasing awareness, not only in the planning and finance sectors, but across sectors.

To sum up, while it appears that disaster risk reduction knowledge and awareness have been established in the Organ of Politics, Defence and Security Cooperation Directorate, there are still challenges to disaster risk reduction mainstreaming across the policies, strategies and programmes of the other three directorates. In addition, resource challenges for disaster risk reduction, particularly prevention and mitigation, limit disaster risk reduction to response. Success in mainstreaming disaster risk reduction at national level is likely to depend on the extent to which SADC, as a subregional body, demonstrates disaster risk reduction mainstreaming across its directorates.

6.2 Disaster risk reduction mainstreaming in SADC countries through legal frameworks

Of the sampled countries, Mauritius was in the process of developing a disaster risk reduction Bill, while in Zimbabwe the legislation was in draft form. Table 24 shows that the extent to which the

Table 24: Mainstreaming disaster risk reduction through legal frameworks

Question	Mau	Mal	Nam	Moz	SA	Zam	Zim
	No disaster risk reduction legislation]	Disaster Risk Management Bill	Disaster Risk Management Act 2012	Draft disaster risk management law 2013	Disaster Risk Management Act 2002	Disaster Management Act 2010	disaster risk management Bill 2011
The legislation contains the major elements of the Hyogo Framework [disaster and development to address underlying risk factors, prevention, mitigation, preparedness and response, recovery]	-	5	5	5	5	5	5
The legislation gives adequate powers to the national disaster management organization by placing it in the Office of the President or the Prime Minister	-	5	5	4	3	5	3
The national level institutions are adequate for effective implementation of disaster risk reduction. [This includes high-level decision-making, and a national coordination mechanism, which may be, or take the form of, a multi-sectoral national platform]	-	5	5	5	4	5	4
The national level institutions are decentralized to subnational levels for effective implementation of disaster risk reduction. [This includes clear responsibilities of decentralized units, including subnational coordination mechanisms, which may be, or take the form of, a multi-sectoral subnational platform]	-	5	4	5	5	4	5
The legislation compels sectors at national and subnational levels to mainstream disaster risk reduction	-	5	5	5	4	5	3
The legislation provides mechanisms for funding disaster risk reduction	-	3	4	4	3	3	5
The legislation provides for local community participation, including vulnerable groups	-	5	5	5	5	5	5
Total out of 35	-	33	33	33	29	32	30

content of disaster risk management legislation incorporates the main elements of the Hyogo Framework for Action was rated 5 across the participating countries.

- ***This suggests that disaster risk management legislation that had been passed or was still in draft form when this study was conducted in sampled*** *countries incorporates the elements of the Hyogo Framework.* The legislation, including the South African Disaster Management Act of 2002, which was passed before the Hyogo Framework was adopted, explicitly incorporates disaster and development connections in order to address underlying risk factors, prevention, mitigation, preparedness, response and recovery.
- ***There are some variations in the power and authority accorded to the national disaster management body to effectively mainstream and implement disaster risk reduction.*** Namibia and Zam bia were rated 5 as the national body was located either in the Office of the President or the Prime Minister, suggesting they had adequate power and authority to mainstream and implement disaster risk reduction effectively. In contrast, South Africa and Zimbabwe received lower ratings as the national disaster management body was a directorate in a ministry, suggesting limited authority and power to mainstream disaster risk management across sector ministries effectively.
- ***The disaster risk management legislation provides national coordination mechanisms and decentralizes power and authority to subnational units.*** Scores were between 4 and 5 for disaster risk reduction coordination and decentralization. The disaster risk management legislation provides national coordination mechanisms in the form of multi-sectoral disaster risk management platforms at national level, which are also decentralized to subnational levels. The legislation also emphasizes wider participation, including by vulnerable groups.
- ***In terms of vertical integration of disaster risk management, legislation is generally explicit on the role of sectors in mainstreaming disaster risk management into sectors.*** All the legislative frameworks, with the exception of Zimbabwe's, which scored 3, scored4 or more as they are explicit on the role of sectors in mainstreaming disaster risk reduction into sectors. In Zambia, section 40 (1-2) of the Disaster Management Act 2011 requires ministries, sectors, etc. to prepare disaster management plans, and preparedness, prevention and mitigation plans for slow and rapid onset disasters. In Malawi, Namibia and South Africa, each national organ of State indicated in the national disaster management framework must prepare a disaster management plan. This is replicated at the provincial and municipal levels. In Zimbabwe, the draft disaster risk management law assumes that the institutional framework of committees and subcommittees will take care of sectoral responsibility. In Mozambique, sector ministries have disaster risk reduction focal persons.
- ***Less explicit on funding:*** The extent to which disaster risk management legislation was explicit on funding mechanisms ranged from 3-5. Generally, there was lack of clarity in disaster risk reduction funding. Although Zimbabwe's Disaster Risk Management Bill proposes allocating 1 per cent of budget to disaster risk management, it is not known whether Parliament will approve the proposal. Apart from making provision for a disaster

management fund (although using different terms), legislation in the different countries does not provide a budget formula for disaster risk reduction. Moreover, the disaster management fund tends to be skewed towards response rather than prevention and mitigation. In Namibia, the National Disaster Management Fund is a contingency fund mainly used in disaster situations and, to some extent, during the recovery phase. However, under Namibia's Disaster Risk Management Act 2010 (as well as the policy), sectors and decentralized bodies can mobilize their own financial resources for disaster risk management activities. This means that disaster risk reduction, prevention and mitigation funding is a sectoral responsibility, leaving disaster risk reduction resource mobilization at the discretion of sectors. There are, however, opportunities to clarify and operationalize disaster risk reduction funding issues through statutory instruments and directives.

Table 25: Mainstreaming disaster risk reduction through policy frameworks

Question	Mau	Mal	Moz	Nam	S A	Zam	Zim
	Policy being drafted	Draft disaster risk management policy 2011	Disaster risk management master Plan 2006	Disaster risk management policy 2009	National Disaster Framework 2005	National Disaster Management policy 2013	Disaster Risk Management Policy 2011
The policy reflects the disaster risk reduction statements made in the legislation, Hyogo Framework, Africa Regional Disaster Risk Reduction Strategy and the SADC Strategy [Consistency with global and regional policies]	-	5	5	5	5	5	5
Disaster risk reduction is taken into account in public investment decisions at national and subnational levels [e.g. environmental impact assessment, social impact assessment, etc.]	-	5	4	5	5	5	5
The policy is clear about the ratio of the budget allocated to risk reduction versus relief and reconstruction at national and subnational levels.	-	3	3	4	3	4	5
The policy mainstreams disaster risk reduction roles and responsibilities into key sectors [e.g. health, education, agriculture, food and nutrition, security, social welfare, infrastructure, development planning]	-	5	5	5	5	5	5
The policy incorporates climate change	-	5	5	5	1	5	5
Multi-hazard, vulnerability and capacity assessment to inform planning and development decisions at national and subnational levels.	-	5	5	5	5	5	5
Multi-hazard early warning systems, including information-sharing at all levels	-	5	5	5	5	5	5
Outlines participation at regional and subregional levels in disaster risk reduction, including transboundary risks	-	3	4	5	5	5	5
The policy ensures participation of civil society organizations in national and subnational platforms	-	5	4	5	4	5	5
Emphasis on preparedness, contingency planning and response with clear budgetary commitments	-	4	5	4	5	4	5
Risk transfers and insurance measures incorporated	-	3	3	5	1	4	4
Clear roles and responsibilities for actors, performance indicators, timetable, targets and monitoring and evaluation	-	4	4	4	4	5	4
Total out of 60	-	52	52	57	48	57	58

6.3 Progress in disaster risk reduction mainstreaming through policy frameworks

Table 25 outlines the extent to which disaster risk reduction has been mainstreamed into national policies.

The majority of indicators in Table 25 have a score of 4 and 5, suggesting that disaster risk management policies generally set the basis for disaster risk reduction mainstreaming in the participating countries. The disaster risk management policies:

- *Are consistent with disaster risk reduction global and regional policies, and national legislation.* This includes the Hyogo Framework for Action, the Kyoto Protocol (for example, Namibia and Zambia) and the African Disaster Risk Reduction Strategy. Apart from Malawi and Zambia, the rest of the policies do not refer to the SADC Strategy. However, most of the policies identify other pieces of legislation – such as health, police and environmental laws – that complement disaster risk management legislation.
- *Incorporate disaster risk reduction tools such as risk assessments, including social impact assessment and environmental impact assessment, for major investment.* Most of the policies provide details of disaster risk assessments, including hazard type classification, risk profiling, steps in disaster risk assessments and quality standards.
- *Emphasize multi-hazard early warning systems*. For example, Namibia's 2009 disaster risk management policy, section 8.2.1, provides details of early warning systems.
- *Assign clear roles and responsibilities to sectors*. In Zambia, sector responsibilities are clearer in the draft guidelines.
- *Incorporate wider participation of stakeholders and affected communities*.
- *Address transboundary risks, through participation at the regional and subregional level.* South Africa's National Disaster Management Framework of 2005 addresses regional cooperation and makes various proposals for SADC information-sharing and cross-border protocols on, among others, disaster risk reduction prevention, preparedness and response. It emerged from the consultations that Zimbabwe has drafted a Memorandum of Understanding for consideration by neighbours. However, Malawi's revised draft policy is silent on transboundary risks.
- *Provide guidelines on preparedness and response*, including contingency planning, with the resources mainly identified through the respective disaster management funds.

There are some concerns, however:

- *While the policies appear to be clear on sources of funding, they are less clear on the proportion of the budget to be allocated to disaster risk reduction*. Zambia's Disaster Management Policy of 2013 is clear about sources of funding but less clear about the proportion of the budget to be allocated to disaster risk reduction. In South Africa, disaster risk reduction funding is left to the discretion of decision makers, guided by the Constitution and other legal instruments. While Namibia's policy provides for the establishment of a Disaster Management Fund and a Transport Accident Fund, it is silent on the proportion of the budget to be allo-

cated to disaster risk reduction. In many ways, disaster risk reduction appears to be skewed towards response rather than prevention and mitigation.

- *While most country policies have incorporated risk sharing and transfers*, South Africa's National Disaster Management Framework of 2005 is silent on risk transfers. Yet, risk transfers and insurance can enhance community recovery, instead of depending exclusively on overstretched government resources.

6.4 Progress in disaster risk reduction mainstreaming in strategies and plans

The purpose of assessing strategies and plans was to ascertain the extent to which countries were operationalizing disaster risk reduction mainstreaming and implementation. It was especially interesting to examine whether there was a difference between generic risk management plans and strategic plans with clear identification of capacity gaps, benchmarks, targets and results. Table 26 summarizes the scores resulting from the assessment of the strategies and plans.

Of the seven countries, only Zambia and Malawi were in the process of drafting their disaster risk reduction plans, while the rest had their disaster

Table 26: Mainstreaming disaster risk reduction in strategies and plans

Question	Mal	Mau	Moz	Nam	SA	Zam	Zim
	Plan being drafted	Plan being drafted	Disaster Risk Reduction Master Plan 2006	Disaster Risk Management Plan 2011	National Disaster Framework 2005	Plan being drafted	Draft disaster risk reduction strategy 2012
The strategy is consistent with legislation, the Hyogo Framework, the Africa Region Disaster Risk Reduction Strategy and SADC Strategy	-	-	5	5	3	-	5
The strategy identifies the key challenges [through the hazard, vulnerability and capacity profile]	-	-	5	4	5	-	5
The strategy sets out clear objectives and priority actions	-	-	5	3	5	-	5
The strategy has a clear implementation plan with benchmarks, targets and timetable	-	-	5	4	5	-	4
Clear tasks for sectors	-	-	5	5	5	-	5
Resources are identified for achieving identified tasks	-	-	4	4	5	-	4
Total 30	-	-	29	25	27	-	28

risk reduction strategic plans either in draft form or already approved by the Government. The plans that were assessed generally fulfilled the indicators:

- *Consistency with global, regional and national policy frameworks*: Like the legislation and policies, the plans were consistent with global and regional policies, most plans referring to the Hyogo Framework and national legislation. While the South African National Disaster Management Framework was passed before the Hyogo Framework was adopted, it takes into account most of its elements.
- *Identification of key challenges*: Most plans outline hazard and vulnerability profiles but tend to be less diagnostic in identifying capacity gaps, based, for example, on strengths, weaknesses, opportunities and threats, to inform strategic actions.
- *Objectives underpinned by disaster risk reduction theoretical frameworks*: The majority of plans are underpinned by disaster risk reduction theoretical frameworks. For example, in Namibia, the objectives are guided by the disaster cycle: prevention, preparedness, response and recovery. This means the plan focuses on all aspects of disaster risk reduction and is thus unique among development plans. The Zimbabwe draft disaster risk management strategy adopts a hazard approach guided by the UNISDR hazard classification.
- *Prioritizing action*: The strategies vary across countries. In the Namibia Disaster Risk Management Plan, the actions are not prioritized and not clearly linked to the Hyogo Framework priority actions. Similarly, Zimbabwe's draft disaster risk management strategy does not clearly link actions to Hyogo priorities. While countries are not necessarily obliged to adhere to the Hyogo priorities, aligning national priorities with them makes it much easier to report on progress in Hyogo Framework compliance using the Hyogo Framework monitor.
- *Time frame:* While Namibia's Disaster Risk Management Plan and South Africa's National Disaster Management Framework provide detailed information about what needs to be done, they would have been far more focused if there was a timeframe to differentiate them from generic plans. In contrast, the Mozambican Master Plan (2006-2016) and Zimbabwe's draft disaster risk management strategy (2012-2015) have timeframes that allow disaster risk reduction stakeholders to review successes, and share good practices and lessons learned.

6.5 Sector policies and strategies in mainstreaming disaster risk reduction in Malawi

This section focuses on the vertical integration of disaster risk reduction across sectors, including cooperating partner agencies for the sampled countries. These policy and strategy documents were accessed from government and cooperating partner websites.

Table 27 shows the extent to which selected sector and cooperating partner policies and strategies have attempted to mainstream disaster risk reduction in Malawi.

Table 27 reveals the following:

- *Consistency with global, regional, subregional and national policy frameworks:* The majority of the documents have a score of 3 as they do not to refer to global,

Table 27: Sector and cooperating partner policies in Malawi

Question	Other national, sector or agency policies, plans or strategies						
	Malawi Growth and Development Strategy 2011-2016	Health Sector Strategic Plan 2011-2016	Climate Change Policy 2012	AgricSWAp 2010	National Social Support Policy 2009	National Water Policy 2005	UNDAF 2012-16
The policy at least refers to disaster risk management legislation, Hyogo Framework, and African and SADC disaster risk reduction strategies	3	3	3	2	3	3	4
The policy explicitly incorporates disaster risk reduction aspects such as hazard, vulnerability and capacity assessments; disaster education; disaster prevention; climate change adjustment; risk-informed land-use planning; preparedness; response; and recovery.	5	5	3	3	5	5	5
Resources are identified for achieving identified tasks	5	3	1	3	2	5	5
Total 15	13	11	7	9	10	13	14

regional, subregional and national policy frameworks. However, by referring to disaster risk reduction, the Malawi Growth and Development Strategy is implicitly to some extent informed by global and regional disaster risk reduction policy frameworks. Moreover, disaster risk management is one of the outcomes of the Growth and Development Strategy and UNDAF strategies and therefore provides a basis for disaster risk reduction and climate change adaptation mainstreaming. Consequently, the sector policies are informed by the strategic Millennium Development Goals. For example, the National Social Support Policy of 2009 identifies disaster risk management policy as one of the key tenets in realizing social policy goals.

- *The extent to which documents integrate disaster risk reduction:* The scores range from 3 to 5, suggesting that Malawi has made significant progress in mainstreaming disaster risk reduction into sector policies. UNDAF outcomes 1.3 and 1.4 for example, provide detailed baselines, indicators and targets on disaster risk reduction and climate change adaptation mainstreaming, as well as stand-alone programmes targeting specific sectors, decentralized structures and communities. Similarly, the Health Sector Strategic Plan, outcome 3, focuses on strengthening disaster risk management and emphasizes use of disaster assessments to inform preparedness and emergency response. However, the National Climate Change Policy makes little reference to

disaster risk reduction, suggesting that there is likely to be little linkage between disaster risk reduction and climate change at a time when there is a call for increased integration of the two bodies into a single framework.

- *Availability of resources:* With the exception of the Malawi Growth Development Strategy, UNDAF and the National Water Policy 2005, the rest of the plans and strategies do not have budgets allocated to disaster risk reduction activities.

6.6 Sector progress in mainstreaming disaster risk reduction in Namibia

Table 28 shows the extent to which selected sector and cooperating partner policies and strategies have attempted to mainstream disaster risk reduction in Namibia as follows:

- Consistency with global, regional, subregional and national policy frameworks: With the exception of the National Climate Change Policy of 2011 (with a score of 4), which refers to the Hyogo Framework and the Africa Region Disaster Risk Reduction Strategy, the rest of the documents appear not to refer to global, regional, subregional or national policy frameworks. This suggests that there may be a lack of awareness of these policies making disaster risk reduction less likely to be mainstreamed in sector or cooperating partner policies and programmes.
- *The extent to which documents integrate disaster risk reduction:* The scores range from 1-5, with the Education Plan 2002-2015 having a score of 1 as it is silent on disaster risk reduction, while the National Policy on Climate Change has a score of 5 as section 4.13 explicitly provides strategic directions for integrating disaster risk reduction and climate change. The National Policy on Climate Change also recognizes the socioeconomic impact of floods and droughts, including on food and livelihoods security, diseases (malaria, for example) and desertification. Although

Table 28: Sector progress in disaster risk reduction mainstreaming in Namibia

Question	Other national, sector or agency policies, plans or strategies						
	Ministry of Health and Social Services Strategy2009-15	UNDAF	Education for all – National Plan of Action 2002-2015	Sanitation Strategy 2010-15	Ministry of Environment and Tourism Strategy 2007/8-2011/12	National Policy on Climate Change 2011	4th National Development Plan 2012/3 – 2016/7
The policy at least refers to any of the following: disaster risk management legislation, Hyogo Framework for Action, the Africa Region Disaster Risk Reduction Strategy and the SADC Strategy	1	1	1	1	1	4	1
The policy explicitly incorporates disaster risk reduction aspects such as hazard, vulnerability and capacity assessments; disaster education; disaster prevention; mitigation; climate change adaptation; critical infrastructure; risk-informed land-use planning; preparedness; response; recovery.	3	3	1	4	2	5	3
Resources are identified for achieving identified tasks	5	5	1	5	5	4	1
Total 15	**9**	**9**	**3**	**10**	**8**	**13**	**5**

the UNDAF 2006-2010, Outcome 2, also explicitly refers to strengthening disaster risk management from national to local levels including by establishing vulnerability assessment committees, it is more focused on response than on prevention. While in 2006, with support from UNDP, Namibia developed "Entry points for disaster risk reduction mainstreaming in development", which was further developed in 2010, consultations revealed that there had been limited implementation of the initiatives due mainly to lack of funding. The Ministry of Health and Social Services Strategic Plan 2009-2015 has an emergency and disaster response component, which includes conducting simulation exercises and setting up regional emergency committees. Other disaster risk reduction actions, such as prevention and mitigation, are implied by reducing mortality, morbidity and malnutrition rates, and improving waste management systems. Similarly, the Sanitation Strategy implicitly integrates disaster risk reduction by using some mainstreaming tools, such as environmental impact assessment, focuses on reduction of WASH-related diseases, and also emphasizes raising awareness of behaviour change. Moreover, the Fourth National Development Plan2012/13 – 2016/17 implicitly integrates disaster risk reduction by referring to vulnerability to climate change and external shocks, including hazards such as floods, drought, birds and pests. The Fourth National Development Plan also proposes to investigate and utilize drought-resistant crops and livestock. It also refers to environmental impact assessment tools to inform development activities.

- ***Availability of resources:*** With the exception of the Education Plan and the Fourth National Development Plan, all plans and strategies have budgets allocated to disaster risk reduction activities.
- ***Challenges in disaster risk reduction mainstreaming in practice:*** According to consultations, the major challenges include:
  - limited advocacy to influence policymakers to make disaster risk management a national priority;
  - lack of an awareness strategy;
  - limited technical capacity and financial resources in ministries to mainstream disaster risk reduction;
  - lack of a strategy to tap into international and regional resources;
  - there is a 'silo syndrome' in that the legislative and policy frameworks that guide sector operations have not been harmonized with disaster risk reduction policies;
  - a preference for emergency management that produces immediate results;
  - the burden of implementing disaster risk reduction is mainly borne by government and a few partners as community, civil society and private sector involvement has not been harnessed.
- ***Overcoming the challenges:*** During consultations, the following suggestions were made:
  - Harmonize legislative and policy frameworks to ensure that disaster risk reduction is mainstreamed in all sectors;
  - Aggressive advocacy and disaster risk reduction campaigns to raise the profile of disaster risk reduction;
  - Collect and disseminate evidence showing the increasingly negative impacts of disasters on development and poverty reduction;

- Policymakers should engage in various forums to mobilize support for disaster risk reduction;
- Develop capacity and integrate disaster risk reduction in the education curriculum; and
- Capacity-building in information management and coordination is required.

6.7 Sector progress in mainstreaming disaster risk reduction in Zambia

In order to assess progress in disaster risk reduction mainstreaming, the policies and strategies for the water, health and education sectors were examined, as well as the United Nations Development Assistance Framework 2011-15 because it is the basis on which United Nations agencies mainstream disaster risk reduction into country programmes and projects. Table 29 reveals the following:

- *Consistency with global, regional and national policy frameworks:* Apart from UNDAF, which had a score of 4, all the sector plans and strategies had a score of 1, suggesting the indicator has not been fulfilled. UNDAF is, however, silent on global and regional disaster risk reduction policy frameworks. Nonetheless, as it refers to the Disaster Management Act 2010, the Disaster Management Operations Manual of 2005 and the National Disaster Management Policy, which were derived from global and regional policies, it can perhaps be inferred that global and regional polices were taken into account in the UNDAF document.
- *The extent to which documents integrate disaster risk reduction:* Apart from UNDAF with a score of 5, all the documents have a

Table 29: Sector progress in disaster risk reduction mainstreaming in Zambia

Question	Other national, sector or agency policies, plans or strategies			
	UNDAF 2011-15	NWASCO WASH Strategy 2013-2015	Health Strategy Plan 2011-2015	Education Medium-Term Plan
The policy at least refers to any of the following: disaster risk management legislation, the Hyogo Framework, Africa Region Disaster Risk Reduction Strategy and the SADC Strategy	4	1	1	1
The policy explicitly incorporates disaster risk reduction aspects such as hazard, vulnerability and capacity assessments; disaster education; disaster prevention; mitigation; climate change adaptation; safety of critical infrastructure; risk-informed land-use planning; preparedness; response; and recovery.	5	1	1	1
Resources are identified for achieving identified tasks	5	1	1	1
Total 15	14	3	3	3

score of 1. This means UNDAF has fulfilled the indicator while the rest of the policies have not. UNDAF Outcome 4 focuses on strengthening climate change, environment and disaster risk reduction and response frameworks in Zambia. However, the National Health Strategic Plan 2011-15 recognizes that the impact of climate change on health and disaster risk reduction is implicit in prevention measures for diseases such as malaria and gastrointestinal infections.

- *Availability of resources:* UNDAF has a score of 5 while the rest have a score of 1. Of the resources that were earmarked under UNDAF, 11.3 per cent was allocated to climate change, environment and disaster risk reduction and response. As a result, a Joint Programme on Climate Change and Disaster Risk Reduction was initiated involving seven United Nations agencies (FAO, UNDP, UNIDO, WFP, UN-Habitat, UNICEF and the United Nations Convention to Combat Desertification) and at least 11 government ministries, including the Disaster Management and Mitigation Unit. Since the remaining strategies do not have explicit disaster risk reduction components, the allocation of resources to disaster risk reduction is not specified.

6.8 Sector progress in mainstreaming disaster risk reduction in Zimbabwe

The water, health, climate change and food and nutrition sectors policies or strategies were assessed to establish the extent to which they mainstreamed disaster risk reduction. Table 30 reveals that:

- *Consistency with global, regional and national policy frameworks:* The Water Policy 2012 and the Climate Change Policy 2013 both scored 5; UNDAF had a score of 2, while the rest of the policies or strategies had a score of 1. The Water Policy 2012 refers to, among others, the Hyogo Framework for Action, the Disaster Risk

Table 30: Sector progress in disaster risk reduction mainstreaming in Zimbabwe

Question	Other national, sector or agency policies, plans or strategies					
	Food and Nutrition SecurityPolicy 2013	UNDAF	Water Policy 2012	Health Strategy 2009-2013	Climate Change Strategy 2013	Medium-Term Plan
The policy at least refers to any of the following: disaster risk management legislation, the Hyogo Framework, the Africa Region Disaster Risk Reduction Strategy and SADC Strategy	1	2	5	1	5	1
The policy explicitly incorporates disaster risk reduction aspects such as hazard, vulnerability and capacity assessments; disaster education; disaster prevention; mitigation; climate change adaptation; safety of critical infrastructure; risk-informed land-use planning; preparedness; response; and recovery.	5	4	5	2	5	3
Resources are identified for achieving identified tasks	1	3	3	1	1	1
Total 15	**7**	**9**	**13**	**4**	**11**	**5**

Management Bill, the Public Health Act and the Environmental Management Act, while the Climate Change Policy 2013 refers to draft disaster risk management legislation, disaster risk management policy and disaster risk management strategy. Although UNDAF does not refer to global and regional disaster risk reduction strategies, it identifies the absence of a disaster risk management legal framework as one of the major gaps in Zimbabwe. The other policies are silent on global, regional and national disaster risk reduction policies, suggesting limited awareness of global, regional and national disaster risk management policy frameworks.

- ***The extent to which documents integrate disaster risk reduction:*** The Food and Nutrition Security Policy of 2013, the Water Policy 2012 and the Climate Change Policy 2013 all had a score of 5. UNDAF had a score of 4, while the Medium-Term Plan and the Health Strategy had a score of 2 and 3 respectively. The Food and Nutrition Security Policy of 2013, Water Policy 2012 and the Climate Change Policy 2013 incorporate the application of disaster risk reduction mainstreaming tools such as hazard, vulnerability and capacity assessments, environmental impact assessment and the disaster risk management cycle. For example, the Water Policy states that "Comprehensive risk assessment and risk management form the backbone of these plans, which aim to steer management of drinking water-related health risks away from end-of-pipe monitoring and response. In order to produce a plan, a thorough assessment of the water supply process from water source to the consumer's tap will be carried out by the water services authority and enforced by water service authorities". Having the Disaster Risk Management Bill and Disaster Risk Management Policy adopted is one of the major strengths of UNDAF, while the Health Strategy and the Medium-Term Plan have implicit disaster risk reduction elements. As a recovery plan, the Medium-Term Plan incorporates such actions as the use of environmental impact assessment, mitigation and adaptation, and risk management through productive safety nets. However, apart from referring to the effects of "natural disasters" and implicit prevention measures, the Health Strategy has much less to say that is relevant to disaster risk reduction, suggesting that there is a low likelihood that disaster risk reduction will be explicitly mainstreamed in the health sector.
- ***Availability of resources:*** With the exception of UNDAF and the Water Policy, the policies and strategies do not go beyond identifying sources of funding. Funding is therefore a major challenge if there is to be disaster risk reduction mainstreaming in Zimbabwe.

6.9 Sector progress in mainstreaming disaster risk reduction in Mauritius

Owing to difficulties in accessing sector policies, the assessment for Mauritius was not carried out. However, the following summary gives some idea of disaster risk reduction progress in Mauritius:

- A National Disaster Risk Reduction and Management Council was set up within the Prime Minister's Office in August 2013, when a National Disaster Risk Reduction and Management Centre was also established. The Centre acts as the focal institution for the State of Mauritius for planning, organizing, coordinating and monitoring disaster risk reduction and management activities at all levels. In addition, local disaster risk reduction and management committees have been established at the municipal and district levels, including one full-time permanent member of staff designated to lead operational disaster risk reduction and management activities in their local area.
- Under the new arrangements, a revised process for response to specific disasters in Mauritius has been introduced through the National Disaster Scheme (2013-2014).
- A disaster risk reduction Strategic Framework and Action Plan was completed in January 2013 focussing upon flood, landslide and coastal inundation hazards. These hazards and risks areas have been mapped and the report recommends a set of 28 actions that are being implemented by various sectors. The implementation of these actions is coordinated by the National Disaster Risk Reduction and Management Centre.
- A National Disaster Risk Reduction and Management Bill is at an advanced stage of passage through Parliament. The Bill's main objective is to make better provision to ensure that the Government is able to prevent, mitigate, prepare for, respond to, and recover from disasters.
- The work plan of the National Centre includes the production of a Strategic Framework for Disaster Risk Reduction and Management for the country by the end of 2014. The work plan also envisages the formulation of a national disaster management plan within two years.

6.10 Sector progress in mainstreaming disaster risk reduction in Mozambique

Table 31 shows the extent to which selected sector and cooperating partner policies and strategies have attempted to mainstream disaster risk reduction in Mozambique.

Table 31 reveals the following:

- *Consistency with global, regional, subregional and national policy frameworks:* Of the sector policies assessed, most of the documents refer to global, regional, subregional and national policy frameworks. The 2012 Climate Change Strategy is more explicit on the integration of disaster risk reduction and climate into a single framework.
- *The extent to which documents integrate disaster risk reduction:* The scores range from 3 to 5, suggesting that Mozambique has made significant progress in mainstreaming disaster risk reduction into sector policies, particularly through PARP, climate change strategy, NAPA and UNDAF.
- *Availability of resources:* With the exception of the PARP, UNDAF and the Climate Change Strategy, the plans and strategies are not clear on the budgets allocated to disaster risk reduction activities.

Table 31: Sector and cooperating partner policies in Mozambique

Question	Other national, sector or agency policies, plans or strategies						
	PARP 2011-2014	Environmental Law 1997	Climate Change Strategy 2012	Agriculture PEDSA 2010	NAPA 2007	Water Policy 2007	UNDAF 2012-15
The policy at least refers to disaster risk management legislation, the Hyogo Framework, the Africa Region and SADC disaster risk reduction strategies	4	3	5	3	4	3	4
The policy explicitly incorporates disaster risk reduction aspects such as hazard, vulnerability and capacity assessments; disaster education; disaster prevention; climate change adaptation; risk-informed land-use planning; preparedness; response; and recovery.	5	3	5	3	5	3	5
Resources are identified for achieving identified tasks	5	3	4	3	3	3	5
Total 15	**14**	**9**	**14**	**9**	**12**	**9**	**14**

7. Selected good practices

This chapter presents good practices, success factors and lessons learned in mainstreaming disaster risk reduction and climate change adaptation measures in SADC. It should be noted that, as most of the disaster risk reduction mainstreaming activities are implemented by United Nations agencies and civil society organizations, the exemplars of good practice described in this report have mainly been derived from their work.

7.1 Disaster risk reduction mainstreaming through national policy in Malawi

Summary: National policy is one of the key instruments for mainstreaming disaster risk reduction across sectors. The Malawi Growth and Development Strategy II (MGDS II), which builds on MGDS I (2006-2011), is an overarching medium-term strategy for achieving Malawi's long-term development goals. The objective of MGDS II is to reduce poverty through sustainable economic growth and infrastructure development. To this end, it identifies six broad themes: sustainable economic growth; social development; social support and disaster risk management; infrastructure development; governance; gender; and capacity development. Disaster risk management is viewed as a cross-cutting theme to be integrated into sustainable development planning and programming at all levels.

The context: Malawi is frequently affected by natural and anthropogenic disasters. Apart from disasters that hit traditional disaster-prone areas like the Shire Valley, acute food shortage is the worst form of humanitarian crisis in Malawi. Lakeshore areas are also prone to severe flooding during years of heavy rains. Hailstorms destroy crops, livestock, and other infrastructure thereby reducing productivity and removing sources of livelihood. The MGDS II mainstreams prevention, mitigation, preparedness, response and recovery into sectors using disaster risk management tools.

Methodology and tools: The sector-wide approach, the annual national budget, and monitoring and evaluation are the main tools supporting implementation of the MGDS. The sector-wide approach means that all significant funding for the sector supports a single sector policy and expenditure programme under Government leadership. The other main tool for MGDS implementation is the annual national budget, through the medium-term expenditure framework, including the Public Sector Investment Programme. The monitoring and evaluation master plan developed by the Government with support from donors and cooperating partners is the main tool for assessing the performance of various policy strategies within the framework of MGDS II.

Good practice: Explicitly integrating disaster risk management into the national development strategy is good practice. As a result, most sector policies and strategies in Malawi – for example, health, social protection, water and agriculture – are underpinned by disaster risk management tools such as environmental impact assessment and hazard, vulnerability and capacity assessments.

Lessons learned: The main lessons learned from implementation of MGDS I are: successful implementation of any national development strategy requires commitment from all stakeholders; a strong indicator framework is critical for measuring progress towards defined goals, targets and outcomes; availability of data is crucial for monitoring the progress of MGDS implementation and alignment of the national budget and sector strategies to the national development strategy.

Potential for replication: This practice has potential for replication across the subregion, taking into account country context. Exchange visits and sharing lessons learned could be one way of publicizing the Malawi Growth and Development Strategy.

7.2 Institutionalization of risk management, pro-GRC/German Technical Cooperation (GTZ), Mozambique[35]

Summary: Integrated disaster risk management in municipal development is part of *Programa para o Desenvolvimento Rural* (programme for rural development), which emphasizes the promotion of district development plans. In 2007, GTZ refined its programmes to include integrated disaster risk management. The objective of the project was to provide organizational and technical support to communities, districts and governments, particularly the National Institute of Disaster Management of Mozambique (INGC), for the implementation of disaster risk management measures in priority areas threatened by hurricanes, floods and droughts. A further objective was to identify arid and semi-arid areas prone to drought and bush fires and, jointly with local authorities, to identify relevant mechanisms for adaptation to climate change and management of water resources. The programmes focused on national emergency operation centre and the regions covered included Southern Region - Inhassoro, Vilankulo, and Govuro districts, Inhambane Province and Machanga district, Sofala Province; Central Region (Búzi, Chibabava in Sofala Province, and Mossurize, Sussundenga (Administrative Post of Dombe) and Manica, Manica Province; Central and Southern regions – Massange in Gaza Province, Mabote, FunhalouroandGovuro in Inhambane Province and Machanga, Sofala Province.

Context: Over the past 50 years, the country has been hit by 68 natural disasters which have killed more than 100,000 people and affected up to 28 million. As much as 25 per cent of the population is at risk from natural hazards (World Bank, 2010:8). By 2010 Mozambique ranked second among countries most vulnerable to economic losses from natural disasters, just behind Haiti (Maplecroft, 2010). As a result of recurrent disasters triggered by natural hazards such as floods, cyclones and drought, poverty levels in 2008 were at levels similar to those in 2003 (Strategic Plan, 2010). In 2013, flooding in the Limpopo basin claimed about 117 lives, displaced 176,000 people and caused economic damage of about $513 million (INGC, 2013). According to a government announcement on 26 July 2013, the GDP growth for 2013 would be 1 per cent lower than the expected 8.4 per cent as a result of the flooding. The main reason is a lack of technical expertise for preparation of local-level risk management plans and implementation of preventive measures. To address these gaps, the priority components of the project included technical assistance, organizational and procedural measures and training (by international experts) on agricultural conservation techniques at regional and local level. Important contributions were made to reducing vulner-

35 Adapted from UNDP and ECHO (2010). Prepared under the auspices of the United Nations Development Programme UNDP) and the European Commission Humanitarian Office (ECHO) through the Disaster Preparedness Programme (DIPECHO) Regional Initiative in Disaster Risk Reduction, March, 2010, Maputo – Mozambique, pp. 110-113.

ability, including improving agribusiness, providing technical advice on the implementation of a comprehensive and effective disaster risk prevention and disaster risk management methodology, integrating disaster risk management principles in rural development, and capacity-building of INGC structures.

Methodology and tools: The promotion of risk reduction methodologies in district development plans has four components, which are aligned with a number of activities: district development planning with participatory activities at community level; strengthening local authorities and the civilian population through activities related to risk reduction and identification of relevant hazards; adaptation of innovative technologies and sustainable use of natural resources; disaster risk management interventions such as public education on the impacts of wild fires on food security, and conservation agriculture.

Project outcomes: The main outcomes are:

- Changing behaviour and attitudes in communities;
- Adoption of minimum standards for building hazard-resistant housing;
- Reduced forest and wild fires in communities involved in the project;
- Successful integration of disaster risk management methodologies in economic and social plans and district budgets with risk management responsibilities assumed by district authorities; and monitoring and supervision by local staff to ensure that the INGC risk management guidelines are followed.

The promotion of risk reduction methodologies in district development plans consists of the following four components, which are aligned with a number of activities:

- District development planning, with participatory activities at community level;
- Strengthening local authorities and the civilian population, with risk reduction and hazard identification activities;
- Adaptation of innovative technologies and sustainable use of natural resources;
- Disaster risk management interventions such as public education on the impacts of wild fires on food security, and conservation agriculture.

Good Practice: The integration of disaster risk management into existing rural development plans is an excellent proven best practice. In the context of this project, the villages at risk along the Búzi River served as the pilot project area, using an integral, multi-sector and decentralized methodology. It has been proven to work and already led to significant progress in the region. The establishment of flood and wildfire early warning systems, the establishment of demonstration areas for testing different conservation agriculture techniques, the creation of community networks within local level risk management in various districts at risk, and the development of trained community-based teams to undertake risk management activities are key elements of the methodology.

Lessons learned: The monitoring mechanisms in place, allow for adjustments to solve problems encountered in project implementation. However, greater technical follow-up from the project's supervisory body is necessary to further strengthen local capacities. There is a need to utilize local resources to avoid dependency on external funding (for example, warning kits using with local materials; early warning systems involving local leadership; youth working in drama and theatre; games with risk management themes aligned with INGC strategies with simultaneous translation into local languages). Once a warning has been issued, the community at risk is well organized for rapid

mobilization and further identification of dangerous zones inside a community. Additionally, the exchange of good practices from the Búzi and Chinde districts has been identified as one mechanism enhancing coordination.

Potential for replication: This practice has already been replicated. It started as a pilot project using rural development projects. The practices have a long history of integrating disaster risk management in existing structures, dating back to projects implemented by GTZ and partners in Central America.

7.3 Capacity-building of civil protection committees in disaster risk reduction and climate change in Malawi

Summary: Civil protection committees (CPCs) are mandated by the national disaster management system, which is coordinated by the Department of Disaster Management Affairs, to oversee disaster risk management work at district, traditional area and village level. Unfortunately, limited resources have made it difficult for district councils to train CPC members so, although many committees have been set up across the country, most have received no training.

Methodology and tools: Training workshops are held to train CPCs in disaster risk reduction and climate change adaptation work. The training workshops carried out by civil society organizations in partnership with district councils have helped some committees to gain knowledge of disaster risk management and climate change adaptation, and the Participatory Assessment of Disaster Risks tool, and also to understand their responsibilities. In order to be more effective, CPC members are involved in assessing training needs so that training workshops are tailor made. To ensure sustainability, members at district level are trained as trainers and they train those at traditional area level and also train them to train those at village level. This approach promotes effective knowledge and skills transfer. In most districts – for example, Chikhwawa, Mwanza, Nsanje, Salima, Dedza and Phalombe – where civil society organizations have worked with district councils to carry out these training programmes, CPC members have welcomed the approach as it helps them to gain confidence, knowledge and skills to implement disaster risk reduction mainstreaming work in their communities.

Outcomes: The initiative is building confidence in committees and their members feel empowered to mainstream risk reduction into emergency preparedness, response and recovery programmes. One village civil protection committee in Chikhwawa district trained in 2009 by Evangelical Association of Malawi, was called upon by health officials to help distribute free mosquito nets to protect people from malaria infection in their area. The civil protection committee advised the officials not to distribute the nets free of charge but instead to ask households to construct a pit latrine in return, if they did not already have one, before receiving the net. This is one of the areas where people are at risk of health hazards because of poor household hygiene practices and open defecation. Government officials were surprised to note the change of mindset because people in the area were used to receiving handouts. This initiative helped the health sector achieve 85 per cent of households with a toilet from a baseline of 45 per cent. CPC members say that the disaster risk reduction and participatory assessment of disaster risk training enabled them to assess their vulnerability and take opportunities to incorporate risk reduction measures whenever they arose.

Good practice: Trained civil protection committees come up with their own community action plans with ideal measures to reduce risks and this is helping to promote ownership of risk reduction. Studies comparing district councils show that trained committees are engaged in disaster risk reduction mainstreaming across the disaster risk management cycle more than those that have not been trained. This is one effective way to promote disaster risk reduction mainstreaming governance at grassroots level. Multi-sector involvement in the process provides different perceptions of disaster risk reduction mainstreaming. CPCs are comprised of different sectors at district, area and village level. Training CPCs ensures knowledgeable and resourceful bodies within a national disaster risk reduction institutional arrangement.

Potential for replication: This approach is easy to replicate as it is not totally reliant on government, sustainability being ensured by trained CPCs that will continue to initiate risk reduction work beyond an individual project's lifespan.

7.4 Integrating adolescent girls into community-based disaster risk reduction in Southern Africa

Summary: This project sought to enable CARE and the African Centre for Disaster Studies to adapt the Girls in Risk Reduction Leadership approach for use in other countries in Southern Africa in order to reduce the challenges faced by adolescent girls in disaster and post-disaster situations (and by extension overall community risk of poor outcomes, to which adolescent girls are disproportionately vulnerable) by promoting consideration of and participation by adolescent girls and other marginalized groups in community-based disaster risk reduction.

The context: The project was implemented across four partner countries in Southern Africa in six different localities, including Tshidixwa (Zimbabwe), Kanyama (Ward 10) (Zambia), Kanyama (Ward 11) (Zambia), Salima (Malawi), Ntcheu (Malawi) and Mphaki (Lesotho). The Zambian localities are subject to severe annual floods and related hazards, including water-borne diseases. Lesotho experiences hazards such as heavy snowfall, land slippage, wind and drought. Malawi identified two localities plagued by flooding and drought that contribute significantly to food insecurity problems; and Zimbabwe also struggles with food insecurity as a result of drought-related hazards.

Methodology and tools: The African Centre for Disaster Studies provided technical assistance to the four existing CARE country programmes and partners (academic partners, local NGOs, and government entities). The programme highlighted the need for a girl-centred approach that encouraged participatory learning and involvement developed through the instigation of strategic capacity-building sessions targeting areas of significance to the lives and welfare of adolescent girls in each community. Although the programme sought to engage girls as the primary target, it was understood that the project was also seeking to involve girls in conveying important information to their families, peers and the community to encourage change. The programme enabled girls and the broader community to understand some of the often overlooked issues that undermine the position of girl children in society and reinforce their vulnerability.

7 4.1 Project outcomes

- In Lesotho, girls came together to support eco-clubs to help teach others (school, families, community) about the links between disaster risk reduction, climate change and natural resource management. In Malawi, adolescent girls ap-

proached community leaders for permission to have their own plots (gardens) as part of local irrigation schemes in order to help contribute to family food supplies, add to family income through food sales, and help support conservation agriculture efforts designed to help ease drought and channel excess water during floods.

- Strengthened partnership between disaster risk reduction committees, communities, parent-teacher associations, school officials and children through the participation of girls in forums to discuss issues surrounding flooding, hygiene and public health, particularly those that threaten their welfare.
- In Zambia, local girls and boys (to encourage integration) were trained in water quality testing and fire safety, while girls in Lesotho, Zimbabwe, and Malawi were trained in first aid to help improve safety in their communities.

Challenges: The primary challenge was linked to the culture of silence associated with gender-based violence. Efforts had to be made to build trust between project facilitators and girl participants in order for girls to feel comfortable enough to reveal some of the issues that were undermining their welfare. It was discovered that in one group more than one third of participants were survivors of some form of gender-based violence, including rape, abuse, incest and molestation.

Good practice: The initiative sought to examine and understand the underlying conditions contributing to the social vulnerability of poor and marginalized adolescent girls in Southern Africa through their involvement in a community-level programme that encouraged them, through the provision of improved capacity, to become leaders in disaster risk reduction. The approach focused on encouraging empowerment by promoting social esteem, developing technical capacity, encouraging participation and incorporating personal life experiences in order to help produce a counterweight to the unequal social power that reinforces the inequality faced by this group.

7.4.2 Lessons learned

1. **Conditions contribute to the social vulnerability of girls.** In all project localities, underlying social issues, particularly gender-based violence, served to highlight the pressing conditions that threaten the lives and welfare of women and girls. Disaster risk reduction will never help girls and women adequately if it fails to acknowledge that social factors influence the way that girls live their lives. These issues need to be identified by the girls and integrated into the content of the capacity-building programme in order help address the factors entrenching the social vulnerability of adolescent girls.
2. **Men and boys as partners for sustainable change for girls.** The experience gained from the involvement of men and boys in the Zambia locality demonstrates that men and boys need to be incorporated as partners from the start of the project in order to achieve maximum benefit. Their input can be valuable in identifying some of the root causes or beliefs that have led to the increased vulnerability faced by girls in many communities. Attitude and behaviour change among men and boys has the potential to bring about lasting positive change for girls whose vulnerability is linked to human behaviour.
3. **Community involvement as a tool for making girls visible.** Further lessons learned include the importance of involving girls in community activities, particularly those linked to economic development, conservation and hazard mitiga-

tion, such as tree planting and irrigation farming. This has allowed girls to take a more active role in community development, which can make them more visible and potentially regarded as more valuable to the community.

4. **Cross-cutting issues and their implications for girls.** In the complex interplay of sex, gender-based violence, natural hazards and food insecurity, it has been determined that in many situations in Southern Africa, including during periods of food insecurity, girls are the last members of the household to receive food. This can force them to engage in dangerous activities such as transactional sex for food or money, which increases their exposure to early pregnancy, sexually transmitted diseases, and HIV/AIDS, which, in turn make them more vulnerable to threats related to natural hazards.

7.4.3 Potential for replication

Following a regional knowledge sharing workshop held in Lusaka, it has been determined that CARE Southern Africa Regional Management Unit and the CARE Country Offices (Zambia, Zimbabwe, Lesotho and Malawi) are interested in taking the next steps to scale up the project in view of the community support they have received, the recognized benefits to girls, and the need to establish functional models that help to address the needs of the girl child and marginalized youth in disaster risk reduction in the region.

7.5 Plan Zimbabwe's climate smart disaster risk reduction

Summary: With the support from Plan International Australia (PIA), the child-centred climate smart disaster risk reduction programme was implemented by Plan Zimbabwe between 2009 and 2013. The objectives were:

1. To develop and strengthen the capacity of Plan staff, local government institutions and grass-roots bodies in relation to disaster risk reduction and community resilience;
2. To strengthen community capacity in child-centred hazard, vulnerability and capacity mapping, carry out risk analysis and develop disaster management plans.

The context: Chipinge District, Zimbabwe, the focus of climate smart disaster risk reduction, is at high risk of disasters triggered by floods, cyclones and epidemics. It was not spared during the outbreak of cholera in 2008-2009, which claimed over 4000 lives, including children.

Methodology and tools: The climate smart disaster risk reduction programme was underpinned by a child-centred approach to building disaster risk reduction capacity for Plan Zimbabwe staff, Chipinge District Civil Protection Committee, school teachers and children. Capacity-building included training in, and application of, hazard, risk and vulnerability assessment tools, humanitarian principles, child protection in emergencies and tree planting and care.

7.5.1 Project outputs

- Climate smart disaster risk reduction has engendered a culture of disaster risk reduction at country and programme unit level in Plan Zimbabwe, notably the integration of child-centred disaster risk reduction and climate change adaptation in programmes and projects, and regular risk review.
- Strengthened disaster risk reduction partnership with government and non-government agencies, school teachers and children.

- Integration of disaster risk reduction into the curriculum through the establishment of disaster risk reduction clubs, tree and grass planting and raising disaster risk reduction awareness among parents.

Good Practice: There are two exemplars of good practice

a) 'Practice what I do and what I say'

Inculcating a culture of disaster risk reduction within Plan Zimbabwe before building the capacity of partners was a good practice. Measures were put in place to appraise risks consistently and regularly within Plan. The Plan Zimbabwe Staff at Chipinge Programme Unit developed a risk register which they review every quarter to capture the changing nature of risk, including reviewing fire and disease hazards. To reduce fire hazards, they review the use of a kettle for boiling water, storage of fuel, adherence to non-smoking signs and ensuring that fire guards are maintained. At risk register review meetings they also emphasize the importance of personal hygiene, particularly washing hands after using the toilet to reduce the risk of gastrointestinal infections such as cholera and typhoid. Reverse parking to prepare for rapid response in case of emergencies has become common practice for Plan vehicles.

b) 'Provide me with information to help me tell parents about disasters'

Equipping children with evidence of disaster prevention and impacts enabled them to influence policymakers to make disaster risk reduction a national and local priority. Tongogara Primary School children in Chipinge District engaged with decision makers at district level to demonstrate the benefits of preventing compared with responding to floods on the Save River. As a result, Tongogara Primary School has not only become an open learning laboratory for disaster risk reduction and climate change adaptation in Chipinge district but also a reference for community-based disaster risk reduction in Zimbabwe.

7.5.2 Key success factors and challenges

The increasing demand for disaster risk reduction following the Hyogo Framework for Action, draft disaster risk management Bill, draft disaster risk management policy, and draft disaster risk management strategy provided the foundations for success of the project. In addition, the humanitarian response, particularly following the outbreak of cholera, provided an entry point to upstream disaster risk reduction in Zimbabwe. Furthermore, considering Zimbabwe's political context during the implementation phase of the project, working with schools and Department of Civil Protection bodies gave the programme legitimacy. In addition, leveraging partner resources, skills and expertise promoted the efficiency of the programme. Staff turnover in government departments could have undermined the effectiveness of the project as most staff who were trained were transferred to other districts, so more training was needed.

7.5.3 Lessons learned

1. Although at the initial phases of disaster risk reduction capacity-building it should be construed as a stand-alone project to increase knowledge, skills and expertise, the later stages should consider disaster risk reduction as a cultural and cross-cutting issue that should be integrated into programmes and projects.
2. Programmes should devise some form of feedback mechanism to test the widely held assumption that children can significantly influence parental attitudes to change from response to prevention.

7.5.4 Potential for replication

The fact that other districts where Plan Zimbabwe operates have adopted the climate smart disaster risk reduction model suggests that it has high potential for replication. It was implemented in phases, starting with building Plan Zimbabwe's disaster risk reduction capacity before building

the capacity of partners. Moreover, the partners who have been trained have in turn continued to train others, indicating potential for adoption by others.

7.6 Village level participatory assessment of disaster risks in Malawi

Summary: Equipping village civil protection committees with vulnerability and capacity assessment knowledge and skills, particularly at the village level, is a starting point for building disaster resilient communities. The participatory assessment tool has been piloted in several villages in Malawi to help targeted communities to take stock of hazards, vulnerability and capacity to reduce disaster risk and impacts.

Methodology and tools: The participatory assessment of disaster risks tool is being used as an entry strategy into a community. The capacity assessment helps them to consider locally available resources that can be harnessed to address vulnerability factors. The tool promotes the involvement of every member of the community, irrespective of class, race, gender and creed. The process has helped many vulnerable communities to embrace the appreciative enquiry, rather than the problem-based approach, to the development of ideal risk reduction projects. Trained village civil protection committees conduct village participatory assessment of disaster risk at intervals and keep records for future reference. Factors contributing to the success of the initiative include the involvement of different members at community level through focus group discussions and key informant interviews in which different community opinion leaders are involved. In addition, the process is facilitated by trained committees, which means the process is owned by community members, rather than dominated by outside project facilitators.

Outcome: The process is helping community leaders and people to carry out a comprehensive assessment of vulnerability factors and discuss ideal risk reduction strategies. Communities are becoming more proactive in disaster management activities than just depending on external help during disaster response times. A good example is the community of Fombe in Chikhwawa which, after going through a participatory assessment of disaster risks process supported by Eagles Relief and Development, realized that flooding problems in their area were largely the result of environmental degradation caused by rampant deforestation. They therefore decided to engage in comprehensive reforestation work and construct a dyke to protect themselves from flood waters.

Good practice: Participatory assessment of disaster risk processes, which are easy for communities to adopt, are helping vulnerable communities plan for and own risk reduction interventions. The processes promote the involvement of different stakeholders and interest groups at community level, thereby ensuring the active participation of all groups in the implementation of disaster risk reduction interventions. The participatory assessment of disaster risk process also considers how social, economic and environmental dimensions can be strengthened in order to build resilience. The process helps to translate policy and strategies into practical interventions at community level, thereby ensuring tangible results on the ground.

Potential for replication: It is easy to replicate the participatory assessment of disaster risk process and ensure its sustainability because it involves community animators and promotes the use of locally available resources to implement some of the ideal risk reduction measures planned for.

7.7 United Nations Population Fund (UNFPA) Restore hope, save lives project in South Madagascar

Summary: Reproductive health needs tend to be overlooked before, during and after humanitarian emergencies, including slow-onset food insecurity emergencies. This project sought to respond to high risks of maternal and neonatal mortality in South Madagascar, where there is recurrent food insecurity. Conducted between 2008 and 2010, the objective was to reduce the vulnerability of women of child-bearing age linked to recurrent food crisis in three regions of southern Madagascar.

The context: Southern Madagascar, where 10 per cent of Madagascar's population live, suffers from cyclical chronic drought, which is aggravated by the fallout from climate change; this results in chronic food insecurity, with a risk of famine in lean periods. In this region, 70 per cent of households are ranked in the second poorest quintile, as against 40 per cent at national level. The health indicators are the lowest in the country; the contraceptive prevalence rate among 15-49 year old women is only 3.2, while the national average is 29.2.Similarly, only 24 per cent of live births reported over the past five years took place in health facilities, while the national average is 35 per cent. The reproductive health of teenagers and youths confirms these warning signs. About 48.7per cent of 15-19 year-old girls in these three regions have either been pregnant or are already mothers, while the national average is 31.7 per cent. To reduce the risk of excess maternal and neonatal mortality exacerbated by food insecurity, the response of UNFPA emphasized improving access to reproductive health and basic social services for teenagers, youths, pregnant women and lactating mothers.

Methodology and tools: UNFPA, in partnership with WFP and local NGO Somontsoy, strengthened the capacities of the Ministry of Health at all levels, the target population and community leaders in order to enhance access to free quality reproductive services. Implementation of the project included the use of rapid assessment tools two months before the lean period in order to be able to target women of child-bearing age, pregnant and lactating mothers, and to strengthen the technical capacity of health facilities and associated training.

7.7.1 Project outputs

- Community leaders of 14 targeted communes took ownership of the mechanism to manage individual delivery kits.
- More than 8000 women of child-bearing age benefited from adequate reproductive health management through better access to free, quality reproductive health services. The rate of contraceptive coverage rose from 3.6 per cent to 31 per cent in the target areas of Androy.
- More than 2,500 pregnant women or those recently delivered were provided with prenatal, delivery and postnatal care, thus reducing the high risk of maternal mortality due to obstetric complications.

Good practice: The best practice is the use of the rapid assessment tools, not only to integrate reproductive health and food aid programmes, but also to target project beneficiaries. The integration of reproductive health and a food aid programme was accepted by all stakeholders and implementation was facilitated by close monitoring of activities and strengthened coordination at all levels. In addition, UNFPA is convinced that using rapid assessments before the onset of a food insecurity period can assist by revealing the support required for government institutions, local leadership and target communities in the provision of reproductive health services.

Key success factors and challenges: The partnership approach, with United Nations agencies, Government and NGOs, was a major factor in the success of the project. In particular, the involvement of a local NGO familiar with local cultural sensitivities and with proven experience in working with the community, was fundamental for supervising community leaders in social mobilization activities and the recuperation of missing clients. Moreover, strengthening the capacities of community actors upstream led to enhanced appropriation downstream, which translated into effective management of individual kits and a significant increase in the use of reproductive services by the most remote populations. However, the project would have been more successful if there had been: timely availability of required resources; improved accessibility for populations living more than ten kilometres from health centres; adequate storage of individual delivery and hygiene/dignity kits in communes; enhanced capacity of local and community-based NGOs to react rapidly in crisis situations; and a robust system for evaluating results (quantitative and qualitative).

7.7.2 Lessons learned

- The leadership of the health district management team is fundamental for the availability of human resources.
- The correlated development of partnership between United Nations agencies and local actors made it possible to prepare better for and find a response to the lean period through efficient resource management.
- The development of appropriate management tools helps to establish a climate of confidence among the different stakeholders, especially in the recipient community.

7.7.3 Potential for replication

As most SADC member States experience drought-induced food insecurity, the project can be replicated, provided it is adapted to the local context.

7.8 Community-based, people-centred flood forecasting and early warning system, Malawi

Summary: The Evangelical Association of Malawi and Christian Aid, in partnership with Chikhwawa district, the Water Department and the Department of Meteorological Services piloted a community-based, people-centred flood forecasting and early warning system in 2008-2009. The specific objective of the project was to strengthen local community capacity to prepare and respond to flood-induced disasters. The project was the first of its kind at community level in the country. Communities in different areas and districts along rivers that usually flood are connected through the system to ensure the relay of important trigger events such as rainfall patterns.

The context: Floods are the most common natural hazard in Malawi, particularly in Chikwawa district, which lies along the lower flat basin of the Shire River. On the eastern side, the district is bordered by the Thyolo escarpment, where most rivers and streams flowing through the district have their source. This is a generally dry environment, with below average rainfall. Despite this, 63 percent of the population depends on subsistence, rain-fed agriculture as their mainstay. Irrigation development is suboptimal, at only 5 percent of the potential 38,000 hectares. Although drought is a recurrent hazard, the district socioeconomic profile ranks floods as a severe hazard.

Methodology and tools: An early needs assessment was conducted in July 2008 using a detailed livelihood assessment methodology adopted from the Food and Agriculture Organization/ International Labour Organization (FAO/ILO) Livelihoods Assessment Toolkit. The methodology was combined with components of the participatory assessment of disaster risks tool developed by Tearfund UK. Quantitative and qualitative data were collected through semi-structured interviews with local government officials, focus group discussions, interviews with individual households in 15 villages involving 973 people (434 men and 539 women). Through the use of hazard matrices, communities identified the principal hazards. Floods were identified as the hazard with the most adverse effects on lives and livelihoods. Vulnerability analysis and disaster impact assessments showed that community-based preparedness and early warning systems were very weak: unexpected flooding led to serious losses in livelihood sources and infrastructure.

7.8.1 Project Outcomes:

These included:

- Rainfall and river water data collection and dissemination systems set up in two traditional authority areas (TAs);
- 1,289 households, eight schools and 110 'first responders' trained to anticipate floods and equipped to respond;
- Two area and 11 village civil protection committees (CPCs) trained in disaster management and operational;
- Flood contingency plans developed in the two TAs by trained CPCs;
- Flood control structures constructed;
- Quarterly inter-agency project review, two inter-district, two regional and one national consultative workshops held;
- Disaster management best practices widely disseminated nationally and regionally. Four coordination meetings between watershed districts held;
- Watershed districts include natural resource management in their development plans;
- Weekly public flood awareness sessions in print and electronic media and through religious institutions during rainy season;
- Community awareness levels, particularly of children, women and the elderly, of flood management increased;
- Two irrigation schemes established and functional; increase in crop production from irrigation facilities.

Good practice: The community-based, people-centred flood forecasting and early warning system was tested in a real situation and found highly effective in issuing timely warnings. In early April 2009, efficient and effective coordination between civil protection committees along the Mwanza River prevented loss of life and livestock downriver in Chikhwawa district. People were warned in time to avoid the river bank. Things would have been very different if the huge volumes of water that came downriver after some hours had found people and livestock near the banks. In order to scale up the initiative to other flood-prone areas and link the system to the national early warning system, a consultative meeting was held with the Departments of Water Resources, and Climate Change, and Meteorological Services to lobby Government to incorporate the community-based aspect in the national system and scale up the initiative to other flood-prone areas. The Department of Water Resources is now (2013) developing National Guidelines for Community-Based Flood Forecasting and Early Warning System, linking both the top and bottom oriented approaches, to be shared with all stakeholders involved in flood risk.

Lessons learned: User-friendly methods of communication and a simulation exercise were needed to reach the illiterate. More time and resources needed to be allocated to public awareness to highlight the importance of preparedness versus response. Preparedness is cheaper than response and helps to save lives and property in times of calamity. Community bodies had limited financial capacity and more needs to be done to help committees establish a sound financial base. In a project that involved collaboration with other partners, a balance had to be sought between time spent on coordination meetings with partners and actual implementation of activities. Failure to do this resulted in one or the other being negatively affected. Many challenges identified by the project are linked to high illiteracy levels, which hamper dissemination of information through written messages. This meant that communication strategies at local level had to be carefully designed. Another factor in villagers' lukewarm attitude to the disaster preparedness project was that over the years of disaster relief operations they had become used to receiving handouts. Consequently, mindset-changing campaigns were needed to instil a spirit of voluntary participation. The poor cell phone network for the community-based and people-centred early warning suggests that a back-up system is needed for communication between water gauge readers and civil protection committees.

Key success factors: Active participation of vulnerable communities is paramount to the effective planning and implementation of any disaster risk reduction intervention. The community-based, people-centred flood forecasting and early warning system ensures that targeted communities at risk of floods take an active part in gathering and analysing information for timely issuance of early warning messages of impending flooding. The initiative uses hydrometric scales, rain-gauges and communication equipment such as megaphones and cell phones, providing an opportunity for a bottom-up approach instead of the top-down mechanism of the current government system, which is mainly top-down and beset by a number of critical logistical problems. Communities have welcomed the system where it has been established, as it gives them the opportunity to take an active part in the process and ensure timely issuance of warning messages to save lives and property in times of flooding. The involvement of communities in the identification of strategic places for hydrometric scales and rain-gauges, capacity-building of community volunteer gauge readers and first respondents contribute to the success of the initiative.

Potential for replication: It is easy to replicate and sustain because government structures are already involved. What is generally missing is active community participation, which contributes to ownership of the equipment and system and therefore reduced vandalism.

7.9 Disaster risk reduction awareness in schools in Malawi

Summary: The education sector in Malawi has a pivotal role to play in conducting an effective community education and awareness campaign as part of disaster risk reduction mainstreaming work. Students of all ages can actively study and participate in school safety measures and contribute to community risk reduction work. While efforts are being made at policy level by the Department of Disaster Management and civil society networks to lobby for the incorporation of disaster risk reduction in school curricula, on the ground NGOs are working with district education and area offices to engage teachers and learners in disaster risk reduction awareness and mainstreaming.

Methodology and tools: Students participate through disaster risk reduction clubs and sports and quiz competition strategies. Disaster risk reduction-related games have also been developed to help students interact and learn more about disaster risk reduction. This is contributing to the building of a proactive generation imbued with a culture of safety. Integrating disaster risk reduction into schools will help raise awareness and provide a better understanding of disaster risk reduction among children, teachers and communities. The civil society initiative is helping lay the foundations for disaster risk reduction in schools, as the Department of Disaster Management is working with the Malawi Institute of Education to incorporate disaster risk reduction in school curricula.

Outcomes: The initiative is helping to promote the involvement of the education sector in disaster risk management and climate change adaptation work at community level, thereby promoting an effective community awareness and education campaign as part of disaster risk reduction mainstreaming work. It is also providing civil society organizations with opportunities for evidence-based advocacy work for the inclusion of disaster risk reduction and climate change into school curricula.

Good practice: School disaster risk reduction clubs promote ownership of initiatives by schools, teachers and learners. They help translate some disaster risk reduction-related policies and strategies into practical activities at school level. They are also likely to ensure lasting results as schools participate in disaster risk reduction activities such as reforestation and community awareness.

Potential for good practice: Replication of school-based disaster risk reduction work is easy because it is cheap and thrives on the active participation of teachers and students.

7.10 Conservation agriculture farming techniques in Malawi

Summary: Malawi suffers from food insecurity and is a major recipient of humanitarian assistance. The Malawi Vulnerability Assessment Report of June 2013 estimates the food insecure population to be 1,461,940 in 21 districts. These people are reported to be missing food entitlements for three to five months from October onwards. The food security situation tends to be a result of poor green harvesting due to the late onset of rains, rising food commodity prices, low supply of maize on local markets and lack of availability of maize in government markets. Conservation agriculture farming technologies are helping communities mitigate the impact of drought/dry spells and ensure food security.

Methodology and tools: Conservation agriculture employs the crop covering/mulching technique that promotes moisture retention even during dry spells. The use of crop residues for mulching is also contributing to lower carbon emissions from traditional farming practices because burning residues as a way of clearing gardens for planting is declining. More farming families are adopting conservation agriculture to adapt to the changing climate. In order for people to appreciate the technology, farmer field schools use demonstration plotsto train farmers. In addition, village agriculture extension workers are identified in partnership with communities and the authorities and trained to help encourage families to adopt the initiative.

Outcome: The initiative is helping vulnerable farming families in drought-prone areas to ensure food production even in times of erratic rainfall. Farmers in different areas are increasingly interested in adopting the initiative. It is envisaged that, after a few years, crop covering will help improve soil texture and people will be able to forego tillage and achieve the complete conservation agriculture concept of zero soil disturbance by tilling.

Good practice: Participating stakeholders, households and agriculture extension service providers are actively involved and own the initiative. Conservation agriculture – crop covering – is easy to adopt, helps to achieve food security and to reduce the carbon emissions that contribute to global warming, which, in turn, increases and intensifies weather-related hazards globally. Environmental Affairs Department records show that Malawi is a net emitter (though very insignificant compared to developed countries), with a significant proportion of emissions coming from the agricultural sector. Crop covering is a cost-effective strategy for enhancing community resilience to drought-induced food insecurity and the production of cash crops to improve household socioeconomic status. It is easy to replicate and is self-sustaining. Once farmers see the benefits, they want to continue with it, and crop residue burning declines**.** The main challenge is availability of crop residues due to free range livestock rearing and energy requirements. Malawi's energy mix shows that over 97 per cent of the population depends on biomass energy and that crop residues are one of the sources.

Potential for replication: Farming families are adopting the practice because it is easy and uses locally available resources such as crop residues and grasses. 7.

7.11 Village savings and loan groups in Malawi

Summary: Commonly known as the "Village Bank", village savings and loans groups are giving villagers the opportunity to develop a saving culture and also have access to affordable loans to engage in profitable non-farm and farm income-generating activities. One socioeconomic factor in household vulnerability in disaster-prone areas is over-dependence on a single source of livelihood – agriculture – which is susceptible to natural hazards and changing climate. Any weather-related disaster compromises crop production, affecting income generation at household level. People cannot engage in other off-farm income-generating activities because they do not have the start-up capital and are not able to borrow from village "loan sharks", whose prohibitive interest rates are another factor increasing vulnerability. The savings and loan group concept is therefore welcome. The initiative is promoted by civil society organizations working in partnership with district councils, government community development facilitators and the community. One factor in the success of the initiative is that all the capital comes from the members: no external start-up capital is involved.

Impact: Village savings and loan groups are helping vulnerable people to develop a culture of saving and access affordable loans to engage in off-farm micro-business initiatives. They have huge potential to improve the socioeconomic welfare of vulnerable farming families by improving asset expenditure levels, the development of income-generating activities, access to health services, nutritional levels and quality of housing, and helping with educational expenses. This can enhance their resilience to natural hazards and the effects of climate change.

Good practice: Participating stakeholders, households, community development facilitators, and non-traditional disaster risk reduction groups are actively involved and own the initiative. It provides opportunities for diversified means of livelihood and increased capacity to prepare for and deal with the impact of disaster-induced food insecurity and property loss. It is easy to replicate and sustain because it requires no external finance, only capacity-building in the relevant procedures and responsibilities. The system also trains village agents who are commissioned to involve more people and establish more groups of 20 to 25 people.

Potential for replication: As the model does not rely heavily on outside donor funding and continued support from the founding organization, village savings and loan groups are both successful and sustainable and are being replicated across sub-Saharan Africa.

7.12 Raising awareness of disaster risk reduction and adaptive infrastructure among local artisans and building contractors in Malawi

Summary: Raising awareness of disaster risk reduction and adaptive infrastructure among local artisans and building contractors is an effective way of promoting disaster risk reduction mainstreaming in the building sector. Civil society organizations (EAM and Christian Aid in the Chikhwawa district) are working in collaboration with the District Department of Works and UN-Habitat to raise awareness of disaster risk reduction and adaptive infrastructure among local building contractors and artisans. Most local artisans venture into the building business with no formal training and are unfamiliar with building better principles.

Methodology and tools: The initiative promotes the use of locally available materials to build houses that can withstand the impact of floods, strong winds, earthquakes, fires, etc., following established building codes. Local artisans and contractors are provided with knowledge and skills about strengthening infrastructure against potential hazards. Artisans are motivated to become involved as they acquire marketable skills.

Outcomes: EAM piloted the initiative in 2012, when 17 local building contractors and 65 local building artisans were trained in disaster risk reduction and adaptive infrastructure. The building artisans appreciated the training because it equipped them with construction knowledge and skills from a disaster risk reduction perspective. As a result, they have formed their own association and are advising their clients on how to build better. Some have even built themselves second houses using locally available resources and adhering to building principles and codes learned during the workshop.

Good practice: The initiative brings together community members, government departments (Ministry of Works), UN-Habitat and local artisans – a non-traditional disaster risk reduction group. Most of these artisans are hired to build homes, schools, churches and mosques and their disaster risk reduction-related building knowledge will ensure peoples' safety in areas prone to flooding, earthquakes and storms. The initiative also promotes collaborative efforts by government departments within the national institutional disaster risk reduction structure and the private sector.

Potential for replication: It is easy to replicate and sustain because of the training provided and the use of locally available building materials to encourage a culture of safety and resilience.

8. Summary of disaster risk reduction mainstreaming tools and approaches

This chapter presents the tools and approaches for disaster risk reduction mainstreaming emerging from the documentation analysis, good practice case studies and consultations. Table 31 outlines some of the tools commonly used in disaster risk reduction and regular development practices.

Table 32 and Table 33 outline the approaches commonly used in Mozambique and Malawi that may resonate with practices elsewhere in, and beyond, Southern Africa. It should be noted that the applicability and effectiveness of the tools and approaches largely depends on context

Table 32: Tools for mainstreaming disaster risk reduction

Tool	Usefulness of the tool
Disaster risk management cycle together with the project cycle management	These tools complement efforts to adapt appraisal tools to take hazard-related concerns into account.
Logical and results-based frameworks	Programme and project design consider hazard-related issues
Environmental impact assessment	The environmental consequences of a proposed programme are evaluated as an integral part of the planning and decision-making processes to reduce the adverse impacts of the programme.
Hazard, vulnerability and capacity assessment	Assessing vulnerability and capacity in the context of natural hazards and the extent of potential impact and making choices about development interventions. There are several versions of the hazard, vulnerability and capacity assessment, including: participatory assessment of disaster risk, Participatory Vulnerability and Capacity Assessment (PVCA) and Community-Owned Vulnerability and Capacity Assessment (COVACA). The participatory tools tend to help vulnerable communities identify their exposure to different hazards after carrying out a comprehensive hazard assessment, disaster impact analysis, and vulnerability and capacity assessment. Communities that have gone through a thorough participatory process are likely to feel empowered to engage in informed risk reduction activities.
Community action planning	Community action planning is the end product of vulnerability and capacity assessment processes such as the hazard, vulnerability and capacity assessment; participatory assessment of disaster risk; PVCA; and COVACA. Participating communities and people are helped to come up with a range of ideal risk reduction measures to address the vulnerabilities identified. Community action planning consists of both short- and long-term measures highlighting activities communities can implement using locally available resources without external support and those they would implement with external support, and the time frame.
Guidelines for Safer House Construction	Guidelines for Safer House Construction is a technical manual that focuses on how to construct houses that can be resilient to hydrometeorological, geophysical, biological and technological hazards.
Economic analysis	Uses cost benefit analysis systematically to examine disaster risk and related options for reducing vulnerability
Sustainable livelihoods (SL) approaches	Vulnerability and external shocks are central to the ways in which livelihoods are shaped. SL approaches provide opportunities for including hazard and disaster awareness in project planning
Social impact assessment	Providing an understanding of social processes, identification of social consequences of disaster risk and the development and mitigation mechanisms
Construction design, building standards and site selection	The role of construction design, building standards and site selection in risk reduction. This includes construction of new infrastructure, strengthening existing infrastructure and post-disaster reconstruction in hazard-prone countries.
Evaluating disaster risk reduction initiatives	Evaluations, collecting and analysing data and using results to identify good practice and share lessons learned
Tearfund disaster risk reduction mainstreaming tool	A practical tool for mainstreaming disaster risk reduction into relief and development programmes in Southern Africa. It outlines performance targets and indicators to help organizations assess, measure and monitor their progress with mainstreaming. The targets/indicators cover six key areas: policy, strategy, geographical planning, project cycle management, external relations, and institutional capacity.
Best, middle and worst case scenario for contingency planning development	Used for scenario building in the contingency planning process. Scenarios are developed to allow planners to examine and plan for different scales of the same potential crisis or emergency and have been useful in identifying gaps and mainstreaming disaster risk reduction

Table 33: Some disaster risk reduction approaches in Mozambique

Approach	Overview of approach	Approach in practice	Key achievements	Key challenges
Disaster risk reduction governance structure	Disaster risk reduction is governed by a disaster risk reduction council in the Office of the Prime Minister.	The council meets twice a year and when the need arises.	The body allows disaster risk reduction mainstreaming across ministries.	The disaster risk reduction council depends on approval by the Council of Ministers for implementation of its decisions, so it has no final decision-making power on disaster risk reduction.
Disaster risk reduction master plan	The master plan provides country's disaster risk reduction strategic interventions.	The plan is a product of stakeholder consultations by INGC.	Number of people affected by disasters reduced through emergency operational centres and technology centres.	Bias towards natural hazards and rural areas; lacks a clear link with climate change, environmental protection, gender issues, and lessons learned.
Integration of disaster risk reduction and climate change adaptation in planning and budgeting	Disaster risk reduction and climate change adaptation are being integrated into the planning and budgeting system of districts and sectors (agriculture, health, water, social protection, roads, environment, meteorology and energy).	Each ministry has a disaster risk reduction/climate change adaptation focal point who advises the minister on disaster risk reduction and climate change adaptation. INGC and the Ministry for the Coordination of Environmental Affairs (MICOA) provide technical back-up to the focal point.	Increased awareness of disaster risk reduction and climate change adaptation in districts and ministries. Disaster risk reduction is starting to be seen as relevant for the sector's performance.	Focal points and members of the district technical team are overburdened with various cross-cutting issues and their own key result areas. Staff turnover, low disaster risk reduction/climate change adaptation knowledge, limited resources and monitoring and evaluation frameworks.
Disaster risk reduction intertwined with climate change adaptation	In November 2012 the Government approved the national strategy which brings together climate change adaptation and disaster risk reduction.	For this to happen, the Government established the Inter-institutional Group for Climate Change.	Disaster risk reduction recognized as an integral part of climate change adaptation	Disaster risk reduction is not in the same ministry and institution (INGC/Ministry of State Administration) as climate change (MICOA); coordination and cooperation between the two need to be strengthened.
Contingency planning	INGC prepares annual national, provincial and district contingency plans.	Based on risk assessments and forecasts; INGC develops best, middle and worst scenarios.	The contingency plans have helped reduce the number of people affected.	Flow of information and coordination between different actors remains a critical issue. Funding for contingency planning is still limited.
Community-based disaster risk reduction	The Government has been establishing local disaster risk reduction committees to build local capacity for disaster risk reduction.	INGC has formed local volunteer disaster risk reduction committees which are trained and provided with equipment	Communities that have community-based disaster risk reduction tend to experience fewer disaster impacts than those that do not.	Lack of incentives to motivate committee members to engage in disaster risk reduction on a voluntary basis, limited information-flow between national level and communities, and bias towards response.
Centres of technology in drought-prone areas	These centres are established in arid- and semi-arid districts and provide local communities with technologies for drought-prone areas.	Demonstrations on how to apply technologies are made to communities and farmers in selected drought-prone districts.	Reduced food insecurity and increased water availability through water harvesting and drought-tolerant crops.	Dispersed settlement and household patterns and migrations in drought-prone areas have made interventions very challenging.

Approach	Overview of approach	Approach in practice	Key achievements	Key challenges
Resettlement programme	The Government has been undertaking resettlement programmes in highly flood-prone areas along the Zambezi and Limpopo to reduce their exposure and vulnerability.	The Government has provided new settlement areas, builds basic infra-structure such as hospitals and schools in the new sites and provides construction material for settlers.	Reduction in the number of people affected by flooding and in need of rescue aid.	Vulnerabilities other than the physical also need to be tackled. For example, lowlands are generally fertile and moving people away from these areas means that they have to learn new skills for alternative livelihoods.

Table 34: Some disaster risk reduction approaches in Malawi

Ministry /department	Approaches to disaster risk reduction mainstreaming
Ministry of Lands and Housing	Chairs the Spatial Planning, Shelter and Camp Management Technical Subcommittee, and the Cluster. The Ministry has developed Guidelines for Safer House Construction so that buildings are resilient to hydrometeorological, geophysical, biological and technological hazards.
Ministry of Education, Science and Technology	Through the Department of School Health and Nutrition, coordinates issues related to education in emergencies. The Ministry also chairs the Education Technical Subcommittee and the Education Cluster.
Ministry of Health	Chairs the Health, HIV/AIDS and Nutrition Technical Subcommittee and Cluster. It is responsible for preventing, controlling and managing all disease outbreaks, including those that occur during disasters.
Ministry of Agriculture and Food Security	Chairs the Agriculture and Food Security Technical Subcommittee and the Cluster.
Department of Climate Change and Meteorological Services	Responsible for the generation and provision of early warnings on weather-related hazards. The weather warnings are seasonal forecasts that guide farming communities in crop and variety selection, among others. It also provides weekly and daily weather forecasts. The department also chairs the Early Warning Technical Subcommittee.
Department of Water Resources Management	Responsible for the generation and provision of early warnings on river flooding. It has a network of river flow monitoring equipment with personnel who collect data from various points across the country. The department also chairs the Water and Sanitation Technical Subcommittee and the Cluster.
Ministry of Local Government and Rural Development	Disaster risk reduction at the local level is led by local authorities. The Ministry is in the process of recruiting disaster risk management officers for all 28 districts of Malawi.
Ministry of Economic Planning and Development	The Ministry chairs and houses the Malawi Vulnerability Assessment Committee, which is responsible for assessing vulnerabilities to drought risks in the country.
Ministry of Gender and Child Development	The Ministry chairs the Protection Technical Subcommittee, and the Protection Cluster. As a way of mainstreaming disaster risk reduction, the Ministry has developed a training manual for disaster risk management related to protection issues that is targeted at district-level personnel involved in disaster risk management

9. Summary of findings

a) Hazard trends are on the increase: The hazard trend between 1900 and 2013 was generally upward, with hydrometeorological hazards, such as droughts, cyclonic storms and floods, having the highest frequency. The increase in hydrometeorological hazards can mainly be attributed to the impact of climate change. Increased hydrometeorological hazards have, in turn, increased the risk of biological hazards, particularly water-borne diseases such as malaria, cholera and dysentery. At the same time, although the risk of environmental hazards was low, destruction of vegetation through, for example, wild fires, has increased the risk of drought and flooding. Geophysical hazards, such as earthquakes and volcanic activity, have the lowest frequency. However, technological hazards, including industrial, traffic and miscellaneous accidents, have become a major cause for concern, South Africa having the highest frequency.

b) Vulnerability to disasters is on the increase: High levels of poverty, increased exposure to hazards, cross-border influx, weak social protection policies and relatively weak institutional capacity undermine disaster risk reduction measures in the SADC subregion. The majority (9 out of 15) of SADC countries fall within the low HDI category, with Lesotho, Zambia, Malawi, Zimbabwe, Mozambique and the Democratic Republic of the Congo falling below the sub-Saharan Africa HDI of 0.475. These poverty levels are accompanied by increasing exposure to climate change-related hazards, the impact of HIV/AIDS, inadequate social protection policies to provide safety nets for the poor, increasing urbanization and transboundary risks, which have exacerbated vulnerability to disasters.

c) Limited sustainability of resilience and capacity development efforts: The SADC subregion has continued to enhance its capacity and resilience to disasters and climate change impacts, notably through policy and institutional frameworks. In 2001, SADC adopted a five-year disaster risk reduction planning cycle to strengthen policy and institutional capacity at subregional and national levels. The 2001-2006 strategy was followed by the 2007-2012 strategy and then the 2012-2016 strategy. Clarity on how SADC draws lessons from the implementation of these strategies would add value, particularly by informing and strengthening the strategic options. In relation to institutional capacity development, SADC has continued to strengthen hazard, vulnerability and capacity analyses, information management and early warning systems. Lack of a clear resource mobilization strategy and reliance on external funding from international cooperating partners for policy, institutional capacity and programme development appears to be a major challenge at both subregional and national levels.

d) Low and irregular self-reporting on Hyogo Framework for Action implementation: With the exception of Mauritius, Mozambique and the United Republic of Tanzania, which have submitted Framework progress reports for all three periods, three countries appear not to have submitted a report at all, two countries have reported twice, while six countries have reported once. This suggests that countries either have limited technical or institutional disaster risk reduction capacity, or do not know how to complete the Framework monitor. Inconsistencies in self-reporting make it difficult to generalize the extent of progress

across SADC in implementing Hyogo Framework priorities. Nonetheless, the countries that have submitted two or all three reports generally show some progress in each of the five priorities, with Mozambique scoring 5for two of the indicators[36]. However, as the self-progress reports were not subject to external review, it is possible that countries reported a more positive picture than the reality on the ground for political and economic reasons. For this reason, peer-review may not only be an added value and innovation to the Hyogo Framework but also more beneficial to member States for sharing lessons and good practices than the current individual self-reporting system, which appears to be an end in itself.

e) Progress in disaster risk reduction mainstreaming but inadequate resources

i) *Limited mainstreaming of disaster risk reduction across SADC directorates and units.* While disaster risk reduction mainstreaming in Southern Africa rests with member States, an example of how this is done at the SADC directorate level might accelerate the process. SADC's main strategic policy document, the Regional Indicative Strategic Development Plan, identifies disasters as among the major underlying causes of poverty and vulnerability in the subregion and yet disaster risk reduction is not among the key priority action areas of the Strategic Plan. The results suggest that there is more awareness of disaster risk reduction policies in the Organ on Politics, Defence and Security Cooperation, which is responsible for disaster risk reduction, than in the other (three) directorates. Furthermore, while most of the documents reviewed, including protocols, policies and strategies, implicitly incorporate disaster risk reduction, they still maintain the 'silo syndrome' whereby disaster risk reduction is viewed as a mandate of the Organ on Politics, Defence and Security Cooperation, rather than a cross-cutting issue that should be mainstreamed across directorates and units. Underlying these challenges are the limited disaster risk reduction human resource capacity of the SADC secretariat, limited financial and material resources, lack of subregional and national guidelines on disaster risk reduction mainstreaming, limited disaster risk reduction advocacy to create disaster risk reduction awareness, and increased focus on response rather than prevention and mitigation.

ii) *Mainstreaming disaster risk reduction/management in national legal frameworks*. The disaster risk reduction legal frameworks that have either been passed or are in draft form incorporate the elements of the Hyogo Framework. They provide national coordination mechanisms, decentralize power to subnational authorities and are generally explicit on the role of sectors in mainstreaming disaster risk reduction. However, there are slight variations in the power and authority accorded to the national disaster management organization effectively to mainstream and implement disaster risk reduction: in Zimbabwe and South Africa, the it is a ministry directorate, which suggests limited power and authority, while in Namibia and Zambia it is located in the Office of either the President or the Prime Minister. With regard to funding, the legal frameworks are explicit on response but less explicit on prevention, with the former regarded as the responsibility of the national disaster management organization, while the

36 The scores range from 1 to 5, 1 being the lowest and 5 the highest.

latter is assumed to be a sector ministry responsibility.

iii) *Mainstreaming disaster risk reduction in national policy frameworks.* The disaster risk reduction policies adopted or still in draft form generally provide the basis for disaster risk reduction mainstreaming. The policies are consistent with the global, regional and national frameworks and incorporate disaster risk reduction tools, including risk assessments, such as hazard, vulnerability and capacity assessments and environmental impact assessments. The policies are more explicit than the legislation on sector responsibilities, stakeholder and affected community participation, multihazard early warning systems, risk-sharing transfer mechanisms, transboundary risks, preparedness, response and recovery. While policies appear to be clear on sources of funding, they are less clear on the proportion of the national budget allocated to disaster risk reduction. As a result, disaster risk reduction appears to be skewed towards response rather than prevention.

iv) *Mainstreaming disaster risk reduction in national strategies and plans.* Of the sampled countries, only Mozambique, Namibia and South Africa had a Government-approved plan, while Zimbabwe's disaster risk reduction strategy was in draft form. This suggests that SADC member States were still facing challenges implementing disaster risk reduction mainstreaming. All three plans are underpinned by disaster risk reduction conceptual and global, regional and national policy frameworks but differ in many respects. It is worth noting that, while South Africa and Namibia's plans provide detailed information about what needs to be done, they would be much more focused if the plans had time frames differentiating them from a generic risk management plan. In contrast, the Zimbabwe draft disaster risk management strategy has a time frame (2012-2015) to allow disaster risk reduction stakeholders to review successes, share good practices and lessons learned in 2015.

*v) Disaster risk reduction mainstreaming in national and sector policies and strategic plans***.** In the sampled countries, disaster risk reduction mainstreaming across sectors appears to be generally low. There are, however, slight variations. With the exception of UNDAF and Climate Change policy documents, key sectors, such as health and education, rarely refer to disaster risk reduction global, regional or national policy frameworks. Nonetheless, because of the nature of their mandate, health sector policies and strategies implicitly incorporate disaster risk reduction tools and activities, such as risk assessments, malaria prevention, disease surveillance, early warning, and emergency preparedness and response.

f) Good practices can be replicated by adapting them to specific contexts The good practice case studies on disaster risk reduction provide tools, lessons learned, key success factors, challenges, and potential for replication. While the good practice case studies are context-specific, they can be adapted to other contexts to provide evidence to policymakers at regional, national and subnational levels.

10. Conclusions and recommendations

10.1 Conclusions

The study focused mainly on assessing the extent to which the SADC subregion has progressed in mainstreaming and implementing disaster risk management interventions in national policies, strategies, plans and programmes.

When combined with physical, social, economic and environmental vulnerabilities, hazards, which appear to be increasing in frequency, magnitude and intensity, lead to preventable loss of lives and livelihoods. The vulnerability and lack of resilience to disasters in SADC is exacerbated by, among other things, high poverty levels, lack of social protection policies and increasing urbanization.

The findings of the study point to the compelling need for member States to mainstream disaster risk management and climate change adaptation into national, sector and local government policies and programmes in order to integrate disaster risk management, climate change adaptation and development into a single framework. Some Member States, albeit a minority, have yet to approve disaster risk management national legal frameworks which have been in draft form for close to a decade. Member States also appear to be reluctant to invest in disaster risk management and climate change adaptation, suggesting lack of awareness and evidence-based advocacy to increase budget allocations to disaster risk reduction and climate change adaptation.

The good practice case studies on disaster risk reduction mainstreaming and disaster risk management provide tools, lessons learned, key success factors and challenges that can inform the decisions and actions of policymakers and practitioners at subregional, national and subnational levels. While the good practice case studies are context-specific, they can be adapted and replicated in other contexts.

10.2 Recommendations

In the light of the key findings of the assessment, the following recommendations are made to act as a catalyst for increased mainstreaming and implementation of disaster risk reduction at subregional, national and subnational levels in SADC.

a) To facilitate disaster risk reduction mainstreaming across its directorates and member States, SADC should consider revising the Regional Indicative Strategic Development Plan, the Community's main strategic policy document, to reflect disaster risk reduction as a key priority for the subregion.
b) The technical capacity of the SADC disaster risk reduction unit needs to be strengthened by increasing human, material and financial resources in order to generate and disseminate strategic information to support advocacy activities within the SADC secretariat and across member States. To this end, SADC should mobilize resources from member States, international cooperating partners and through public-private sector partnerships.
c) The SADC plan of action on disaster risk reduction mainstreaming should be developed, supported and implemented with one of its key features being the development of subregional and national guidelines on disaster risk reduction mainstreaming to facilitate disaster risk reduction integration across SADC directorates and units, as well as in national and subnational disaster risk reduction frameworks.

d) The disaster risk reduction capacity of sectors and decentralized bodies should be strengthened, (a) through stand-alone projects, in order to increase knowledge, skills and expertise to form the basis for disaster risk reduction mainstreaming into sector policies, programmes and projects, and (b) by supporting them to establish baselines on disaster risk reduction to ensure that gaps are identified, thus helping to guide the budgeting process.

e) The SADC secretariat should establish disaster risk reduction focal points across its directorates and units to facilitate disaster risk reduction mainstreaming into subregional frameworks. Similarly, disaster risk reduction focal points across sectors in member States should be developed and strengthened in national and subnational bodies.

f) Subregional and national level training on disaster risk reduction mainstreaming, informed by capacity needs assessments, should be enhanced to increase cross-sector awareness, with increased focus on the planning and finance sectors to facilitate allocation of resources.

g) In countries where disaster risk reduction legislation, policies and strategic plans are either non-existent or in draft form, consideration should be given to strengthening advocacy measures to influence policymakers to accord them high priority on their agenda.

h) As disaster risk reduction is a cross-cutting issue, in countries where the national disaster management organization is a directorate under a line ministry, the SADC secretariat and partners should consider advocating their location in the Office of the President or Prime Minister in order to increase their power and authority over sector ministries.

i) To add more value to the Hyogo Framework for Action monitor self-reporting system, the SADC secretariat should consider establishing regional peer review of disaster risk reduction progress to, (a) reduce the possibility that countries report a more positive picture than the reality on the ground, and (b) share and disseminate lessons learned, good practices, tools and methodologies.

j) To address transboundary risks, specific resource mobilization should take a region-wide approach rather than be by individual country or individual donor, which might reduce efficiency and timeliness.

k) To ensure disaster data consistency with international organizations, SADC should engage with the organizations that maintain disaster databases, particularly the Centre for Research on the Epidemiology of Disasters (CRED).

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Annex 1: Conceptual framework

The Hyogo Framework for Action 2005-2015

The Hyogo Framework for Actions underpins this study. The Framework initiated a strategic and systematic approach to building disaster resilience. Its expected outcome is a "substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries" (UNISDR, 2005). The outcome is accompanied by three strategic goals and five priority actions. The strategic goals are:

i) More effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction;
ii) Development and strengthening of institutions, mechanisms, and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards;
iii) Systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response, and recovery programmes in the reconstruction of affected communities.

The Hyogo Framework priorities for action are:

i) Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.
ii) Identify, assess and monitor disaster risks and enhance early warning.
iii) Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
iv) Reduce the underlying risk factors.
v) Strengthen disaster preparedness for effective response at all levels.

The Framework assists the efforts of nations and communities to become more resilient to, and cope better with the hazards that threaten their development gains. Optimal achievement of the Framework is classed as integration of risk reduction considerations across all sectors of development, for example, education, health, communities, economy, environment and infrastructure (UNISDR, 2005). This means that efforts to reduce disaster risks must be systematically integrated into policies, plans and programmes for sustainable development and poverty reduction (UNISDR, 2005). The Hyogo Framework points squarely to the role that United Nations Member States see disaster risk reduction playing in achieving the parity aspired to by development initiatives such as the Millennium Development Goals.

The major driver for the integration of disaster and development, once disparate paradigms, is in response to the increasing threat posed to human life and livelihoods by disasters, which have been exacerbated by the effects of climate change, and to some extent defective development policies and practices. But, more importantly, increasing attention has been devoted to proactive and preemptive risk reduction. This implies embedding disaster risk reduction in the development framework and vice versa in an attempt to increase the resilience of both government and communities.

The *Hyogo Framework for Action 2005-2015 mid-term review* (2011) and the *Global assessment report* (2011) have highlighted the progress and gaps in the implementation of the Framework. Its impacts include:

i) Playing a decisive role in promoting disaster risk reduction progress across international, subregional, and national agendas;
ii) Strengthening policy, legislation and institutional frameworks;
iii) Boosting capacities for risk assessments; and
iv) Strengthening early warning, disaster preparedness and response systems.

The challenges include:

i) Coordination and accountability - 'who owns' disaster risk reduction – 'who' is in charge of 'what' at the national level;
ii) Lack of systematic multi-hazards risk assessments and early warning systems that factor in social and economic vulnerabilities;
iii) Risk of compartmentalizing Hyogo Framework implementation without synergy between priorities;
iv) Limited integration of disaster risk reduction into sustainable development policies and planning at national and international levels;
v) Insufficient level of implementation of the Framework at the local level;
vi) Limited progress in using knowledge, innovation and education to build a culture of resilience;
vii) Limited implementation of the cross-cutting issues in the Framework: multi-hazard approach, gender perspective and cultural diversity, community and volunteer

Hyogo Framework implementation in the Africa Region

The commitment of the African Union to disaster risk reduction dates back to the Constitutive Act (2000), in which Heads of State and Governments of member States pledged to promote, among other objectives, security, stability and sustainable development in Africa. The founding of the New Partnership for Africa's Development (NEPAD) in 2001 was based on the vision of the Constitutive Act (2000). In 2005, the African Union set up the Africa Working Group on Disaster Risk Reduction, which facilitates the mainstreaming and integration of disaster risk reduction in all phases of development in Africa. The Working Group developed the Africa Strategy for Disaster Risk Reduction to:

i) increase political commitment to disaster risk reduction;
ii) improve identification and assessment of disaster risks;
iii) enhance knowledge management for disaster risk reduction;
iv) increase public awareness of disaster risk reduction;
v) improve governance of disaster risk reduction; and
vi) integrate disaster risk reduction in emergency management and response.

The implementation of the Africa Strategy is supported by UNISDR Africa, the African Development Bank, UNDP Bureau for Crisis Prevention and Recovery, United Nations Environment Programme and five regional economic communities: the Economic Community of Central African States, the Indian Ocean Commission, the Intergovernmental Authority on Development (IGAD) and the Southern African Development Community (SADC). According to UNISDR, the disaster risk reduction challenges the Africa region faces include:

i) Persistence of the disaster response paradigm;
ii) Vested interests as sector ministries are reluctant to cede authority;
iii) Weak legal mandate;
iv) Deficient institutional support, particularly in the form of resources;
v) Poor linkages with sector ministries;
vi) Continuing dependence on external agency support;
vii) Capacity/knowledge shortfall; and
viii) Lack of women's and community-based participation.

12.1.3 Conceptualizing disaster risk reduction mainstreaming

"Mainstreaming" (also referred to as 'integration') is a contested concept, meaning different things to different people. There is a lack of academic literature on mainstreaming disaster risk reduction and public policy considerations. In addition to gender, governance and environment, disaster risk reduction and climate change adaptation are the latest in a series of important topics to be "mainstreamed" throughout policies, programmes, and projects.

Benson and Twigg (2007) view disaster risk reduction mainstreaming as an approach that involves considering and addressing risks emanating from natural hazards in medium-term strategic frameworks and institutional structures, in country and sectoral strategies and policies and in the design of individual projects in hazard-prone countries.

Tearfund has produced two documents on mainstreaming. One seeks to assist developmental organizations with disaster risk reduction mainstreaming. The other is designed to assist governments with disaster risk reduction legislation. Both contain the following definition of mainstreaming:

> "'Mainstreaming' derives from the metaphor of a small, isolated flow of water being drained into the mainstream of a river where it will expand to flow smoothly without loss or diversion. Therefore 'mainstreaming risk reduction' describes a process to fully incorporate disaster risk reduction into relief and development policy and practice. It means radically expanding and enhancing disaster risk reduction so that it becomes normal practice, fully institutionalized within an agency's relief and development agenda."
> (Pelling and Holloway 2006: 16).

The common thread running through these definitions is that "mainstreaming" disaster risk reduction is a "recognition that too many factors and activities play a role in achieving disaster risk reduction and only through a comprehensive cross-sectoral approach will disaster risk reduction succeed" (Nunan, Campbell and Foster 2012: 262). Mainstreaming should therefore be carefully considered. Benson and Twigg (2007:5) state that mainstreaming requires analysis both of how potential hazard events could affect the performance of policies, programmes and projects and of the impact of those policies, programmes and projects on vulnerability to natural hazards. This analysis should lead on to the adoption of measures to reduce vulnerability and enhancing resilience, thus making disaster risk reduction an integral part of the development process rather than an end in itself (Benson and Twigg, 2007).

12.1.4 Key principles for disaster risk reduction mainstreaming

This study identifies seven key principles for disaster risk reduction mainstreaming in development:

i) Political commitment, strong institutions and appropriate governance are essential for integrating risk issues in development processes and reducing disaster risks;
ii) The integration of disaster risk reduction in development is based on sound knowledge of disasters, risk and risk reduction;

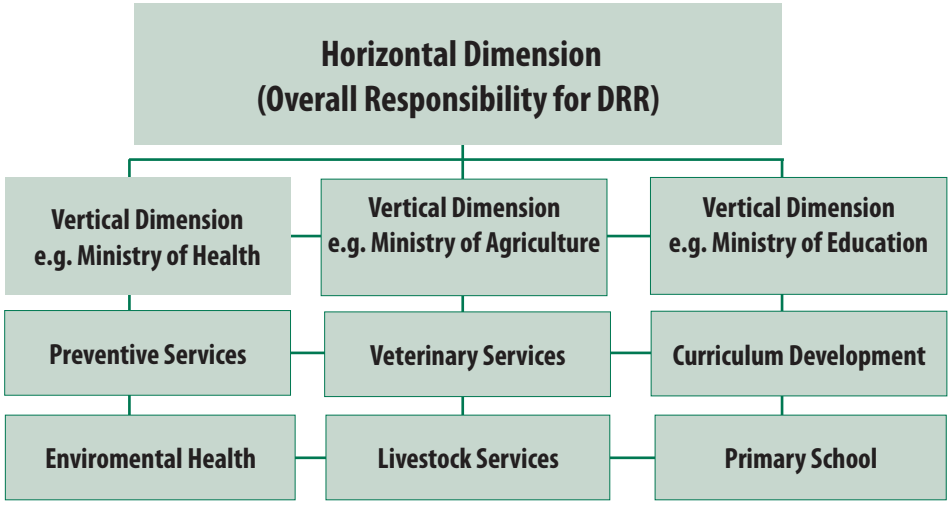
iii) Awareness of risk and risk reduction measures conveys knowledge about solutions;
iv) Effectively incorporating risk considerations in development decision-making requires synergies between sustainable development and disaster risk reduction;
v) Sound development investment in the face of hazards depends on consideration of risk issues;
vi) Achieving the objectives of disaster risk reduction mainstreaming depends on enhancing compensatory risk management to help reduce the legacy of accumulated risk; and
vii) Disaster risk reduction is a multi-thematic and multi-sectoral process; mainstreaming it in development involves its integration in development themes or sectors.

This study adapted Lafferty and Hovden's (2003) conceptual framework for environmental policy integration (Figure 2) to develop a conceptual framework for disaster risk reduction mainstreaming. Consistent with Lafferty and Hovden, the conceptual framework has horizontal and vertical dimensions of government policy integration.

Horizontal integration is the extent to which a central government has laid out clear and comprehensive cross-sectoral legislation and policies that drive disaster risk reduction mainstreaming. Thus, the national legislation, policies and strategies provide disaster risk reduction mainstreaming across sectors. Vertical integration is the extent to which a particular government sector has adopted and sought to implement disaster risk reduction national policy objectives. The assumption here is that, consistent with disaster risk reduction mainstreaming principles, the government agency that 'owns' the disaster risk reduction legislation, policy and strategies has adequate power and authority to influence sectors to integrate disaster risk reduction into their policies and strategies.

Notwithstanding that disaster risk reduction and climate change adaptation mainstreaming into national policy requires both "sophisticated policy analysis as well as an institutional structure which

Figure 2: Horizontal and vertical dimensions of disaster risk reduction mainstreaming



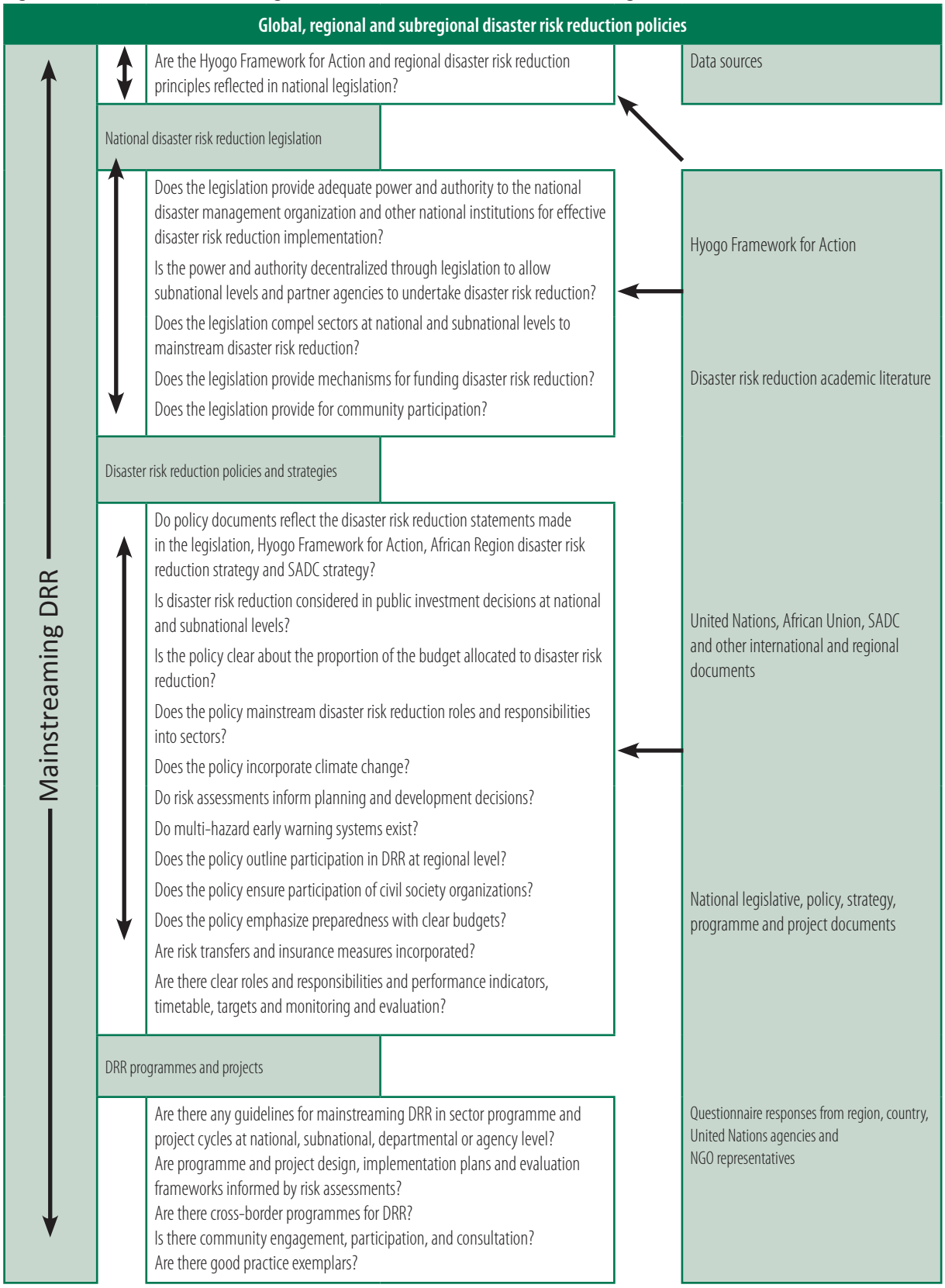
Adapted from Lafferty and Hovden (2003)

Source: African Development Bank, UNISDR and NEPAD (2004)

allows problems to be dealt with on a multi-level and multi-sectoral basis (Rayner and Howlett 2009:170), implementation of cross-cutting issues such as disaster risk reduction and climate change adaptation are only likely to be achieved if sector-wide approaches involving multiple agencies are adopted. Figure 3 outlines the framework for assessing disaster risk reduction mainstreaming developed for this study. The conceptual framework assumes disaster risk reduction mainstreaming has four dimensions: a global, regional and subregional policy regime; national legislation; policies and strategies; and programmes and projects. To examine the extent to which each of these dimensions mainstream disaster risk reduction, guiding rather than prescriptive questions are provided. At the apex are the overarching global, regional and subregional policy commitments SADC member States have made by ratifying the Hyogo Framework in 2005, the African disaster risk reduction and SADC disaster risk reduction strategies. The assumption here is that the disaster risk reduction legislative, policy and strategic frameworks are consistent with the global, regional and subregional frameworks.

The national legislative frameworks are not only examined for their consistency with global, regional and subregional frameworks, but also include such things as the power and authority the national disaster management organization has to effectively implement disaster risk reduction, the roles and responsibilities of sectors, the extent to which disaster risk reduction is decentralized, community participation, and the funding mechanisms for disaster risk reduction. Similarly, national, sector and cooperating partner policies and strategies are assessed for their consistency with global, regional, subregional and national policy frameworks. Of major concern here is the extent to which these frameworks explicitly embed the disaster risk reduction mainstreaming tools in Table 32 into, among others, WASH, education, agriculture and social protection programmes and projects. These tools include hazard, vulnerability and capacity assessment, environmental impact assessment and social impact assessment.

Figure 3: Framework for assessing disaster risk reduction (DRR) mainstreaming



Source: Author

Annex 2: Questionnaire

LEGAL FRAMEWORK

1) Does your country have a disaster risk reduction legal framework that was modified or created in or after 2005 to comply with the Hyogo Framework for Action, the African Union/NEPAD and SADC disaster risk reduction strategies?

YES_____/ NO_____

Please explain your answer.

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.....

2) Does the legal framework provide a clear disaster risk reduction institutional arrangement which is decentralized at all levels?

YES_____/ NO_____

Please explain your answer.

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.....

.....

3) Does the legal framework provide a firm basis for mainstreaming disaster risk reduction into sector policies?

YES_____/ NO_____

Please explain your answer.

.....

4) Does a functional multi-sectoral disaster risk reduction national platform exist?

YES_____/ NO_____

Please explain your answer.

.....

.....

.....

5) Do functional multi-sectoral disaster risk reduction platforms exist at the subnational levels, e.g. province/region and districts?

YES_____/ NO_____

Please explain your answer.

.....

.....

.....

6) Does the legal framework provide some mechanisms for funding disaster risk reduction activities, implementing disaster risk reduction for the coordinating body and for the sectors?

YES_____ / _____NO

Please explain your answer.

.....

.....

.....

7) Does the legal framework provide some mechanisms for wider participation?
YES_____ /_____ NO
Please explain your answer.

POLICY FRAMEWORK

8) Does your country have a disaster risk reduction policy framework? YES_____/ _____NO

9) Does the policy framework clearly state the integration of disaster risk reduction into sectors? YES_____ /_____NO

10) Does the policy framework have an implementation framework or strategy? YES_____/_____NO

11) Does the policy framework outline the funding mechanism? YES_____ / _____NO

12) Does the United Nations Development Assistance Framework (UNDAF) incorporate disaster risk reduction? YES _____/ _____NO

13) Do the policies of United Nations agencies reflect the UNDAF policy? YES_____ / _____NO

14) Have sector policies been developed in the following sectors which take into account the five actions of the Hyogo Framework as well as the elements of the Africa and SADC disaster risk reduction strategies?
- Health, particularly water, sanitation and hygiene YES _____/ _____NO
- Education YES_____ / _____NO
- Food security YES _____/_____NO
- Social protection YES _____/_____NO
- Land use and natural resources management YES_____ /_____NO
- Planning and human settlements – do you have building codes/policies and are they enforced? YES _____/_____NO
- Post-disaster recovery policy? YES_____ /_____NO

15) Does the policy framework clearly state the funding mechanisms for sectors? YES _____/_____NO

PROGRAMME AND PROJECTS

16.) Does your country have guidelines for mainstreaming disaster risk reduction into sector programme and project design, implementation and evaluation? YES_____ /_____NO

17) If No, does your organization or department have guidelines for mainstreaming disaster risk reduction in programme design, implementation and evaluation? YES_____ / _____NO

18) Are your programme and project designs informed by national and local risk assessments (including transboundary risks) based on hazard, vulnerability and capacity data? YES_____ / _____NO

19) What challenges have you faced in mainstreaming disaster risk reduction in your programmes?

20) What challenges have you faced in implementing disaster risk reduction?

21) What do you suggest should be done to overcome these challenges?

22) What role do women, children, youth, men, the elderly and people with disabilities play in disaster risk reduction programming and project activities?

23) What are the main achievements in implementation of disaster risk reduction-related measures? Please explain the success factors.

GOOD PRACTICE CASE STUDIES

24) Please send us some programme / project exemplars of good practice which can be shared with partners. These case studies should be on mainstreaming and/or implementation of disaster risk reduction and should include the following:

- Addressing/managing cross-border disaster risks and disasters;
- Ownership of the practice/measures/interventions by various stakeholders;
- Adequate backing by a sound statistical and information basis;
- Participation and involvement of all stakeholders, including non-traditional disaster risk reduction interest groups;
- Effective institutional arrangements for disaster risk reduction;
- Consideration of the social, economic and environmental dimension;
- Moving from policy/strategy and plans to concrete results on the ground;
- Effectiveness and success of the practice in disaster risk reduction and enhancing resilience;
- Replicability of the intervention/practice, where applicable;
- Sustainability of proposed/adopted measure/practice.

Annex 3: Summary of climate impacts in Southern Africa

Areas of concern	Countries affected
Current sensitivity to climate and weather	
Significant increase in heavy rainfall events (observed); evidence of changes in seasonality and weather extremes. Intensifying dipole rainfall pattern on the decadal timescale, characterized by increasing rainfall over the northern sector and declining amounts over the southern sector of eastern Africa.	Angola, Namibia, Mozambique, Malawi, Zambia
Faster increase in minimum temperatures than maximum or mean temperatures.	South Africa
In different parts of Southern Africa a significant increase in heavy rainfall observed. Evidence of changes in seasonality and weather extremes.	Angola, Namibia, Mozambique, Malawi, Zambia
Recurrent floods are linked, in some cases, with ENSO (El Niño Southern Oscillation) events – loss of human life and economic degradation. Even countries located in dry areas have not been flood-free.	Mozambique
Future Weather	
By 2080- 2100 there may be more frequent and intense tropical storms in the southern Indian Ocean.	Seychelles
Future Trends	
Increased summer rainfall over central and eastern plateau and Drakensberg Mountains. Decrease in early summer (October to December) rainfall and an increase in late summer (January to March) rainfall over the eastern parts of Southern Africa.	South Africa, Southern Africa
Adaptation	
Initial assessments in Berg River basin show that the costs of failing to adapt to climate change can be much greater than the costs of adaption.	South Africa
Proactive rather than reactive strategies enhance adaptation - agricultural capital stock and extension	Zimbabwe
Water	
About 35 million people in the region are still using unimproved water sources, thus contributing to a range of health problems, including diarrhoea, intestinal worms and trachoma. Much of the suffering from lack of access to safe drinking water and sanitation is borne by the poor, those who live in degraded environments, and overwhelmingly by women and children.	Largest proportion affected - Mozambique, then Angola, South Africa, Zambia and Malawi.
Changes in run-off and hydrology - of great concern are those dependent on groundwater supply.	Southern Africa
Impact of extreme drought and intense rainfall on lake systems	Malawi
Changes in maximum and minimum streamflow through to 2050 and 2100 with a significant reduction in streamflow.	South Africa, Southern Africa

Areas of concern	Countries affected
Health	
Areas currently with low rates of malaria transmission could become highly suitable.	Angolan, eastern and Southern Africa
By 2100, changes in temperature and precipitation could alter malaria distribution with previously unsuitable areas becoming suitable for transmission. Strong southward expansion of the transmission zone will probably continue.	Zimbabwe, South Africa
Ecosystems	
Increasing desertification and, by 2099, dune fields may become highly dynamic	Northern South Africa to Angola and Zambia
Endangered species associated with these ecosystems, including manatees and marine turtles, could also be at risk, along with migratory birds.	Seychelles
Changes in estuaries mainly as a result of reductions in river run-off and inundation of salt marshes following a rise in sea level. Loss of biomes and indigenous animals.	South Africa
Human 'drivers' are also shaping ecosystem services that impact on human well-being – increasing deforestation.	Zimbabwe, Malawi, eastern Zambia, central Mozambique
Agriculture	
Positive aspects - growing seasons in certain areas may lengthen due to a combination of increased temperature and rainfall changes, but some areas are expected to be adversely affected.	Parts of Southern Africa such as Mozambique
Fisheries could be affected by different biophysical impacts of climate change	Namibia
Drop in yields from rain-fed agriculture of up to 50 per cent during the 2000-2020 period and in the crop growth period. Falls of 90 per cent by 2100, with small-scale farmers being the most severely affected.	South Africa
Energy	
Increased fuel poverty in areas reliant on biomass as a fuel.	United Republic of Tanzania, Mozambique and Zambia
Settlements and Infrastructure	
Impacts on settlements and infrastructure of extreme climate events – floods and storms	Mozambique, western Cape, South Africa

Source: Boko and others (2007)

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