Local Governance and Disaster Risk Management in Mozambique

MINI THESIS

Sandra E Göhl

(Student # 266 3707)

UNIVERSITY of the
WESTERN CAPE

Submitted in partial fulfilment of the requirements for the degree of
Master of Administration in the School of Government,
Faculty of Economic and Management Sciences,
University of the Western Cape

Supervisor Prof Christo De Coning

May 2008

Key words

- community participation
- disaster risk management
- natural hazards
- vulnerability
- local governance
- Mozambique
- accountability
- early warning
- reversed pressure and release model
- local development

Abstract

Research title:

Local Governance and Disaster Risk Management in Mozambique

Problem, scope and nature of the study

Mozambique is frequently hit by natural disasters like droughts, floods and cyclones which impact negatively on the country's efforts to reduce poverty. The problem investigated in this study concerns the limited financial and human resources available for the planning, implementation and monitoring of activities to reduce disaster risk at the local level. The scope of the study covers mainly the two districts of Búzi and Caia (Sofala Province) and focuses on the role of community participation in the implementation of early warning systems to reduce disaster risk in the areas affected by natural hazards. The nature of the study is qualitative and includes the results of empirical research that was conducted in 2007 during a three-month field research period in Mozambique. The reversed pressure and release model (PAR model) (Wisner et al 2004) is applied as an analytical tool to illustrate how vulnerability to disaster risk can be reduced to create safer conditions.

Objective of the study

The objective of the study was to find out whether the decentralisation of responsibilities for social and economic development facilitated the management of disaster risk during the 2007 floods in Mozambique. The specific aims of the study were to

- analyse and discuss national policies for decentralisation and their significance for DRM
- investigate which responsibilities, human and financial resources were available to local governments for the planning, implementation and monitoring of DRM activities
- identify mechanisms, institutions and activities for DRM and find out whether they proved to be effective
- explore how concerned communities participated in DRM activities to reduce their vulnerability to disaster risk

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- apply the reversed PAR model by Wisner et al to identify its strengths and weaknesses
- formulate recommendations for the planning of further DRM activities and related research

Methodology of the study

An integrative approach was applied in this study. National plans and policies were analysed to gather information in relation to the decentralisation process and its impact on disaster risk management strategies in the country. During a field research period in Mozambique between June and September 2007 interviews with experts, community members and government officials were conducted. In addition, 69 structured questionnaires consisting of open and closed questions were answered by community members in the districts of Búzi and Caia (Sofala Province) and 101 questionnaires consisting of open questions were filled in by local government representatives from North, South and Central Mozambique.

Findings

After the application of the reversed PAR model as an analytical tool for the collected data it became clear that the decentralisation process facilitated the management of disaster risk during the 2007 floods in the districts of Búzi and Caia. DRM became a development issue and was integrated into the National Poverty Reduction Strategy Paper. In the districts of Búzi and Caia, DRM activities were planned and implemented with the support of disaster risk committees and in cooperation with the concerned population. Early warning systems were in place and the relevant information was transmitted to the communities so that everyone was able to leave the flooded areas in time. Although no loss of human life was reported during the 2007 floods the situation still remains challenging because of insufficient infrastructure in the resettlement areas and food shortages related to droughts. The responsibilities of the various actors regarding DRM have still to be defined more clearly and communication between the various government levels improved. In order to maintain effective and efficient mechanisms for DRM, everyone involved must be trained on a regular basis and must be aware of disaster risk in the region. To encourage all the districts affected by natural hazards to share their experiences, it might be helpful to create platforms for the exchange of information.

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Declaration

I declare that this thesis on *Local Governance and Disaster Risk Management in Mozambique* is my own work, that it has not been submitted to any other university for any degree or examination, and that all the sources I have used or quoted have been indicated and acknowledged by means of full references.

Sandra E Göhl Cape Town, South Africa, 15 May 2008

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Acknowledgements

Eventually, all things merge into one, and a river runs through it. The river was cut by the world's great flood and runs over rocks from the basement of time.
On some of the rocks are timeless raindrops. Under the rocks are the words, and some of the words are theirs. I am haunted by water.

Norman Maclean (1902-1990)

I would like to thank everyone who accompanied me during the past two years in South Africa, Mozambique and Germany for their valuable presence and encouraging words.

Special credit goes to my supervisor Prof Christo De Coning for his guidance and valuable comments as well as to the lecturers and staff of the School of Government/ University of the Western Cape (UWC) who made this Master's Programme extremely special.

I am very grateful for the financial support granted by the Sasakawa Young Leaders Fellowship Fund (SYLFF) and the German Academic Exchange Service (DAAD) for my studies in South Africa and for the internship period at the German Federal Ministry for Economic Cooperation and Development (BMZ).

The research period in Mozambique would not have been possible without the assistance of the German Technical Cooperation (GTZ) and the Instituto Nacional de Gestão de Calamidades (INGC), which allowed me to gain insight into their project "Strengthening of National Disaster Risk Management Systems in Mozambique" (PRO-GRC).

MUITA OBRIGADA to my colleagues Carolina Zelada and José Magombe Gomes for their immense knowledge, sensitivity and patience in the field. *ESTAMOS JUNTOS*!

Special thanks go to Kjetil Flatin and Igor Lesko for their encouragement and personal input in the final stages of the thesis.

DANKE, Martin, for your encouragement and presence - despite the distance.

Lastly - the most important acknowledgement of all - this thesis is dedicated to my parents, who have supported me unconditionally and with love throughout all my endeavors.

THANKS, *ENKOSI, DANKIE* to you all for making a difference!

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List of abbreviations and acronyms

AU	African Union
ANC	African National Congress
ARA	Administração Regional de Água
BMZ	Federal Ministry for Economic Cooperation and Development
CB	Companhia de Búzi (Company of Búzi)
CCD	Conselho Consultivo Distrital (District Council)
CENOE	Centro Nacional Operativo de Emergência (Center for National Emergency Operations)
CERUM	Centro de Recursos e de Uso Múltiplo (Resource and Multiple Use Centre)
COE	Centro Operativo de Emergência (Centre for Emergency Operations)
CCGC	Conselho Coordinador de Gestão de Calamidades (Coordinating Council for Disaster Management)
C-GRC	Comités de Gestão de Risco de Calamidades (Disaster Risk Management Committees)
CCPCD	Coordinating Council for Prevention and Combat of Disasters
CTGC	Conselho Técnico de Gestão de Calamidades (Technical Council for Disaster Management)
CVM	Cruz Vermelha de Moçambique (Mozambique Red Cross)
DCs	Developing countries
DDP	District development plan
DNA	Direcção Nacional de Águas (National Directorate of Water)
DRCs	Disaster risk committees
DRM	Disaster risk management
Engl.	English
Frelimo	Frente da Libertação de Moçambique (Front for the Liberation of Mozambique)
GoM	Government of Mozambique
GTZ	Gesellschaft für Technische Zusammenarbeit
GNP	Gross National Product
IDNDR	International Decade for Natural Disaster Reduction

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IFAPA	Instituto de Formação em Administração Pública e Autárquica (Institute for Education in Public Administration)
IMES	Impact monitoring and evaluation system
INGC	Instituto Nacional de Gestão de Calamidades
ISDR	International Strategy for Disaster Reduction
Ital.	Italian
LOLE	Lei dos Órgãos Locais do Estado (Law governing Local Organs of State)
MAE	Ministério da Administração Estatal (Ministry of State Administration)
UEM	University Eduardo Mondlane
MDGs	Millennium Development Goals
MPCR	Ministry of Public Constructions and Residence
MPF	Ministry for Planning and Finance
NCMNI	Director Plan for the Prevention and Mitigation of Natural Disasters
PAR	Pressure and Release (model)
PARPA	Plano de Ação para a Redução da Pobreza Absoluta (Poverty Reduction Strategy Paper)
PO	Poverty Observatory
PRO-GRC	Projecto da Gestão do Risco de Calamidades (Disaster Risk Management Project)
PROL	Programa das Reformas dos Orgãos locais (Reform Program of Local Organs)
PRSP	Poverty Reduction Strategy Paper
PPFD	Programa de Planificação e Finanças Descentralizadas (Program for Decentralised Planning and Finance)
PRODER	Programa de Desenvolvimento Rural (Rural Development Program)
Renamo	Resistência Nacional Moçambicana (Mozambican National Resistance)
RMUC	Resource and Multiple Use Center
SADC	Southern African Development Community
SIDA	Swedish International Development Agency
SISTAFE	Sistema de Administração Financeira do Estado (Law governing Financial Administration of State)
Span.	Spanish

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SSA	Sub-Saharan Africa
UNAPROC	Unidade Nacional de Protecção Civil (National Civil Protection Unit)
UNDP	United Nations Development Programme
USA	United States of America
UWC	University of the Western Cape
ZAPU	Zimbabwe African People's Union

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On the use of vernacular terms

Regulados are the areas that belong to the traditional administrative structure. A *regulado* is governed by the *régulo/ rainha,* his *sagutas* (vices), *matombos* (advisers, elders), his *saípos* (assistants, functioning as policemen), *curandeiros* (healers) and prophets. *Curandeiros* are called *nhangas* in *Cindau*. The ones who are called *sagutas* in *Cindau* (= port. *chefes de povoação*) are called *nfumos* in *Cizena*. A community is governed by a *sapanda* (in *Cizena*), who is designated by the *régulo/ rainha*. S*apandas* are the ”arm” or ”secretaries” of the *régulo/ rainha*. The *nfumo* is a highly respected person and is chosen by the community. In the case of conflict in the community he is the one to be consulted. If the conflict affects not only the community but the whole *regulado,* the *régulo/ rainha* will be consulted. *Cindau* is spoken by most of the population in the Búzi district whereas *Cizena* is the common local language spoken in the Caia district.[1]

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[1] This information was obtained during various conversations with José Magombe Gomes, Carolina Zelada and community members.

A disaster is poverty – people who do not have anything to survive.
(77 year old man, Búzi district)

CHAPTER 1: INTRODUCTION

1.1. Background to the study

When we hear about ”natural” disasters many of us immediately recall pictures seen on TV, in newspapers or on the Internet of the Tsunami-devastated areas of Aceh (2004), the recent earthquake in China (2008) which caused severe losses or the cyclones Sidr (2007) and Nagris (2008) in Bangladesh and Myanmar, which killed thousands of people. In 2005, when hurricane Katrina hit the southern states of the USA, it became clear that it is not only developing countries that face the challenge of the negative impact of ”natural” disasters.[2] But it is often the poor who are more vulnerable to the risk of disasters and who have a lower capacity to cope and recover during and after an extreme event. Human and material losses are even higher when policies and strategies for the management of disaster risk either do not exist or are not well implemented. After cyclone Nagris hit Myanmar it was noticeable that political and internal power struggles hinder relief operations to a large extent and increase human losses drastically.

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According to Wisner et al (2004:4), disasters are not caused by natural hazards alone but “are also the product of social, political and economic environments” and all these factors must therefore be considered in relation to each other. A widely accepted definition is that of the International Strategy for Disaster Reduction (ISDR) (2004:17), where ”disaster” is defined as

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

[2] Hurricane Katrina resulted in the highest damages ever reported for a hydrometeorological disaster: almost US$ 129 billion. (CRED)*Annual Disaster Statistical Review: Numbers and Trends 2006* (Guhar-Sapir et al 2007: 23).

In terms of loss of life and relative economic impact, disasters hit hardest where a lot of poor people are concentrated (Smith 2001:26). The German insurance company MunichRe gives the estimated loss of the poorest nations between 1985 and 1999 as a consequence of disasters as over 13 per cent of GDP (ISDR 2004:25). Drought and floods account for 80 per cent of loss of life and 70 per cent of economic losses linked to natural hazards in SSA. Epidemics and famine, the next most significant cause of loss of life in Sub-Saharan Africa (SSA), are strongly linked to meteorological and hydrological conditions. The ongoing climate change process will result in increased intensity, frequency and variability in the patterns of those hazards (ISDR and World Bank 2007b in UNECA 2008:105).

Because such extreme events do happen, a rising commitment can be seen among development organisations, donors and national governments of disaster-prone countries to recognise the negative impact of natural disasters on poverty reduction strategies and development projects. The approach is increasingly shifting from mere emergency response to a more proactive developmental approach integrating disaster preparedness, mitigation and preventive measures for planning to reduce the vulnerability of human populations to disasters.

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In 1989 a global programme to reduce losses by natural disasters was developed by the United Nations General Assembly, which proclaimed the 1990s the *International Decade for Natural Disaster Reduction* (IDNDR).[3] International conventions (eg Rio de Janeiro 1992, World Conferences for Disaster in Yokohama in 1994 and in Kobe in 2005) emphasise the necessity to foster prevention and mitigation as well as strengthen decentralised and especially local capacities, as stated in the *Hyogo Declaration* from the second World Conference in Kobe in 2005:

> We affirm that States have the primary responsibility to protect the people and property on their territory from hazards, and thus, it is vital to give high priority to disaster risk reduction in national policy […]. We concur that strengthening community level capacities to reduce disaster risk at the local level is especially needed, considering that appropriate

[3] The title of the decade and the approach as well are sometimes questioned for their focus on the ”natural” aspects of disaster instead of integrating social aspects. Cannon (1994:17) criticises the approach of the UN Decade because “it fails to distinguish the naturalness of hazards from the human causation of disasters and it also …encourages technical solutions to the supposed excess of the …side of nature.”

disaster reduction measures at that level enable the communities and individuals to reduce significantly their vulnerability to hazards.[4]

This declaration recognises the need to strengthen local community level capacities for disaster risk reduction. The emphasis is placed on the vital responsibility of governments to develop strategies and policies through the fostering of local capacities and to reduce vulnerability to hazards in order to promote social and economic development.

Mozambique has also acknowledged a commitment to follow this path. "The growth of an efficient national planning bureaucracy and the growth of local development non-governmental organizations (NGOs)" can be observed in Mozambique (Wisner et al 2004:260). The Action Plan for the Reduction of Absolute Poverty 2001-2005, which demonstrates and guides Mozambique's development effort, "specifically deals with natural hazards and notes that they constitute an obstacle to a definite break with certain degrees and patterns of poverty (in World Bank 2002:27)" (Wisner et al 2004:260). Mozambique is one of the countries in Africa that is regularly affected by natural disasters, including floods, cyclones, droughts and earthquakes. The 2000 floods were the worst ever recorded, with a death toll of 699 and 543, 992 displaced people.[5] These floods caused over US$ 400 million of estimated economic damage.[6] Indirect losses in terms of business and service interruptions often exceed losses due to direct physical damage.

Mozambique's Second Action Program for the Reduction of Absolute Poverty (PARPA II 2006-2009) further elaborates on the need to reduce the vulnerability of the population to natural disasters through the integration of disaster management activities into long-term development planning.

To promote sustainable development and to reduce poverty, Mozambique has been fostering decentralisation for almost 20 years with the intention of assigning new responsibilities to provinces, districts and municipalities as a result of the reform of political, administrative and financial systems. If and how the newly distributed power

[4] Hyogo Declaration, II World Conference for Disaster Reduction WCDR, Kobe, Japan, 2005, www.unisdr.org/wcdr.
[5] Source INGC, 20 April 2000 (Filipe, 2003:123).
[6] The OFDA/CRED International Disaster Database, www.em-dat.net - Université catholique de Louvain - Brussels – Belgium.

and autonomy are being used by the governments to achieve social and economic development is an issue that must be analysed within a specific context. Owing to the negative impact of natural disasters on the economic and social development of Mozambique, the research will therefore focus on local governance and the management of disaster risk induced by natural hazards.

1.2. Natural disasters in Mozambique

Because of its geographical location, Mozambique is one of the countries in Africa that is frequently hit by natural disasters such as floods, drought, tropical cyclones or earthquakes. Uncontrolled fires can be observed in many areas although these are considered to be mainly caused through human impact.[7] Droughts and tropical cyclones occur every three to four years. Floods can occur throughout the year, as Mozambique is a downstream country that has 104 principal hydrographical basins, nine of which are shared with the regional countries. Rivers provide linkages to neighbouring countries with rivers and basins connected to the Indian Ocean. More than 60 per cent of the basin drain up is generated in the upstream countries so that the probability of flooding depends very much on the upstream factors (GoM 2006d:9). Floods are also often provoked by tropical cyclones. Cyclones are low-pressure zones that develop on top of inter-tropical oceans and cause destructive winds. These strong storms normally occur in the south-eastern part of the Indian Ocean between November and April.

In early 2007, floods in central Mozambique left over 285.000 people homeless while cyclone Favio displaced over 165.000 people. The 2007 flood began in late December 2006 when the Cahora Bassa Dam overflowed due to heavy rains in Southern Africa. It became worse in February 2007 when the Zambezi River broke its banks, flooding the surrounding areas in Mozambique. Most of the flood affected people were subsistence farmers and were facing loss of harvest and livelihoods. The displaced were accommodated in shelters, accommodation centers or in resettlement areas. In coordination with humanitarian aid agencies the INGC tried to meet the needs for

[7] Uncontrolled fires do affect the environment quite negatively, as was observed on several occasions in the Búzi district. Here huge areas of land are burned down on a regular basis either to facilitate the hunting of animals or to get rid of rats that are invading the fields and that destroy the crops.

water, sanitation, health, shelter, food and education. The Government of Mozambique elaborated a recovery plan for the reconstruction of the affected areas aiming to reduce the population's vulnerability to further disasters and the recovery of economic and agricultural activities as well as public infrastructure. The plan was meant to set up a framework for the resettlement of the people who received shelter in accommodation centres.

The 2007 flooding was the worst to hit Mozambique since the floods in 2000/2001 where almost 700 people were killed and over half a million displaced. After the catastrophic consequences experienced during the 2000/2001 floods it was recognized that the country's capacity and structures for disaster management were limited in the areas of prevention, preparedness and response to such natural disasters and improvements had to be made in the area of disaster risk management. Although it is quite difficult to compare the different forms and the severity of the various natural disasters, one can compare and analyse people's responses to them and their actions taken in a given timeframe. Paulo Zucula, director of the National Institute for Disaster Management (INGC), states that the 2007 floods claimed less human losses than in 2000/2001 and that the affected population was evacuated on time. According to Zucula this was mainly due to early warning systems and other measures that were put in place after the deadly floods in 2000/2001.

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In addition, the country has experienced earthquakes in the seismic areas located in the southern part of the Great African Rift and the Mozambique Channel, as well as a rise in sea level that was observed in 2007. Tsunamis are theoretically possible but have not occurred yet.[8]

[8] According to a presentation by the meteorologist Moisés Vincente Benessene at the DRM workshop in Búzi (18.06.2007) on natural hazards in Mozambique. In September 2007 Benessene became the national director of the National Institute of Meteorology.

Table 1.2. Natural disasters in Mozambique from 1956 to 2007[9]

	#of events	Killed	Injured	Homeless	Affected	Total affected	Damage US$ (000's)
Drought	10	100,068	0	0	16,797,500	16,797,500	0
Earthquake	1	4	36	1,440	0	1,476	0
Flood	22	1,876	15	53,000	8,783,151	8,836,166	766,700
Storms	15	630	2,152	530,050	2,820,050	3,352,252	76,000

Table 1.2. illustrates that droughts are one of the deadliest disasters in Mozambique with more than 100,000 deaths since 1956, followed by floods and windstorms that left most of the people homeless and/or injured and caused over 800 million US$ of material damage in that period.[10] Two districts in the Province Sofala frequently affected by natural disasters are Búzi and Caia, which will be introduced in the next chapters.

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1.3. The Búzi district

The Búzi district is one of 13 districts in the Province of Sofala in Central Mozambique covering 7,160 square kilometres in the southeast of the province.[11] In the northeast the Púngue River and in the east the Indian Ocean serve as natural borders. Additional borders consist of the districts of Dondo and Nhamatanda in the north, Sussundenga district (Province of Manica) and Chibabava in the west and Machanga in the south. The Búzi River rises in the Zimbabwe Mountains and extends across waste plains from east to west throughout the district, causing erosion and flooding in certain areas. The water level is closely related to the ocean tides. The river is in addition connected to the

[9] Source (modified): EM-DAT: The OFDA/CRED International Disaster Database, www.em-dat.net.
[10] OFDA/ CRED International Database, 3 September 2004.
[11] For the exact location of the district, see annex 1.

tributaries Lucite and Revué. The Búzi River also serves as a means to reach the provincial capital Beira during the rainy season when the administrative centre (*vila*) Búzi and the villages along the river are cut off from the main roads. Owing to the intertropical convergence zone, from December onwards the district experiences heavy rains that are accompanied by high temperatures supporting the creation of cyclones in the area.

Búzi has a population of around 159,614 inhabitants[12] and the local language spoken is *Cindau*. Most of the population is Catholic, followed by Muslims and animists. The district offers hardly any employment opportunities. The "biggest" industry in the area is currently the *Companhia de Búzi* (CB), which was partially rebuilt in the last year by a French investor. CB currently produces high percentage alcohol for pharmaceutical companies. Large parts of the company are still in ruins as a result of natural hazards and manmade disasters like war. In order to expand its production and to rebuild the company, investors need to be found. One goal for the future that was mentioned by the director of the CB is to find more investors and to create more employment opportunities in order to produce sugar, biodiesel and spirits. This will enable better utilisation of the sugar cane plantations covering huge areas of land.[13] A ferry is used to transport sugar cane, people and cars across the river. The boat runs with the help of a few men from the CB who operate a diesel engine that is connected to a thick steel cable pulling the boat from one side of the river to the other. Most of the people in the district live from small-scale agriculture and fishing. Some families keep animals like goats, chickens or ducks. In addition, a few rich cattle rangers dominate the area and own big pieces of land. As a result of government policies, most of the land is still in public hands and past attempts to privatise were rejected by the national government, which argued that there is a need to protect the poor from privatisation and limited access to land.[14] In 1997 69 per cent of the rural population was living below the poverty line, the poorest province being Sofala, where 87 per cent of the population lives below the breadline. However, PARPA figures indicate that the poor rural population in Mozambique went down to 54 per cent (GTZ 2005b:8).

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[12] The numbers were updated during the 3rd national census that was taking place between July and August 2007 all over the country. For additional statistical information, see www.ine.gov.mz/censo2007.
[13] Conversation with the director of the Companhia de Búzi in July 2007.
[14] Conversation with Wolfgang Stiebens, project coordinator PRO-GRC.

1.4. The Caia district

The Caia district is situated about 450 kilometres away from the Búzi district and 500 kilometres away from the provincial capital of Beira.[15] It extends over 3,477 square kilometres, with the Zambezi River in the northeast and the Zangúe River in the south. The administrative boundaries are the districts of Chemba in the north, Marromeu and Cheringoma in the east, and Maringue in the west. Like the Búzi district, the Caia district is mostly flat, with only a few high-lying areas. The highest point is Mount Balamuana, which reaches 500 metres. The climate is subtropical and there are two seasons. The rainy season starts in November and ends in April. The dry season covers the period from May until October. The current population is estimated at around 115,455 inhabitants[16] and *Cicena* is the local language. Caia is divided into three administrative posts, one of which is located in the administrative centre (*vila*) of Caia, one in Murraça and another one in Zena. The Zambezi River is the biggest river in Southern Africa. It drains water from an area of about 1.4 million square kilometres, including large parts of Angola, Malawi, Mozambique, Zambia and Zimbabwe and frequently causes flooding in the area. The Zambezi used to flood annually before the two big dams of Kariba (between Zimbabwe and Zambia) and Cahora Bassa (in Mozambique) were built. In past years major floods from the Zambezi have occurred in Mozambique because the dams did not have the capacity to retain the water during heavy rains or because water was discharged without any consideration for the side effects and this lead to heavy flooding.[17]

In 2007 construction was due to start on a five-year Mozambican government project to build the longest road bridge to span the Zambezi with a length of 2376 metres and a width of 16 metres. This bridge is intended to be a vital link on the main north-south highway and aims to improve the infrastructure of the district, facilitating access to markets in the region. To service this five-year project a big camp was set up a few

[15] For the exact location of the district, see annex 1.
[16] According to the results of the 3rd national census in 2007.
[17] The flooding which was caused by the discharging of dams is reflected in the names given to them by the communities. These names are helpful for the dissemination of further warnings. People can so better associate the intensity of an upcoming disaster if it is compared with the previous ones. See Annex 6 for the disaster history of Chandimba/ Caia district.

kilometres away from the *vila* de Caia to host about 500 Portuguese and Mozambican construction workers.

Caia district was only connected to the electricity grid after the study had been conducted. Although plans existed to connect Caia to the grid before August 2007, this could only be accomplished in December 2007. Up to that time electricity was supplied by a generator that was supposed to run for two hours a day in the *vila* of Caia but often failed as a result of technical problems or irregular attempts to save energy. The CENOE (Centre for National Emergency Operations) headquarters in Caia therefore installed its own generator in order to be able to operate 24 hours a day if necessary. The reason for locating one of the National CENOEs in Caia was partly related to existing infrastructure and the high frequency of natural disasters in the region. After the emergency in 2001 a small runway (900 metres) was constructed next to the *vila* of Caia and this was often used as a strategic entry point for relief agencies during the floods in 2007.

The *vila* Caia is also in the process of restructuring some of the *barrios* (quarters) and resettling large parts of the population to areas away from the river margins. This is due to experiences during the 2000/2001 floods, when people could not escape the rising waters on time.

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One of the *barrios* affected is Amilca Cabral, which is made up of several *regulados.* The *regulado* Chandimba is part of Amilca Cabral and is one of four *regulados* that was resettled on higher grounds after the floods in 2000/2001. Together with the *regulados* Ndjezera, Marra and Chipuazo, they were relocated from lower ground near the Zambezi River and were placed next to the existing *regulado* Tanga-Tanga in Amilca Cabral. Approximately 600 families live in Chipuazo and 468 families in Chandimba.

1.5. Research problem and objectives of the study

For several decades the Government of Mozambique has been confronted with the negative impact of natural disasters on the economic development of the country.[18] The 2000 floods were the worst ever recorded in Mozambique, with a death toll of 699 people. Further, 650,000 people were displaced and 4.5 million people affected in Southern and Central Mozambique. In addition, the floods disrupted economic and social activities, with reported losses of over US$ 600 million and a sharp decline in economic growth from 10 per cent in the previous year to 1.5 per cent.[19] A few years after the floods the Ministry of Public Constructions and Residence (MPCR) conducted a study in which various hydrographic ponds at risk of flooding, with a variety of social and economic consequences, were detected. The study also revealed that in addition to the ponds some cities in the country are exposed to floods because of defective drainage systems. Results allied to another study carried out with the assistance of the World Bank show that if "an annual economic growth of 5% [is assumed], the economic costs resulting from the floods will reach over US$ 3 billion between 2005 and 2030"(GoM 2006a:9).

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It is evident that there is a strong interrelation between poverty and disaster risk in Mozambique. Poverty is considered to be the main source of vulnerability and exposure to disaster risk. Although it is not only poor people who are hit by disasters, they are often more vulnerable and have a lower capacity to cope and recover. The poorest districts are the most vulnerable to natural hazards because „poverty makes people especially vulnerable to the existing hazards, and the disasters throw back poverty reduction efforts"(Bollin 2006).

As a result the Mozambican Government included disaster risk reduction in the second Action Program for the Reduction of Absolute Poverty (PARPA II 2006-2009) as a cross-cutting aspect and as an integrative part of sustainable development aimed at reducing poverty by 45 per cent before 2009. According to the *Director Plan for the Prevention and Mitigation of Natural Disasters (*NCMNI*),* the successful reduction of

[18] The Mozambican Poverty Reduction Strategy Paper (PARPA II) recognises the damaging effects of natural disasters on economic development. See GoM, 2006:67-68, sections 239-246 (English version).
[19] Mozambique National Report on Disaster Reduction. World Conference on Disaster Reduction Kobe-Hyogo, Japan, 18-22 January 2005:7-8.

poverty in Mozambique depends on "the reduction of vulnerability of people most exposed to nature's disasters and on the attenuation of the devastating effects of the natural calamities"(GoM 2006a:6). This is also reflected in the *Hyogo Declaration*, where it is stated that national governments have the responsibility to protect their citizens from the risk of disaster and must make this a priority in national policies. For a long time development and disaster-related policies have only focused on emergency response, leaving a serious underinvestment in natural hazard prevention and mitigation.

In order to achieve the objectives of the Director Plan, the Mozambican National Institute for Disaster Management (INGC) has recognised the need to devolve disaster management functions from the central government to local government levels. It supports the creation of district and community committees for risk management in order to integrate the local population into the process and to reduce the loss of human life and the destruction of property through natural disasters (GoM 2006a: 22-23).

Although responsibility for social and economic development has already been transferred to local governments in the framework of the decentralisation process, "the given autonomy is often not used" and "the aspired level of decentralization has not yet been achieved" (Bollin 2006). The reasons cited are complicated methods and instruments for the district planning process as well as district administrators and governments who do not play "the proactive and leading role to use the new powers and opportunities" (Bollin 2006). Another aspect is the "lack of information, capacities, personal and financial resources as well as political leadership" together with the lack of commitment of national and local sector representatives and provincial governors "to cooperate with the district administration" and to accept "its new coordinating role and the necessary flow of information" (Bollin 2006) .

In order to address these deficiencies and to further promote the decentralisation process, a 10-year strategy for decentralised planning and finance (PPFD - *Programa de Planificação e Finanças Descentralizadas*) was developed. Components of the strategy include the "strengthening of local governance and planning/budgeting, the implementation of SISTAFE, the fomenting of capacities and leadership of the district administration and the development of a monitoring and evaluation system" (Bollin

2006). Integrated methodologies are "inclusive strategic planning, annual plans and budgets at the decentralized levels, the principle of community consultation and participation and … a symbiotic relationship between districts and provinces" (Bollin 2006).

To test by empirical means whether the efforts of the Mozambican government to promote the decentralisation process facilitated the management of natural disaster risk at the local level, research was conducted from June to September 2007 in the districts of Caia and Búzi[20] (Sofala Province).[21] The aim of the study was to find answers to the following research questions:

1. **Did decentralisation facilitate the management of natural disaster risk in the districts of Caia and Búzi to reduce the vulnerability of the population affected by natural hazards?**

2. **How did decentralisation facilitate the management of natural disaster risk in the two districts?**

In order to answer these two research questions the following subquestions were formulated:

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1. **What responsibilities, human and financial resources did the two districts have for planning, implementing and monitoring DRM activities?**

2. **What mechanisms, institutions and activities for disaster risk management existed and did they prove to be effective?**

3. **Did the vulnerable population participate in DRM activities and how?**

[21] Conversely assumptions also exist about the potential reverse effect of disaster risk management on the decentralisation process regarding good governance, transparency and participation (Schmitz 2006:41). Bollin (2006) highlights five aspects related to the contribution of DRM to the decentralization process and good local governance. The aspects mentioned are: DRM contributes to the strengthening of the performance of the district administration, the inter-sectoral cooperation, the participation of the population, the linkages between local and provincial actors, and the cooperation between the districts. In addition the mechanisms and skills developed for the successful management of disaster risk on the local level can further be adapted and applied for the management of tasks required for other sectors on the local level.

1.6. Literature review

To establish whether the promotion of local governance and community participation in development improved the management of disaster risk in the two districts, various concepts of risk are analysed. Disaster risk and its negative effect on development will be emphasised. In a second step, concepts of decentralisation are discussed and ways of involving local communities in the process are presented. The reverse Pressure and Release model (PAR model) by Wisner et al (2004) will be introduced as a tool for analysing how vulnerability to disaster risk can be reduced and safe conditions created.

1.6.1. Approaching the concept of "risk"

A brief discussion of different concepts of "risk" from a linguistic perspective is helpful in defining the various meanings of the word in different contexts. Here it can be observed that the semantics of the word "risk" have changed over time. In early interpretations "risk" was regarded as an indicator of threat and was often linked to maritime endeavours where dangers were seen as an act of God. Later on, during the Renaissance, seafarers tried to calculate the consequences of danger and to respond to it in order to avoid loss of life and monetary losses. In the 19th century probability calculations in the mathematical and statistical sciences became very significant as further approaches were developed to calculate and estimate "risk". As a means of dealing with "uncertainties", where things cannot be calculated owing to lack of knowledge, insurance systems came into existence (Knight 1967:233 in Buergin 1999:5). In the 1960s probabilistic-economic approaches were applied to calculate technical risk. In the 1970s and the beginning of the 1980s probabilistic-technical approaches were increasingly questioned and as a consequence of more complex technological systems new approaches to risk assessment became necessary (Buergin 1999:5). In the 1980s Beck (1992) introduced the concept of the "risk society", thereby presenting an in-depth analysis of the different forms of risks modern societies are facing. According to Beck "uncertainties" mainly arise out of the social constructs of science and technology. Next to Beck's concept of "new" risks and uncertainties there is Giddens's (2006:120) notion of "trust", which is considered to be closely related to

Beck's concept. From the 1990s onwards approaches to "risk" find their way into various academic fields where environmental and natural sciences are moving closer to social science perspectives.

Krueger and Macamo (2003:52-53) emphasise the importance of risk perception as a means to social action. They state that risk results from the process of translating dangers into risk. For Dombrowsky (1996, in Krueger and Macamo 2003:53), this is one central issue that relief agencies need to consider before and during their interventions. Dombrowsky remarks that there have been cases where so-called "development experts" translate dangers into risk without being familiar with local conditions and the communities' repertoire for social action.

1.6.2. Natural disaster risk and development

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Over the past decades several national and international organisations have recognised the negative impact of natural disaster risk on development. According to the UNDP report of 2003 (UNDP 2003: foreword), between 1980 and 2000 some 75 per cent of the world's population lived in areas affected at least once by natural hazards such as floods, tropical cyclones, droughts or earthquakes. It is striking that while only 11 per cent of the people exposed to natural hazards live in countries with a low level of human development they account for more than 53 per cent of total recorded deaths (UNDP 2003:1). The report states that natural disaster risk is closely interrelated with development:

> Disasters triggered by natural hazards put development at risk. At the same time, the development choices made by individuals, communities and nations can pave the way for unequal distribution of disaster risk (UNDP 2003:1).

In this statement it is emphasised that natural disasters affect development negatively. At the same time the "choices" individuals, communities and governments make play an important role in determining the level of disaster risk they face. If these choices are not directed towards the reduction of disaster risk, the social and economic development of a country is in jeopardy. This is partly reflected in the definition provided by the ISDR (2004:16), where "risk" is defined as "the probability of harmful consequences, or

expected losses, … resulting from interactions between natural or human-induced hazards and vulnerable conditions". Based on this definition, natural hazards in combination with conditions of vulnerability and insufficient capacity to reduce the potential negative consequences of risk can result in a natural disaster.

Wisner et al (2004:11) define "vulnerability" as "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard". Wisner at al (2004:14) also recognise that "although vulnerability cannot be read off from poverty, the two are often very highly correlated". Disasters can increase poverty through the destruction of development efforts and the hindrance of economic and social development. In consequence these countries might become even more prone to disasters. One of the reasons is the lack of awareness of disaster risk and the paucity of knowledge about preventive measures to reduce the negative impact of disasters. Strategies for the reduction of vulnerability therefore need to become an integral part of disaster risk management (Plapp 2003:2) to contribute to poverty reduction and development.

One approach that is used to analyse the vulnerability of a society to disasters is the sustainable livelihoods approach. According to this approach, people are less vulnerable to disasters if they have enough access to so-called "asset bundles" or "bundles of resources" "that can be used or exchanged to satisfy its [their] needs" (Wisner et al 2004:14). Another aspect mentioned by Chambers and Conway (1991:4) is the existence of

> a subset of livelihood capabilities that include being able to cope with stress and shocks, and being able to find and make use of livelihood opportunities. Such capabilities are not just reactive, being able to respond to adverse changes in conditions; they are also proactive and dynamically adaptable. They include gaining access to and using services and information, exercising foresight, experimenting and innovating, competing and collaborating with others, and exploiting new conditions and resources.[22]

These authors emphasise the importance not only of responding to a disaster but also of developing mechanisms to prepare "proactively" to respond to a rapidly changing environment.

[22] With reference to Amartya Sen's (Sen 1984, 1987; Dreze & Sen 1989) general use of the word 'capability' as "being able to perform certain basic functionings, to what a person is capable of doing and being."

The African Union (AU) (2006:1) also emphasises the need for an effective strategy to cope with disaster risk. Concerns are raised that owing to Africa's frequent exposure to natural disasters, its ability "to achieve the Millennium development Goals (MDGs) and sustainable development" is threatened. Statistics show that between 1991 and 2005 the continent was hit by 1031 disasters, of which 607 were hydrometeorological disasters as droughts, floods, wind storms, mud slides or extreme temperatures, 392 were biological disasters such as epidemics and insect infestation and 31 were geological disasters as earthquakes, tsunamis or volcano eruptions. Floods and epidemics were the most frequent disasters. On a global scale it can be observed that hydrometeorological and biological disasters increased between 1970 and 2005 with floods accounting for the largest number.[23]

One of the reasons mention by the AU for the need for an effective strategy to cope with disaster risk is that a substantial amount of financial resources for development had to be spent on relief and rehabilitation assistance during and after disasters. A baseline study conducted by the African Union (2004:1) also revealed that due to gaps in "institutional frameworks, risk identification, knowledge management, governance and emergency response" development was at risk from disasters. In order to attain sustainable development and to reduce poverty, the African Union (2004:1) attempts in the proposed strategy for 2006-2010 to "increase political commitment to disaster risk", "improve identification and assessment of disaster risk", "enhance knowledge management for disaster risk reduction", "increase public awareness of disaster risk reduction", "improve governance of disaster risk reduction institutions", and "integrate disaster risk reduction in emergency response management".

In line with the AU, the Government of Mozambique (GoM) (2006c:67-68) includes the damaging effects of natural disasters on the economic development of the country in its second *Poverty Reduction Strategy Paper* (PARPA II 2006-2009). The GoM (2006a:9) recognises disaster risk reduction as a cross-cutting aspect and as an integral part of sustainable development and poverty reduction. According to the *Director Plan for the Prevention and Mitigation of Natural Disasters* (NCMNI), poverty reduction depends on

[23] See www.unisdr.org for data from EM-DAT: The OFDA/ CRED International Database at www.em-dat.net.

"the reduction of vulnerability of people most exposed to nature's disasters and on the attenuation of the devastating effects of the natural calamities".

1.6.3. Approaches to social and economic development

In the 1970s many governments in Africa, Asia and Latin America started to experiment with new approaches to social and economic development and tried to adopt new political and administrative arrangements for the implementation of development projects (Rondinelli & Cheema 1983:7). Rondinelli and Cheema (1983:7) describe several forces that led to this shift. According to them one of the main forces emerged in the 1970s out of disappointment over the results of centralised planning and control over development activities. In the 1980s policy analysts realised that societies are becoming more and more complex and that it is increasingly difficult to plan and administer all development activities from the centre. In the 1990s concepts relating to decentralisation proved to be more promising for development organisations and academics for the development of state and society (Coly & Breckner 2004:3). However, Dele Olowu (2001b:2) expresses criticism of the popularity of these concepts among scholars and policy circles. According to him the reason for the highly centralised African state is rooted in the colonial past.

Within the concept of decentralisation various forms are detected. "Deconcentration" describes the form where decision-making is part of the administrative responsibility of lower levels or tiers within central government institutions. Adamolekun (1999:49) describes "deconcentration" as a transfer of management responsibilities and resources to the central government that is located at provincial, regional and/or district levels. "Devolution" refers to political arrangements where power, functions and resources are transferred by the central government to mainly independent subnational levels of government. Rondinelli and Cheema (1983:23) remark that "even where most of the theoretical conditions for devolution are met ... central governments often attempt to make local governments act consistently with national development policies and plans in performing their functions ...". Another form of decentralisation refers to the "delegation" of authority and managerial responsibility to organisations outside the central government structures. "Fiscal decentralisation" is used for the "transfer of

responsibility for budgets and financial decisions from higher to lower levels of government" (Adamolekun 1999:49).

Since the 1990s decentralisation has been questioned and critics have asked whether it really contributes to increased public participation, bureaucratic accountability and administrative efficiency. Fritzen and Lim (2006:1) are sceptical and fear "increasing inequality, the empowering of local elites, political instability, and general ineffectiveness". They emphasise the significance of the centre for the coordination of the process, the provision of policies, and the transfer of financial resources and managerial responsibilities to local government levels. In contrast, Olowu (2001b:9) criticises the lack of commitment to the shifting of power from the centre to the local level and Adamolekun (1999:65) detects "weaknesses of intergovernmental arrangements ... and too much emphasis on fiscal balance at the expensive of sustainable community development" as critical aspects of decentralisation. According to Steinich (2000:4), the decentralisation processes must be better monitored and evaluated to measure the impact of decentralisation.

In order to transfer resources and responsibility to subnational levels, it is important to be aware of local circumstances and existing skills and resources. It becomes necessary to create an environment where individuals or groups feel encouraged to take decisions on their own and to take the responsibility for those decisions. This also means opening up channels for participation to people who were formerly not included and involving the concerned population in local and national development processes. According to Arnstein (1969:216), "participation" can be described as a " categorical term for citizen power". For Blair (2000:22), one component of democratic local governance is the transfer of "a meaningful role in local government decisions" to citizens.

1.6.4. Local community participation and disaster risk management

Since the 1990s a paradigms shift has been evident in the way organisations and agencies deal with natural disasters. In the past many activities were geared to emergency response but now there is a noticeable trend away from traditional relief

and disaster preparedness towards an emphasis on development, incorporating hazard mitigation and vulnerability reduction. Annelies Heijmans (2004:n.a.) supports this shift and states that it is important to link "poverty, disaster risk and vulnerability to development" and to consider a disaster not only "as a temporary interruption to development".

Margaret Arnold (2006:269) observes that "disasters have traditionally been considered a humanitarian assistance issue rather than one of development". According to Suvit Yodmani (2001:1), "disasters are no longer seen as extreme events created entirely by natural forces but as manifestations of unresolved problems of development. The disaster management practices have evolved from a largely top-down relief and response approach to a more inter-sectoral risk management approach".

The International Strategy for Disaster Reduction (ISDR) (2004:3) defines disaster risk management as

> the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

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Annelies Heijmanns (2004:n.a.) emphasises the central role of "coping capacities" that develop out of a process of experimentation and innovation. According to Krueger and Macamo (2003:48), people are only able to react and to take decisions if they are able to calculate and interpret dangers. Therefore it becomes necessary to develop mechanisms and strategies based on these perceptions. Berger and Luckmann (2004:26-27) describe the "construction of reality" as a composition of "problematic" and "unproblematic" situations. As long as the daily routine is not interrupted, these situations will not become a serious problem. But if certain patterns are not manageable anymore and the "reality" falls apart people are pressured to find new ways to cope with an unexpected situation.

Strategies and views on how to address vulnerability differ. Heijmans (2004:n.a.) distinguishes three different views: One view addresses the cause of vulnerability to natural hazards, the second view the high cost of prediction and mitigation technologies and a third considers societal structures as a cause that demands political solutions.

Wisner et al (2004:49) support the view that natural hazards are usually the trigger for disasters but the occurrence of a disaster is related to the social, political and economic environments that structure the lives of people in different contexts.

If decentralised government structures are to become more efficient and effective to allow the implementation of policies and strategies for social and economic development, the promotion of local participation is a central issue. Approaches and methods cover issues relating from how to increase community participation to address local needs (Jennings 2000) to ways of integrating the local population into the decision making process (Arnstein 1969). Blair (2000:22) emphasises the view that democratic local governance is based on two processes where citizens play a "meaningful role in local government decisions" and where local governments can be made accountable for their decisions.

To accelerate the development process and to generate higher levels of empowerment and ownership of local communities, different techniques and tools are developed, depending on the various stakeholders involved in the process (Jennings 2000). In an operations manual applying the community-based approach in crisis situations, the United Nations High Commission for Refugees (UNHCR) (2008:21) remarks that "ownership" "is the natural outcome of a process that has respected the principles of meaningful participation and empowerment. Support and assistance from actors might still be required, however, because of an absence of resources or opportunities".

Despite of the variety of approaches, there is a common understanding of what should not be included in the "participation" discourse, namely participatory methods aiming to confirm preconceived views. Critical voices like Cooke and Kothari (2001) emphasise that "participatory methods" often serve the interests of agencies and funders and that they might even increase local power differentials. The need to address critical aspects and weaknesses of participation as a starting point to transform the approach and to adjust it to local conditions is stated by Christens and Speer (2006).

To reduce vulnerability to disaster risk at the local level, these aspects should be considered and integrated into the management and coordination of activities. In order to develop skills and operational capacities, it is firstly necessary to analyse local

conditions very carefully and to find out about the causes of vulnerability, the level of vulnerability and which part of the population is the most vulnerable to natural hazards.

1.6.5. The Pressure and Release Model (PAR model)

The Pressure and Release Model (PAR model) which was developed by Blakie et al (1994) and further elaborated on by Wisner et al (2004) serves to illustrate the progression of vulnerability in a specific context. According to the model, a complex process of ”root causes”, ”dynamic pressures” and ”unsafe conditions” generates vulnerability. A disaster occurs when a vulnerable population is confronted with a natural hazard (Wisner et al 2004:50). To explain how pressures can be released and risk reduced by addressing ”root causes”, ”dynamic pressures” and ”unsafe conditions” in order to create ”safe conditions”, the model can be reversed (Wisner et al 2004:342). In the framework of this study the reversed PAR model will serve as an analytical tool to discuss the role of local governance in the management of disaster risk in Mozambique and how it contributes to the reduction of vulnerability in the population in question.

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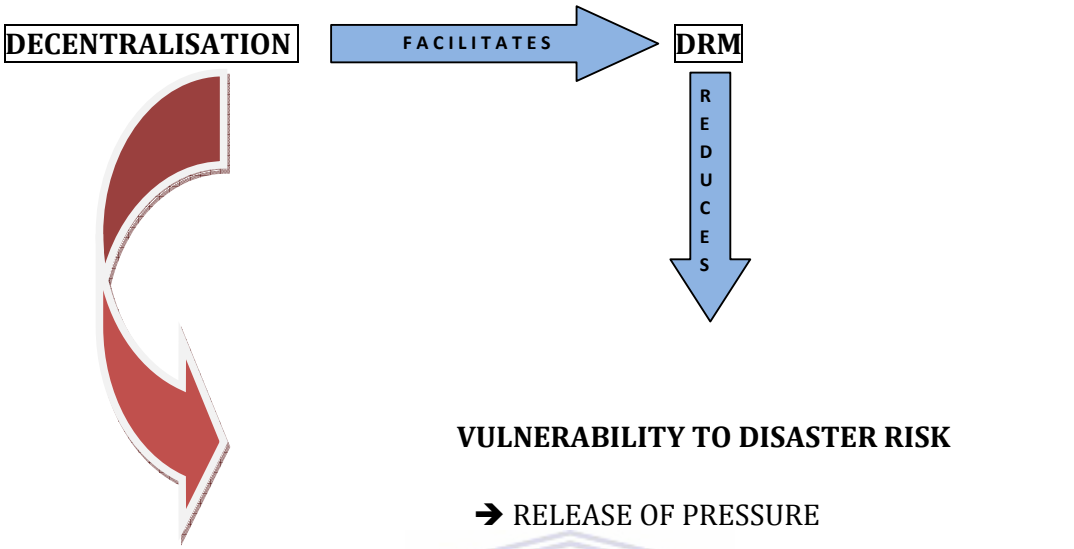
1.7. Hypothesis

After reviewing the literary sources, the following hypothesis was formulated:

Decentralisation facilitated the management of disaster risk in the two selected districts, Búzi and Caia, and reduced the vulnerability to disaster risk of the population affected by the 2007 floods.

Figure 1.7.1. illustrates the hypothetical relationship between decentralisation and disaster risk management. Here it is assumed that decentralisation facilitates disaster risk management (DRM), which in return contributes to the reduction of vulnerability to disasters. As a result ”unsafe conditions” and the ”release of pressure” will lead to the creation of ”safe conditions” for the population in question.

Figure 1.7.1. Hypothetical relationship between variables



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The hypothesis is based on the following assumptions:

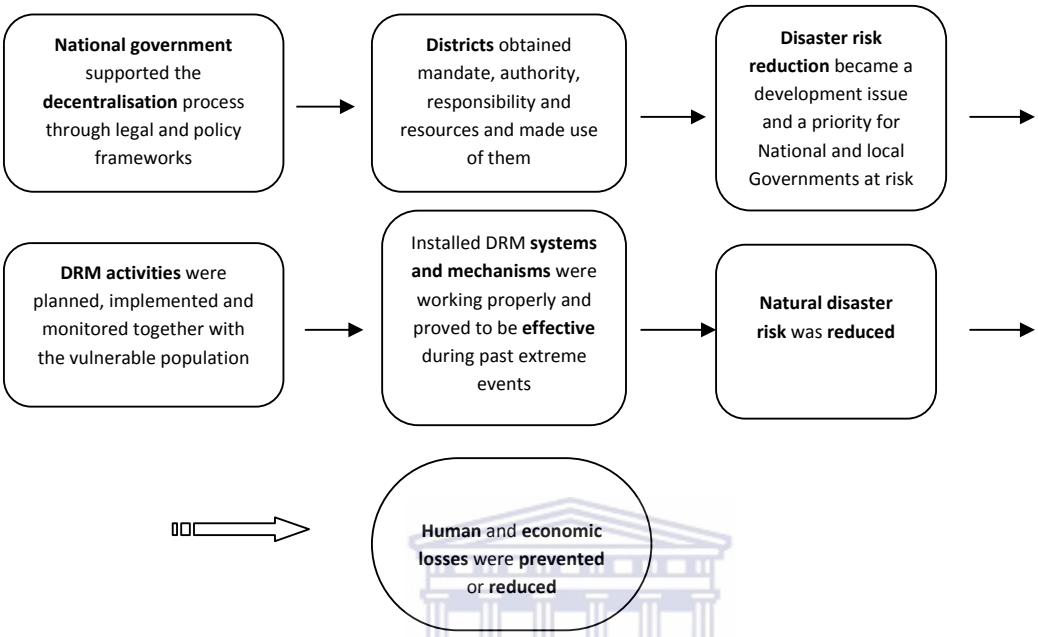
1.) In the framework of the decentralisation process the districts did have the mandate, authority, human and financial resources to plan, implement and monitor DRM activities at the local level.

2.) DRM and response action followed the developmental approach, including risk analysis, prevention and mitigation and preparedness activities, and contributed to higher-level activities during the emergency period.

3.) All relevant actors and the population vulnerable to natural hazards were actively involved in the DRM activities and DRM mechanisms proved to be effective during the extreme event, with losses being reduced or prevented.

In Figure 1.7.2. these assumptions are elaborated on in a simplified impact chain that resulted in the prevention or reduction of human and economic losses.

Figure 1.7.2. Elaboration of assumptions in a simplified impact chain



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Taking the above assumptions as a starting point, indicators were formulated and specific methods were chosen to test empirically whether decentralisation facilitated disaster risk management in Mozambique during the 2007 floods. ”Decentralisation” is defined as the independent variable and ”disaster risk management” as the dependent variable, as presented in table 1.7.3.

Table 1.7.3. Variables, indicators and applied methodology

Variable	Indicators	Methods
Independent variable: **Decentralisation**	1. Policies and legal framework promoting the decentralisation process were in place	Analysis of policies and legal frameworks
	2. Local governments did have funds, knowledge and capacity to plan, implement and monitor development activities	Analysis of development plans and budgets of local government; interviews with district administrators
	3. Local communities were involved in the decision making processes and development activities	Interviews with community members; district administrators

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Variable	Indicators	Methods
Dependent variable: **Disaster Risk Management**	1. Disaster risk reduction became a development issue for national and local governments	Analysis of policies; Poverty Reduction Strategy Papers (PRSP), District Development Plans (DDP) and contingency plans; interviews with representatives of national and local governments; informal conversations
	2. Activities for prevention and mitigation of disaster risk were planned and implemented	Analysis of previous studies; interviews with administrators, committees and experts
	3. Effective early warning systems were in place involving the population concerned	Interviews with government representatives, experts, community members; observations
	4. Districts and concerned population did perceive the risk of natural hazards on time and reacted accordingly	Interviews with local and national government representatives and committee members; analysis of reports
	5. Human and material losses were reduced	Interviews with district administrators and population concerned

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The way the methodological framework was applied will be explained in more detail in chapter 3.

1.8. Composition of the study

The thesis is divided into five chapters. Chapter 1 provides introductory background information related to natural disasters in Mozambique and the districts of Caia and Búzi, which were selected as case studies. In a next step the research problem is formulated and the objectives of the study stated. The literature review then focuses on different concepts of risk, natural disaster risk and its negative impact on social and economic development. In the next step various concepts of decentralisation are discussed and the role of local community participation in the management of disaster risk addressed. The PAR model is introduced as an analytical tool before the chapter concludes with the formulation of the hypothesis and the summary of the formulated variables and indicators.

Chapter 2 provides the theoretical framework for the thesis and describes in detail the various concepts for DRM and decentralisation that were introduced in chapter 1. Concepts of "risk" serve as a starting point and will later be related to the different approaches to disaster management. Concepts of decentralisation are presented to illustrate its relevance for policy frameworks, structures and institutions implementing disaster risk management activities in the different tiers of government in Mozambique. The role of local governance for DRM as well as strategies and mechanisms for community participation are discussed in the following step. The chapter ends with an explanation of the Pressure and Release Model (PAR) by Wisner et al (2004) which will be used to analyse the progression of vulnerability in a specific context. To demonstrate how safe conditions could be created in the districts of Caia and Búzi, the reversed PAR model is applied. It serves as a theoretical link and a tool for analysing the findings of the empirical research conducted in Mozambique.

Chapter 3 discusses the methodology and research design that were applied during the field research in Caia and Búzi to test the hypotheses and to measure the indicators that were formulated on the basis of the theoretical framework.

Chapter 4 presents the findings of the empirical research conducted in the districts of Caia and Búzi, Sofala Province, while applying the reversed PAR model as a tool for the analysis. The chapter introduces national actors for DRM with a link to the regional

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level, where emergency operations centres coordinate emergency operations linking different provinces in the region. This is followed by a description of how DRM is implemented in the districts of Búzi and Caia. The emphasis falls on the role of disaster risk committees for community participation in DRM during the 2007 floods and ways to integrate early-warning systems in the communities. Interviews with the district administrators are reported to explain how the local authorities perceived their role for DRM and how related activities were planned and implemented at the local level. The findings are then analysed and discussed with the aid of the reversed PAR model.

Chapter 5 summarises the key findings on the basis of the indicators that were formulated to test the hypothesis. Recommendations for local and national government, communities will be provided and suggestions for further research made.

The study is concluded with a list of bibliographical sources which were consulted in the course of the research. Annexes provide additional information on various aspects addressed in the thesis. This includes a table of interview partners, the different questionnaires and interview outlines that were used for the study, an overview on how to integrate DRM into the local organs of state as well as maps and pictures from the area where the field research was conducted.

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CHAPTER 2: CONCEPTUALISATION AND THEORETICAL FRAMEWORK

This chapter conceptualises ”risk” and analyses its relevance in the context of local governance and disaster risk management in Mozambique. Different concepts of decentralisation will be discussed, leading to aspects of community participation relevant in the field of disaster risk management. To reduce the vulnerability to disasters of the population living in risk-prone areas it becomes important to include the population concerned and their perception of dangers and risk in the management process. What the responsibilities of local governments are in the reduction of disaster risk is a question that will be discussed in a subsequent step. The reversed Pressure and Release model (PAR model) by Wisner et al (2004:50) is explained and applied as a analytical tool for the analysis of the hypothesis.

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2.1. Concepts of ”risk”

It is not only the perception of risk that varies according to social context but also the various definitions, which are shaped by the field to which they apply. Often ”risk” is considered to be an indicator of threat. The etymological derivation of the word ”risk” reveals that it is rooted in ”rischio” (ital.) and ”(ar)risco” (span.) and that it was originally derived from the Latin word ”risicare”, meaning ”avoiding cliffs, going around cliffs”. Going around cliffs, or generally speaking obstacles, in order to avoid human and material losses, implies certain knowledge about possible imminent dangers by the person navigating the ship, as well as the acceptance of responsibility for taking a decision. The translation of dangers into risk becomes a key aspect. In early interpretations ”risk” is often linked to maritime endeavours and the perils encountered, where dangers were perceived as something supernatural and an act of God. Sea trade during the Renaissance was regularly threatened by storms and difficult sea passages. The idea of ”risk” that developed during those times was to calculate the consequences of dangers during navigation in monetary value to determine either a positive or a negative outcome (Plapp 2003:20). The negative outcomes were no longer

seen as the punishment of the gods but rather as the result of inadequate decisions which were taken by the navigators and traders themselves.

"Taking a risk", "risking one's life" or "no risk, no fun" are terms commonly used today. "Risking one's life" implies threat and danger that might cause death, whereas "taking a risk" has a positive as well as a negative connotation and may imply losses or gains, depending on the context in which it is used. "No risk, no fun" leads us directly into modern concepts of "good risk" as a counter-discourse to the previous concepts of risk, where taking unnecessary risks was seen as irresponsible. Deborah Lupton (cited in Plapp 2003:158) mentions that the concept of "good risk" is often used in the "parlance of economic speculation".

Through this brief linguistic analysis it becomes clear that the word "risk" has changed its semantics over time. It can be observed that an understanding has developed whereby it is possible to "manage" danger and risk if they are calculated and estimated properly.

In the 19th century probability calculations in the mathematical and statistical sciences became very significant in derived methods of calculating and estimating "risks". In response, insurance systems came into existence as a means of dealing with "uncertainties", meaning something that cannot be calculated owing to lack of knowledge (Knight 1997:233 in Buergin 1999:5). It was only in the 1920s that the concepts of "risk" and "uncertainty" were adopted in economic theory (Buergin 1999:5). In the 1960s probabilistic-economic approaches to risk were applied in order to calculate the risk caused by technical systems. In the 1970s "risk management" found acceptance as a in business administration, a subdiscipline of economics. In the late 1970s and the beginning of the 1980s probabilistic-technical approaches were increasingly called into question and people became aware that, in consequence of increasingly complex technological systems, a whole range of new approaches to risk assessment were necessary (Buergin 1999:10-11).

In the 1980s Ulrich Beck (1992) postulated the concept of the "risk society" and provided an in-depth analysis of the forms of risk modern societies are facing. Beck does not necessarily argue that the modern world faces more risks than the world faced in former times but the nature of risk is changing somewhat. Risk in this context derives

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less from natural dangers or hazards than from uncertainties created by our own social constructs of science and technology. According to Beck (cited in Giddens 2006:120), an important aspect of the so-called ”risk society” is that hazards are no longer restricted spatially, temporally or socially. Forms of ”modern” risks could for example be related to terrorism or pollution and are not restricted by territorial borders but are considered to be a global phenomenon. The explosion at the Chernobyl nuclear power plant in the Ukraine in 1986 is a well-known example of this form of ”manufactured” risk.[24] This nuclear catastrophe threatened everyone, no matter what their age, class, gender or ethnicity. After the terrorist attacks on September 11 it also became clear that global networks play an important role in informing us about the risk of terrorism. Giddens (2006:121) sees in this a potential for new forms of activism such as Beck calls ‘sub-politics’. He refers to activities of groups such as ecological, consumer or human rights groups and states that the responsibility for risk management cannot be left to politicians alone. Other groups of citizens need to be brought in.

In addition, there is growing awareness that new structures on a global, national and subnational level are necessary to deal with risk and uncertainties and that those different levels need to be flexible and interlinked in order to respond not only to a ”runaway” world, meaning a world marked by new risks and uncertainties, as described by Giddens, but also to extreme situations and disasters.

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In the 1990s ”interdisciplinary” scientific approaches to ”risk” became accepted in various academic fields. Sociological, psychological, cultural and political approaches to risk increasingly play an important role in supplementing former approaches, which were derived mainly from the natural sciences and technology (Buergin 1999:11). It is notable that the environmental and natural sciences are growing closer to the social sciences in their approaches to risk. Social science perspectives and methods are now also used to gain more knowledge of risk and environmental issues, including aspects of ”global change”. Rainer Buergin (1999:19) calls this the ”integrative-ecological” approach and sees its roots in scientific research conducted on natural, ”manmade” or social hazards.

[24] Also called ”man-made” or ”technological” risk.

Next to Beck's concept of "new" risks and "uncertainties", Giddens places the notion of "trust". For Giddens "trust" and "risk" are closely bound up with one another. "Trust" can mean "having confidence in agencies for food regulation, the purification of water or the effectiveness of banking systems" (Buergin 1999: 123). Although the concern in developing countries is not so much with "new" risks, meaning dangers that arise in an increasingly complex society with highly technological systems, Beck's and Gidden's "reflexivity approach" can still be applied in the context of development. It can serve to illustrate how so-called "old" risks like natural disasters are perceived by the population living in disaster risk areas and which mechanisms have been developed over time to respond to preconceived risks or to new forms of risk related to climate change, for example. The role the perception of risk plays in social action will be discussed in the next section.

2.2. Risk perception as a means to social action

Krueger and Macamo (2003:52-53) emphasise the importance of risk perception as a means to social action. They state that risk results from the process of translating dangers into risk. Only if dangers are transformed into risks does a framework for action result. For example, over time local communities have developed a set of mechanisms to cope with dangers and risk induced by natural hazards.

According to Dombrowsky (cited in Krueger & Macamo 2003: 53), this is a central issue that needs to be considered by relief agencies when planning external interventions (eg humanitarian aid, food aid etc) during or after a disaster. Often the process of translating dangers into risk is done by so-called "experts" who are usually not familiar with the communities and their repertoire of coping mechanisms developed for extreme events. In consequence, interventions do more harm than good owing to the destruction of a locally developed framework for social action.

Heijmans (2004:n.a.) remarks critically that most of the existing strategies to address vulnerability fail to analyse and include "how people at risk experience and understand disasters". Nikolas Luhman (cited in Krueger & Macamo 2003: 51) emphasises that one starting point for social action is the perception of "'risk". To enable communities to

respond to dangers that occur, these dangers must be transformed into risks to make them calculable. A crisis arises when the affected population does not have the means and tools to transform dangers into risk (Krueger & Macamo 2003:51). Only if people are able to calculate and interpret dangers are they able to react and make a decision to reduce their vulnerability to disaster risk (Krueger & Macamo 2003:48).

Macamo states that "in dealing with uncertainty societies use a repertoire of actions which allows them to routinise extraordinary situations. The construction of a given situation as a disaster depends on this mechanism".[25] If this mechanism is either not built up or has not yet been activated, it becomes very difficult to react in time and to take any precautionary measures.

Berger and Luckmann (2004:26-27) explain that societies develop routines to manage daily life and to construct a "reality". This "reality" is put together by "problematic" or "unproblematic" situations. As long as the "problematic" situations do not harm the daily routine and serve to expand the set of acquired routines, these situations will not become a serious problem. But if a certain event falls outside the "normal" and the constructed reality breaks down as a result of the lack of a repertoire for action, a situation can no longer be managed.

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This can also be observed during extreme events when structures and mechanisms that were acquired in the past do not function any more and challenge the constructed "reality" of the affected population. The impact of such situations often provokes disasters and affects local development on a large scale. This has been recognised not only by international development organisations but also by national governments who are beginning to integrate disaster risk management tools into their development strategies.

[25] Macamo, Elisio, "Disaster comes after Disaster", private correspondence (25.10.2007).

2.2. From emergency management to the management of disaster risk

Since the 1990s there has been a discernible paradigm shift in several organisations and agencies that deal with natural disasters. Many activities in the past focused mainly on emergency response, covering a certain period of time after the occurrence of the disaster. There is currently a move away from traditional relief and disaster preparedness towards a more developmental approach, incorporating hazard mitigation and vulnerability reduction. Suvit Yodmani (2001:2) sees the reason for this shift in the recognition that in the past four decades there has been an "exponential increase in human and material losses from disaster events, though there was no clear evidence that the frequency of extreme hazard events had increased". This suggests that the increase in human and material losses was related to "the rise in the vulnerability of people all over the world that was induced by the human determined path of development" (Yodmani 2001:2). Margaret Arnold (2006: 269) remarks:

> Natural disasters are a major source of risk for poor people. However, this vulnerability also happens to be one of the most overlooked dimensions of poverty. One possible reason is that disasters have traditionally been considered a humanitarian assistance issue rather than one of development.

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This traditional approach with its focus on pure reaction and recovery activities is increasingly being questioned and reconsidered. Although humanitarian aid programs are indispensable in emergency situations, they sometimes sideline local leadership and technical capacities, which are needed in order to build up resilience for other extreme events in the future. Whereas the emergency management approach mainly focuses on the emergency phase and actions that are carried out during and after a disaster to reduce losses and to support quick recovery, the disaster risk management approach is aimed at the various factors (political, social, economic) that cause disasters in order to reduce their negative impact and to strengthen the capacities of the affected population (Jegillos 1999:11).

Suvit Yodmani (2001:1) also observes:

> Almost in parallel with the paradigm shift in poverty reduction programs – from income poverty to human poverty – the disaster management sector has also seen a paradigm shift. Disasters are no longer seen as extreme events created entirely by natural forces but as manifestations of unresolved problems of development. The disaster management practices have evolved from a largely top-down relief and response approach to a more inter-sectoral risk management approach. In the current paradigm of risk management approaches, there is more room than ever before for addressing the issues of risk reduction for the poor.

Annelies Heijmans (2004: n.a.) confirms that it is important to shift from managing a disaster "as a temporary interruption to development, towards linking poverty, disaster risk and vulnerability to development". In addition Jegillos (1999:10) acknowledges that the roots of disasters are often related to unsustainable development patterns and that

> flawed development increases the risks faced by large sectors of the population. The fact that past emergency management practices have not adequately addressed this relationship underlines the need for a new vision of disaster management. This is called *disaster risk management*.

In a document published by the German Federal Ministry for Economic Cooperation and Development (BMZ) (2004:7), the central role of disaster risk management for poverty reduction is recognised and confirmed:

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> The mutual interplay between poverty and vulnerability drags weak sections of the population further and further into poverty. It is the task of disaster risk management to break this spiral.

How disaster risk management can be used to "break this spiral" is reflected in a definition provided by the ISDR (2004:3):

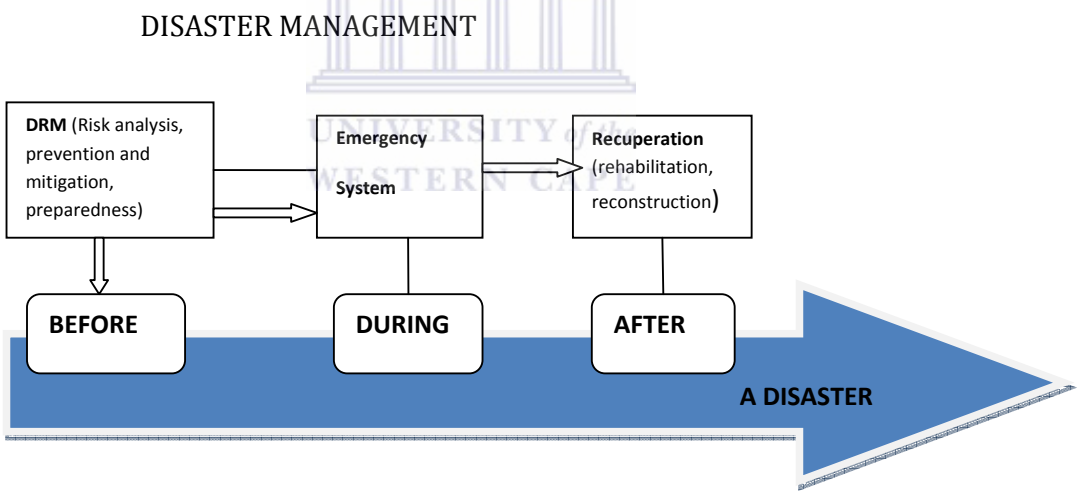
> The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

The ISDR (2004:3) further defines mitigation as **"**structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards". Preventive measures include "activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and biological disasters" (ISDR 2004:3). In addition, preparedness comprises "activities and measures taken in advance to ensure

effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations" (ISDR 2004:5).

To sum up: disaster risk management aims to comprehensively reduce the disaster risk to which people are exposed in regions prone to disasters. The main priority is to reduce the vulnerability of a population to natural disasters like floods, cyclones, drought etc and to avoid new emerging risks. A central element in disaster management is disaster risk management, which comprises risk analysis, disaster prevention, mitigation and disaster preparedness, as illustrated in figure 2.3.

Figure 2.3. Timeframe for disaster management activities



Source (modified): Kohler et *al.* (2004:20)

Figure 2.3. illustrates that DRM is part of disaster management, with a focus on the BEFORE (risk analysis, prevention, preparedness) of an extreme natural event. It relates to the DURING and AFTER of a disaster through risk analysis.

2.3.1. Risk analysis

A risk analysis is one of the first steps in DRM and it often includes a hazard analysis and a vulnerability analysis. It "is based on the recognition that risk is the result of the link between hazard and vulnerability of elements affected by the hazard" (Kohler et al 2004:23). Risk analysis "is a basic instrument of disaster risk management which is used to study the factors of disaster risk and provides the basis for planning and implementing measures to reduce risks and impacts of disasters" (Kohler et al 2004:23). A hazard analysis attempts to identify the spatial distribution of a natural hazard and should be supplemented by observations and experiences made by the people living in the area prone to natural hazards. One practical and participatory tool that can be used here is the creation of a hazard map.

The possible economic and social impact of a natural hazard can be assessed by means of a vulnerability analysis. It reveals a lot about the potential impact of an extreme event on the population at risk. Assessment tools for the analysis "recognize people's perceptions of risk that goes beyond the emergency and disaster paradigm, including a hazard assessment from people's perspective", "identify and analyze the dynamic pressures that deprive the people of their resources to cope with adverse events" and "increase awareness of people about root causes of vulnerability and future risk" (Heijmans 2004:n.a.). One methodology that can be used in the disaster risk analysis is to create a participatory risk map with members of the concerned population. This serves as a tool to identify areas prone to natural hazards and to localise vulnerable members of the population. It can serve as a starting point to develop activities which are then integrated into a contingency plan. In most cases the contingency plan is expanded annually and includes the activities that must take place before, during and after a disaster. The plan should include relevant actors and stakeholders for DRM and it should incorporate those activities that are elaborated for the emergency response.

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2.3.2. Prevention and mitigation

For disaster risk management, prevention and mitigation comprise all the activities that aim to prevent the negative impact of an extreme natural event in the mid-term and long term. Wisner et al (2004:369) call mitigation ”the art of the possible” and state that mitigation includes the “more difficult measures that will be needed to reduce vulnerability significantly”, involving “changes in power relations and economic systems”. This could include regulations for the use of land and construction activities in risk zones (eg areas close to flood-prone rivers or on steep hillsides etc). Regarding the decentralisation and democratisation processes, there is a high demand to sensitise and train key actors for DRM at the various government levels. Wisner et al cite Ariyabandu (1999:10, in Wisner et al 2004:269-270), who states:

> Not all disasters are ”emergencies”. Many disasters including drought and flood are predictable. Investment in mitigation can minimize their impact. Mitigation reduces the risk element in development investment, thus making development initiatives more stable, and reduces dependency on relief aid, and strengthens local capacities for preparedness.

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2.3.3. Disaster preparedness

Disaster preparedness activities aim to ”prepare” the population for an extreme event or disaster. In order to reduce the number of victims and the amount of material damage caused by the event, it is necessary that the people at risk and the responsible actors in the field of DRM should know what to do before the occurrence of an extreme event because when an emergency arises time is limited. In order to manage this task successfully, training measures and exercises (eg simulations) should be conducted on a regular basis and infrastructural and logistical measures such as emergency shelters, stores for food and medicines etc should be organised beforehand. The installation of early warning systems and the elaboration of evacuation plans together with the population at risk are activities that become extremely important to reduce the population’s vulnerability to approaching floods or cyclones.

2.3.4. Emergency response and recuperation phase

In line with the paradigm shift observed in disaster management, emergency and transitional aid organisations should be more development-oriented and should focus on preventive measures. These shifts are often triggered by large–scale events, as Wisner et al (2004:353) state:

> [S]ome of the concepts that have emerged, such as the "relief-development continuum" (UNDP 1994b) and linking relief with development (UNDP 1998; Speth 1998) have been extended to recovery following large-scale natural hazard events such as hurricane Mitch and the floods in Mozambique.

The German Federal Ministry for Economic Cooperation and Development (2004:19) states that the period after a disaster often serves as an entry point for the reduction of vulnerability:

> Reconstruction does offer an opportunity to reduce vulnerabilities, because in the aftermath of a disaster people's sensitivity and willingness to change are especially strong. Projects of development-oriented emergency and transitional aid, and food security, are therefore highly suited to integrate disaster risk management into the rehabilitation and reconstruction process.

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2.4. Mozambique's effort to integrate disaster management into development planning

Disaster management activities in Mozambique are regulated by the 1999 National Policy on Disaster Management (*Política National de Gestão de Calamidades*) that was approved by the Cabinet in 1999 through Resolution 18/99 of 10 June. Major objectives of the National Policy for Disaster Management are to "establish the legal framework for the implementation of the Policy, including the Disaster Management Act, National Disaster Management Strategic Plan, Contingency Plans and other norms and procedures for disaster management", "to save human lives and protect property from destruction due to natural or man-made disasters" and "to incorporate disaster prevention and mitigation components in the overall economic and social development process of the country", among others. The policy provides the legal framework for the

introduction of procedures and designs for the coordination of resources and resource mobilisation for disaster prevention and response and mentions preparedness measures such as contingency plans and early warning systems.[26] A new law that has been drafted but has not yet been approved by the government will help to improve the definition of responsibilities of the different actors in disaster management and to integrate them into the social and economic development planning process.

The current policy document for the promotion of social and economic development in Mozambique is the Action Program for the Reduction of Absolute Poverty (PARPA II 2006-2009). The central aim stated in the plan is to reduce poverty from 54 percent in 2003 to 45 percent in 2009.[27] PARPA II is the successor to PARPA I (GoM 2001), sharing the same priorities in the areas of human capital development through education and health, improved governance, development of basic infrastructures and agriculture, rural development, and better macroeconomic and financial management. The difference between PARPA II and its precursor is that greater attention is paid to district development, improvement of the financial system, development of the internal revenue systems and methods of allocating budgeted funds, among others. The document also mentions that "despite an expected increase in revenues due to the attempted improvements in the financial sector the Mozambican Government will most probably rely on its cooperation partners to finance about 49 percent of the State budget throughout the years of this period" (GoM 2006b, Introduction:1-2).

On 26 April 2003 the Mozambican Government formally launched the forum of the Poverty Observatory (PO) as an advisory tool to evaluate and monitor the implementation of PARPA. The PO is made up of an advisory group known as the "opinion council" with the technical secretariat as the permanent body. The opinion

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[26] See Mozambique National Report on Disaster Reduction, World Conference on Disaster Reduction, Kobe-Hyogo (2005:1) (draft).

[27] 'Poverty' is defined in PARPA II as "the impossibility, owing to inability and/or lack of opportunity for individuals, families, and communities to have access to the minimum basic conditions, according to the society's basic standards" (GoM 2006b:8). One main measure of poverty is the consumption per family unit based on consumption indicators. The *head count index of poverty* identifies people in a population whose consumption falls below the defined poverty line. In PARPA II two additional measures of poverty were calculated using the poverty lines, namely the poverty gap index and the squared poverty gap index. These measures are considered to be more "sensitive", especially to changes in standards of living among the poor (GoM 2006b:10).

council is represented by central bodies of state, civil society organisations[28]and development partners.

PARPA II discusses a qualitative study which was conducted in the provinces of Sofala and Inhambane in cooperation with the department of social sciences of the Eduardo Mondlane University in 2005 to look at the causes of poverty. This study represents a shift away from previous surveys conducted in 1995, 1996, 2001 and 2003,[29] where "war" and "unfavorable weather" were mentioned as determining factors for poverty, especially in the early studies. In the surveys conducted in 2001 and 2003, the emphasis was on "absence of social assistance by the Government and other institutions", "lack of employment opportunities", "limited access to financing, physical and mental disability". An interesting point that emerged in this study is that the most remote communities believe that "those who live close to the administration offices get more government assistance and have better access to services, while the others who live in great distance have been completely abandoned."[30] One result that all studies have in common is that they detected "environmental issues such as droughts and floods" as causes of poverty (GoM, 2006b:18-20).

This perception is echoed in PARPA II, where the need to integrate disaster management into long-term planning to reduce the vulnerability of the population and infrastructure to natural disasters is addressed (GoM, 2006b:67-68, paragraphs 239-246). Although PARPA II treats this topic as a cross-cutting issue it aims to "promote a culture of prevention … to reduce the number of human victims and the amount of property loss". It also refers to the Government Action Plan for reducing the impact of disasters which "includes the provision of means for prevention, like for example warning systems for the kinds of disasters that are most frequent in Mozambique –

[28] The civil society organisations are represented by G20, a civil society platform created in 2004 that includes 20 civil society organisations that join the government and the international community to debate issues related to poverty in Mozambique. See: *Mail&Guardian*, "Uplifting Mozambique", 26 October to November 1, (2007:11).

[29] The studies in 1995 and 1996 were done by the Center for Population Studies at Eduardo Mondlane University (UEM) in collaboration with the former Ministry of Planning and Finance (MPF). In 2001 another series of Participatory Poverty Appraisals was organized by MPF with assistance from UEM and UNDP. The follow-up study in 2003 was conducted in the Province of Sofala with assistance from UNICEF and in coordination with the Studies Center of the Department of Geography at the Pedagogical University of Beira (GoM 2006b:18).

[30] This was also observed by Carolina Zelada and José M Gomes during a visit in the community of Valeta in the district of Mopeia, which can "still only be reached by bikes and canoes". "Here it is very difficult to build up disaster risk committees due to limited access to the community. This also counts for the people living on islands such as the ones in the district of Chemba". (Various conversations.)

namely floods and cyclones – as well as identifying and mapping the zones that are in risk" (GoM 2006b:67).

On 14 March 2006 the Director Plan for the Prevention and Mitigation of Natural Disasters (NCMNI) was approved by the Council of Ministers. The plan has been regarded as very ambitious by development experts.[31]Its aim is to attenuate natural disasters and to draw the main strategic lines "to define an action program with a ten year term to lead Mozambique to a state of readiness and capacity of resisting and responding to the effects of natural calamities" (GoM 2006a: Introduction).The plan is considered to be complementary to PARPA II in its aim of fighting extreme poverty by reducing the vulnerability of the people most exposed to natural disasters. It should therefore be treated "simultaneously as transverse to all Government sectors and as specific complementary actions and directed to concrete targets and regions which need special attention" (GoM 2006a:7). Activities that are mentioned in the plan are "the promotion of construction and use of water storage system in drought areas" to address the issue of hydrological imbalances causing droughts and floods, "intensification of workshops and civic education", "creation of a data bank for the realization of climate areas and its impact studies", "reinforcement of the regional and international coordination", "delimitation of risk zones", reinforcement of prior warning systems", "mobilization of resources for prevention and attenuation of natural calamities" and the "reinforcement of the inter-sectarian institutional coordination of response to the effects of natural calamities" (GoM 2006a:6). In order to address issues like food imbalance, several strategies are mentioned, such as the introduction of drought-tolerant crops.[32] Notably in this enthusiastic and comprehensive list of activities responsibilities have not yet been defined. In addition, a large part of the Master Plan focuses primarily on issues related to the management of emergency situations and less on the management of disaster risk.

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[31] Conversation with Wolfgang Stiebens, project coordinator PRO-GRC.

[32] To define activities that lead to the reduction of vulnerability of the population to droughts and agricultural conservation a seminar was organized from 14-16 June 2007 by INGC, GTZ/ PPFD, and the Provincial Directorate for Agriculture in Inhambane Province with the participation of various stakeholders related to the agricultural sector.

But the Director Plan (GoM 2006a:13) also recognises the following:

> The reduction of vulnerability … does not stop disasters … from happening but allows its effects to be minimized. For that when disaster happen the citizen, the public and private institutions and the civil society have to be ready to attenuate and respond to its effects. The emergency management requires the existence of readiness, decentralization management, search and rescue capacity and creation of conditions to restart normal life right after the disaster.

The activities mentioned in relation to emergency management concern the improvement of early warning, information and communication systems. It is stated that there are still huge areas in the country where communication is very difficult. Districts and administrative posts should therefore be equipped with various communication systems. To connect the administrative posts to the villages and communities, "activists with appropriate means to go to local villages and communities headquarters", "the use of sound signs and flags", "identification, improvement and the use of communication systems used by the local population" must be supported (GoM 2006a:14).

At various points in the plan the creation of "district and communitarian committees of risk management" is mentioned. The object is to achieve greater community involvement in the activities. It is stated that the main function of the committees is to serve as activists and to help to create and disseminate information related to the risk of hurricanes, floods and earthquakes (GoM 2006a:9, 14, 23). It can be assumed that the committees will also serve as a link between civil society and local government.

Emphasis is also placed on the "construction of a self-confident attitude of the communities and authorities", on "communitarian participation" and "adequate institutional arrangement and inevitable reinforcement of the district capacities" to assure that the costs are "sustainable and bearable by the economy". It is also stated that in order to "guarantee its [the plan's] positive impact in the society" assurances must be provided that the implementation of the plan "is assumed first by the beneficiary, by the Government in its whole and by the society in general". In the justification of the strategy heavy emphasis is placed on the strengthening of "self-confidence", "self-esteem" and "dignity" as the "basic main condition to end extreme poverty", where "each individual, each level of the Government and each civil society

unit in general look for initiatives that contribute to problems solutions" (GoM 2006a:29).

But in the same breath it is lamented that in many parts of the country the desired attitude has not yet been adopted by many Government organs and traditional authorities. The plan expresses serious criticism of the attitude of many families in the disaster-prone areas who beg almost as a way of life. This is related to the fact that "they grew up in an emergency war and calamities environment". Further complaints are that "local, district and provincial authorities look for (as a first resource) the solution of problems caused by natural calamities at high levels (external to them)" and that this is "aggravated by the run to the international donators without first run out all the internal capacities that most of the time exist but are not used". According to the plan this is "against the Government's independence politics of 'counting with our own forces'" (GoM 2006a:29).

In order to mobilise "own forces", the plan introduces several instruments. One instrument that is mentioned is the elaboration and implementation of district development plans (DDPs), in addition to the establishment of consultative organs that include administrative and district posts as well as representatives of civil society. Resource and multiple use centers (RMUC) will be established to adopt decentralisation practices, according to LOLE, and to engage "communities, local authorities (Governmental and traditional) and civil society" (GoM 2006a:30). These centres aim to support the "exchange of experiences between individuals of the community and between different communities and between districts and provinces" to "collectively manage risk" and to "gather and process information related with the natural calamities". The recommended means of gathering information is to "identify the measures (and or indicators) used locally by the communities … to predict calamities as drought, floods, hurricanes etc". Further emphasis is placed on the identification of local ways and means of attenuating the calamitous effects. This information is to be combined with information on scientific and technological methods of predicting the weather and monitoring hurricanes and floods (GoM 2006a:30). Before establishing a link between disaster risk management and decentralisation in Mozambique, different concepts and aspects of decentralisation will be discussed in the next section.

2.5. Concepts of decentralisation

In the 1970s many governments in Africa, Asia and Latin America tried to experiment not only with new approaches to social and economic development, but also with new political and administrative arrangements for the implementation of development programs and projects.

Rondinelli and Cheema (1983:7) describe three converging forces that led to "the increasing interest in decentralizing authority for planning and administration to state, regional, district and local agencies, field units of central ministries, local governments, and special-purpose organizations, as well as to nongovernment institutions as private associations". One of the forces mentioned by Rondinelli and Cheema (1983:7) emerged out of the disappointment in the 1970s over the results of centralised planning and control over development activities. A second force discussed arose from "the implicit requirements in the growth-with-equity policies of the 1970s for new ways of managing social development programs". In the 1980s policy analysts realised that as the complexity of societies increases it becomes more difficult to plan and administer all development activities in an efficient and effective manner from the centre.

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At the beginning of the 1990s the concept of decentralisation achieved prominence in relation to development organisations and in academic writing on political and social development (Coly & Breckner 2004:3). But Dele Olowu (2001b:2) expresses criticism of the increasing popularity among scholars and in policy circles of the term decentralisation "such that it can mean all things to all people (Conyers 1985)".[33] Olowu (2001b:2) describes the process of decentralisation as "relative, complex and multidimensional". He further argues that the reason why the African states are highly centralised lies in their colonial past, where "colonized peoples were regarded as possessing neither the intellectual nor cultural capacity for local self-governance". "Indirect rule" was one of the predominant forms, meaning the power was in the hands of a few colonial officials who were assisted by "compliant traditional rulers" (Olowu 2001b:2). With a structure of this nature the ruler's aim was to provide "minimal

[33] "Decentralization means different things to different people, and a variety of motivations can be uncovered for the recent attempts to decentralize planning and administration in developing countries" (Rondinelli & Cheema 1983: 18).

conditions for law, order, taxation and justice" but this form of governance did not serve "as the vehicle for economic and social development of the colonies" (Olowu 2001b:4).[34]

Within the concept of decentralisation various forms are used to describe administrative processes among the different government structures. The term "deconcentration" refers to processes where decision making is part of the administrative responsibility of lower levels within central government institutions. Adamolekun (1999:49) refers to an "administrative measure involving the transfer of management responsibilities and resources to agents of the central government located outside the headquarters at one or more levels (province, region, division, and district)". The field offices of the central government are called "field administrations". One challenge in regard to field administrative systems mentioned by Adamolekun (1999:52-53) concerns the relationship between field officials and the officials of a regional or local government. He says the following:

> In theory, the field officials are functionally responsible to their superiors at headquarters (who supervise them and determine their promotion), but in practice they cannot avoid maintaining close relationships with the officials of the subnational governments in the areas of their operations.

However, these functional systems are often used to promote national standards in specific areas, maximising "the use of trained professional officers who are deployed to exercise their professions within defined areas and with a clear chain of command and lines of responsibility" (Adamolekun 1999:53).

The concept of decentralisation could also refer to political arrangements, such as the devolution of powers, functions and resources by the central government to mostly independent subnational levels of government. Rondinelli and Cheema (1983:23) remark that "even where most of the theoretical conditions for devolution are met … central governments often attempt to make local governments act consistently with national development policies and plans in performing their functions". Devolution occurs where functions and responsibilities are transferred in a manner that involves both political decision making and administrative authority. The central government confers self-governing capacities on local communities. These include the transfer of

[34] See also Ladipo Adamolekun (1999:59-60).

legislative, political, administrative and financial authority to plan and manage public functions and services from the central government to local governments.

Delegation is another form where authority and managerial responsibility for specific functions are transferred to organisations outside the central government structures. The term ”fiscal decentralization” is used for the “transfer of responsibility for budgets and financial decisions from higher to lower levels of government” (Adamolekun 1999:49). This means that decentralised units do have the authority to make their own expenditure decisions with either locally raised funds or funds from the central government. ”Intergovernmental relations” describes the interaction of the different levels of government. In practise a combination of the forms is often applied. This has some political significance and certain implications.

2.6. Reassessing “decentralisation”

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Despite a period of ”popularity”, when decentralisation was promoted, it began to be asked whether decentralisation really improves public participation, bureaucratic accountability and administrative efficiency. Fritzen and Lim (2006) state that since the 1990s “except for some sanguine donor reports the ‘decentralization-is problematic’ argument predominated in the academic literature”. Among the reasons for this scepticism are “increasing inequality, the empowering of local elites, political instability, and general ineffectiveness” (Fritzen & Lim 2006). Often the implementation process is not done properly or policies are formulated in such a way that implementation becomes a challenging task due to local circumstances. Olowu (2001:9) criticises the lack of commitment to the shifting of power from the centre to local levels. Ladipo Adamolekun (1999:65) identifies as one of the short comings in Sub-Saharan Africa (SSA), “the weakness of central governments …, mismatches between functions and resources, weaknesses of intergovernmental arrangements … and too much emphasis on fiscal balance at the expense of sustainable community development”.

Brinkerhoff and Azfar (2006:2) note that most common definitions of decentralisation distinguish variants along a continuum. At one end the centre holds strong control with

limited power at the lower levels and at the other there is a decreasing central control and increasing local discretion (from deconcentration to devolution).

According to Fritzen and Lim (2006), the centre still plays a significant role in the decentralisation process. It is emphasised that the central government plays a significant role not only in the coordination of the process but also in the provision of policy directions, and the transfer of sufficient financial resources and managerial responsibilities to local government levels. But at the same time there seems to be a need for a better understanding of the subnational context to find out how policy processes and decision making could be taking place at the local level. Fritzen and Lim (2006) therefore call for "an anthropology of the local state" to gain empirical data and to get a more complete picture of problems and prospects of decentralisation.

To evaluate and monitor decentralisation processes and to measure the impact of decentralisation, Markus Steinich (2004:4) pleads for an "Impact Monitoring and Evaluation System (IMES)" for a "systematic understanding of the empirical reality of decentralisation". According to Steinich (2004:4), "decentralisation will not automatically lead to, for example, local democracy. All will depend on how a decentralisation policy in a given country is designed and implemented".

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To sum up, throughout the discussion of the various approaches there is neither a "master plan" for decentralisation nor is decentralisation "good" or "bad" *per se*. The impact of decentralisation on social and economic development depends on the design of adequate policies in a given country and how these policies are implemented in a specific local context. This implies that for the transfer of power and resources to subnational levels, local circumstances must be considered. It is important to find out if local governments do have adequate skills and resources to implement and monitor activities for social and economic development. A second aspect will be to find out if governments are determined to open up channels for local governance and community participation and which mechanisms exist to transfer funds and responsibilities to the people in charge. One central issue will be the creation of an environment where individuals or groups feel encouraged to make decisions autonomously and where they are in control of the outcomes for which they have accepted responsibility.

2.7. Mozambique's path from centralisation to decentralisation

2.7.1. Political background of Mozambique

After a 14-year struggle for independence, the independent People's Republic of Mozambique was proclaimed on 25 June 1975 with wartime commander Samora Machel as president and Joachim Chissano, a founding member of Frelimo's (Front for the Liberation of Mozambique) intellectual elite, as prime minister. The colonizing power Portugal left a country behind that had hardly any infrastructure and few skilled professionals.[35] Frelimo had the task of running the country and radical social changes followed. Links were established with the USSR and East Germany and state farms and cooperatives began to replace private land ownership; schools and hospitals were nationalised.[36] Private practices in medicine and law were abolished in order to disperse skilled labour. Although school and literacy programmes became a high priority, the object being to teach 100,000 people per year how to read and write, Frelimo's strategy quickly proved to be ineffective. By 1983 the country was almost bankrupt. As a result the country faced a crisis which intensified after a three-year drought and South Africa's and Rhodesia's efforts to destabilise Mozambique because the opposition African National Congress (ANC) and Zimbabwe African People's Union (ZAPU) had bases in Mozambique and were fighting for majority rule. While the collectivisation of agriculture did work in some areas, in many others it failed. It was then that Mozambique's National Resistance Army (Renamo) appeared on the stage. Renamo's rebel forces were established in the mid 1970s by Rhodesia (today Zimbabwe) as part of its destabilisation policy and were later kept alive by South African military forces and their supporters in the West.

A 17 year long war began between Mozambique's Frelimo government and Renamo supporters, whose object was to destabilise the Government and to destroy all forms of infrastructure. During this period whole villages were occupied or cut off over long periods, causing extreme food shortages and hunger. Women were raped by the rebel

[35] Sabine Fandrych mentions that railways and harbors alone lost 7000 qualified and skilled workers during independence (2001: 127).
[36] See Law 5/78, article 28, cited (Fandrych 2001:27).

forces and people shot.[37] The situation became even worse during a heavy drought and famine in 1983. Frelimo realised the failure of its socialist "experiment" and opened up to the West for aid. In 1984 the Nkomati Accord was signed by Mozambique and South Africa in which it was stated that South Africa would withdraw its support from Renamo. Mozambique in return agreed to expel the ANC and to open up for South African investment in the country. Despite the agreement South Africa continued to support Renamo while Mozambique was opening the door to investments by South Africa. After the death of President Samora Machel in a plane accident Joaquim Chissano took over his position. Although the war between Frelimo and Renamo supporters continued until the end of the 1980s a "wind of change" was evident, mainly due to the end of the Cold War and the efforts of the newly elected South African President FW de Klerk, who made things difficult for right-wing supporters of Renamo.

By the beginning of the 1990s Frelimo had distanced itself from its Marxist ideology and increasingly opened up to a market economy. After negotiations in Rome a formal peace agreement was signed in 1992 which was followed by disarment campaigns monitored by the UN. In October 1994 the country held its first multiparty elections. The two factions converted into more conventional political parties and a period of political stability followed, with Frelimo repeatedly winning democratic elections with a majority. The last elections took place in December 2004 and long-time Frelimo member Armando Guebuza was elected to succeed Chissano, who had announced earlier that he would step down. Although Renamo is still striving to be a viable political party, it is Frelimo that has defended majority rule until today.

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2.7.2. The decentralization process in Mozambique after 1990

With the adoption of the new constitution in 1990, the groundwork for the decentralisation process in Mozambique was laid. The constitution paved the way to gradually move away from a system of centralised administration which should serve to hold together a unitary state after independence in 1975 to a form where responsibilities are transferred to mainly deconcentrated state organs.

[37] Conversations with José Magombe Gomes and Antonio Charifo on several occasions.

While peace negotiations were going on in Rome, the Ministry of State Administration (MAE - *Ministro de Administração Estatal*) was promoting a comprehensive administrative reform known as PROL (*Programa das Reformas dos Orgãos locais*) with the aim of strengthening national unity and democracy and promoting political, economic and social stability (Fandrych 2001:171). In addition, the Ministry for Planning and Finance initiated a programme for fiscal decentralisation under which competencies for planning and budgeting would be transferred to deconcentrated state organs at the provincial and district level (Fandrych 2001:169-170).

Fandrych (2001:167) observes that during the 1980s and the 1990s a paradigm shift could be observed within the multilateral donor institution away from disaster and emergency aid and towards socioeconomic structural adjustment programmes (by the mid 1980s). These programmes aimed to promote the peace and democratisation process as well as elections in the early 1990s, whereas in the mid 1990s the focus was placed on the financial support of political and administrative reforms of governance systems.

In regard to the administrative reforms, Fandrych (2001:168) remarks that even though they were elaborated in the beginning of 1990 by the Mozambican Government and integrated in 1994 into a five-year Government programme, it was the international donor community that quickly adopted the administrative reforms, and especially the decentralisation process, as one of "their" priorities. Fandrych questions the sustainability of the process and wonders whether the Mozambican Government has enough scope for its own political actions or if the process is dominated by political conditionality.

With the gradual implementation of the municipal model legally based on the Law on the Institutional Framework (Law 3/94) for Local Governments, the transformation of administrative state organs at the district level into administrative, fiscal and financially independent municipalities (*autarquías*) was initiated. Process Law 3/94 had to be adapted again a few years later in accordance with constitutional changes made on 28 October 1996, resulting in Municipal Law 2/1997.

Although Municipal Law 2/1997 has provided for democratic elections in thirty-three municipalities (*autarquías*) in urban and semi-urban areas, this was not the case in rural areas (Buur & Kyed 2005: introduction). The reasons were that the 1997 law "followed the principle of gradualism where only areas with a certain level of development could gain *autarquía* status. The end result was that none of the rural areas were granted such status" (Buur & Kyed 2005:9). Increasing concerns were raised by donors about how to include the rural areas in the decentralisation process and how to give the population and traditional authorities "a voice". Buur and Kyed (2005:10) remark that "while development donors in the 1960s to 1980s overwhelmingly viewed traditional structures as detrimental to modernisation, today they include them in the category of civil society, which is seen as providing a crucial element in the development process". This is also reflected in increased donor funding for a study (1992-1997) of traditional authority which was conducted by the Ministry of State Administration (MAE) and that laid the groundwork for Decree 15/2000.

2.7.1. Decree 15/2000 and the recognition of community authorities in Mozambique

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Decree 15/2000 recognises community authorities as interlocutors between civil society and local state organs. The decree provides for the performance of several duties. These include the dissemination of government laws and the mobilisation and organisation of communities for local development activities. Since 2002 when the decree was implemented "more than two thousand leaders from the categories of 'traditional leaders' and 'secretaries of suburban quarters or villages' have been recognized as 'community authorities' in semi-urban and rural areas of Mozambique" (Buur & Kyed 2005: introduction).

Buur and Kyed (2005:6) state:

> From a broader historical perspective, the two decentralization initiatives – Decree 15/2000 for rural areas and Municipal Law 2/ 1997 for the urban areas – establish an important break in legal terms with the previous colonial and post-independence local governance.

With the implementation of Decree 15/2000 the recognised authorities are not only seen to represent civil society or community representatives articulating rural people's needs but they also serve as

> concrete "entrance points" or "mediators" between external agencies and communities …Ideally they should allow for the establishment of partnerships and for the participation of rural and semi-urban communities in rural development – that is, in cultural sensitive ways that speak to some sort of democratic participation (Buur & Kyed 2005:6).

But Buur and Kyed (2005:6) also point out that in reality this is not always the case. They express the criticism that there is a one-sided relationship with a focus on what local communities can do for the state in "executing administrative and developmental tasks than on their community representative role". Buur and Kyed (2005:15) emphasise that it is important not only to define the community as a group of people with shared values, solidarity and attachment but also to see the differences and inner dynamics in a community. There has to be a move away from utilising the community as a "state assistant" simply because it is the state that "formally grants recognition to community authorities" and towards a relationship of mutual exchange and partnership between local state organs and communities.

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2.7.2. The Law of Local Organs of State (LOLE)

With the implementation of Law 8/2003 - LOLE (Law of Local Organs of State, to which regulations were published in 2004 and 2005) Mozambique legally recognised the structure and organisation of Local Organs of State (known as the levels of *posto administrativo* and *localidades*) and enforced the district as a budgetary unit. The adoption of the law in May 2003 was a significant step towards increasing the autonomy of provinces and districts. LOLE gives the Provincial Governor and the District Administrator the power to merge sectoral directorates into multi-sectoral technical teams. The district becomes a budgetary unit with the power to plan and define its priorities. These two elements strengthen the independence of the districts and shift some power away from the sectors towards the local territorial authorities.

In addition, a comprehensive reform of the public expenditure management system has been taking place since 2002 (expected to be accomplished by 2008). The Government of Mozambique is implementing an integrated financial management

system called SISTAFE (*Sistema Integrada de Administração das Finanças do Estado*) based on the Law on Financial and Administration of State 9/2002 together with decree 23/2004. SISTAFE is an overall, long-term reform project designed to improve the system of management of public funds in Mozambique. This overall reform encompasses all the essential aspects of a reform of public finances: compiling and implementing the budget, management of salaries, assets, public contracts, revenue systems, debt and setting up an internal audit system. The aim is to manage Mozambique's budget more efficiently, with transparency, stricter monitoring and faster circulation of funds.

In 2003 national guidelines for District Development Plans (DDPs) were adopted. They reinforce the role of the districts as units for planning and budgeting. The guidelines allow for the creation of local authorities in the planning process. One of the responsibilities that have been assigned in LOLE to the district administration comprises activities for the reduction of disaster risk. Decree 15/2000 and LOLE "therefore provided the basis for legally institutionalizing the interaction (*articulação*) between local state organs and forms of civil society groups in the rural and semi-urban areas" (Buur & Kyed 2005: introduction).

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The next section focuses on how the decentralised responsibilities for development can be used to manage disaster risk at the local government levels.

2.8. Local governance and disaster risk management

To respond to certain risks it becomes necessary to define which activities must be performed, and by whom and when they should be performed. Clearly the time factor is very important during emergency situations where decisions must be taken quickly but must nevertheless be well considered. Decisions are often taken by other people than the ones affected and at risk. The criticism has been expressed that aid agencies tend to translate dangers differently from the affected population and that the recipients of food aid are often left behind shortly after the emergency phase is seen by others as being over. Past disasters have demonstrated that owing to various factors the challenging time starts after the occurrence of a disaster. In an empirical study on the

floods in Southern Mozambique in 2000 Elisio Macamo (2003, in Krueger & Macamo 2003:51) found out that the population actually did not consider the flood to be a disaster, but regarded the subsequent drought as worse.

National governments are often remote from the areas where the disasters occur and aid agencies are not familiar with the people and the area where they are operating. The result in many cases is that dangers are differently interpreted from the way in which they are seen by the population in the affected area. It is therefore important that the national governments that have to formulate policies and strategies are informed and aware of the situation on the ground. In a report by the ISDR and the World Bank (2007:15) on the status of Disaster Risk Reduction in the SSA Region the following is stated:

> Local people of Africa understand the threats they face and have evolved varied risk management coping and survival strategies to sustain their livelihoods, particularly when disaster management policies fail or do not exist. Some of these coping strategies are partially inadequate because of a weakening of their protective and restorative properties from development-induced pressures. Nonetheless given the importance of these coping strategies for managing livelihood risks, it is important that disaster management policies and programmes safeguard and strengthen them. National policies and plans for disaster management in Africa have not explicitly focused on strengthening coping strategies. By emphasizing community-based risk management interventions, national disaster management systems can play significant catalytic roles in enhancing self-protection from effective coping mechanism at the local level.

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It is important to transfer responsibilities to those government levels and institutions that are present in the region so that they can coordinate and initiate activities for disaster risk management and make use of the coping mechanisms that have already been developed. This is reflected in the definition supplied by the ISDR (2004:3) in which disaster risk management is defined as a systematic process of "using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters".

It is often said that local government is the "sphere of government that is closest to the people" (Davids & Maphunye, in Davids et al 2005: 59) and that local government officials are generally more familiar with the situation on the ground. Local governments should therefore play a central role in the promotion of the social and economic development of a country through the structuring and management of the

resource allocation and in order to respond to the needs of the population and communities. The first step in the management of disaster risk is to detect those areas prone to disaster risk and identify the vulnerable populations before any activities for DRM can be planned and implemented. This can only be done if key actors are trained on how to estimate and integrate necessary funds for DRM into the budget. Once requirements have been calculated, national governments must allocate adequate resources to local governments if they are unable to raise sufficient income. Instead of relying on decisions taken either at the national level or by the people in charge of external and development aid, local governments must have the capacity and the knowledge of how to plan, implement and monitor disaster risk management activities. The term ”local governance” therefore refers to the application of institutional capacities to manage and promote the social and economic development of a specific region or country while integrating effective and efficient DRM activities.

The establishment of a strong link with communities plays a central role because local communities must not only be aware of decisions that were taken at the various government levels but they must also have a say in decisions that affect their communities. It therefore becomes important not only to establish mutual partnerships with community representatives and the population to address local needs but also to demonstrate commitment to achieve common goals. The role community participation plays in the management of disaster risk and the formulation of goals and activities will be discussed in the next section.

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2.8.1. Defining ”community participation”

According to Jennings (2000:2), ”participation” is “not just about meeting a people’s needs. It is about helping to create an environment where people can more effectively identify and address their own needs”. Often the poor or marginal groups of the population are the ones who are not able to take the initiative in the development process because they lack decision making power, knowledge or sufficient resources.

In his article "Ladder of Citizen Participation" Sherry Arnstein (1969:216) defines "participation" as a "categorical term for citizen power", meaning:

> the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future. It is the strategy by which the have-nots join in determining how information is shared, goals and policies are set, tax resources are allocated, programs are operated, and benefits like contracts and patronage are parceled out. In short, it is the means by which they can induce significant social reform which enables them to share in the benefits of the affluent society.

Another definition is that of Harry Blair (2000:22), who states that the central idea of "participation" is

> to give citizens a meaningful role in local government decisions that affect them, while accountability means that people will be able to hold local government responsible for how it is affecting them. Together, these two processes are what constitute the heart of the "democratic" component of democratic local governance.

Over the past decades a wide range of approaches to and definitions of "participation" have appeared and various techniques have been elaborated to empower the development process. According to Christens and Speer (2006:2), one of

> the most visible promoters of participatory techniques in development and research were CHAMBERS (1983, 1997) and FALSBORDA and RAHMAN (1991). Drawing on popular models like those of FREIRE (1970), the promoters of these methods were vociferously opposed to the existing "top-down" approaches of institutions. They claimed that utilizing their participatory methods made the development process more empowering, democratic, just and effective.

Drawing on the World Bank Participation Sourcebook, Jennings (2000:1) lists numerous tools that have been developed to promote "participation". These tools aim to generate higher levels of empowerment and ownership by the communities involved in the development process. In consequence of the idea that various stakeholders should be included in development planning an

> extraordinary mélange of context-specific, formal methodologies, matrices, pedagogies and ad hoc approaches to enhancing participation in humanitarian aid and development [can be found]. They include: conscientization and praxis; rapid and participatory rural appraisal (RRA & PRA); appreciation–influence-control analysis (AIC); "open space" approaches; objectives-oriented project planning (ZOPP); vulnerability/capacity analysis and future search workshops.[38]

[38] For a comparative review of these approaches Jennings refers to *The World Bank Participation Sourcebook,* World Bank Publications (1996) which can be found under: www.worldbank.org/wbi/sourcebook/sbhome.htm.

The UNHCR (2008:19) states that "through effective participation, the community can support its own self-initiated activities to meet its preferred goals". Further Jennings recognizes (2000:20) that

> empowerment is not something that is "done" to people; it is the process by which individuals in the community analyze their situation, enhance their knowledge and resources, strengthen their capacity to claim their rights, and take their action to achieve their goals. Empowerment requires change at the individual and structural levels.

At this point it also is important to define a community not necessarily as a homogenous set of people but rather as "a group of people that recognize itself … as sharing common cultural, religious or other social features, backgrounds and interests, and that forms a collective identity with shared goals" (Jennings 2000:14). It has also been remarked that what is "externally perceived as a community might in fact be an entity with many sub-groups or communities" (UNHCR 2008:14). In order to achieve sustainable community development, it therefore becomes important, "building on the capacities and skills of community members to manage representative and fair structures that can respond to both immediate and long-term protection risks and needs, and to develop solutions while upholding individual rights" (UNHCR 2008:23).

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Next to the various existing tools and approaches there is "a consensus that it is not "participation" if contact with the local population is used to confirm the integrity of a preconceived idea" (Jennings 2000:2). Christens and Speer (2006:2) are raising the point that despite the

> widespread adoption, concerns have periodically been raised about the degree to which these participatory methods are living up to the claims of their promoters (i.e. Nelson & Wright, 1995). One concern is that the development agencies are implementing participatory practices in ways that serve their own agendas.

More critical opinions are discussed and analysed in a review essay by Christens and Speer (2006) on *Participation: the new tyranny?* (Cooke & Kothari (eds) 2001) and *Participation: from tyranny to transformation?* (Hickey & Mohan (eds) 2004). Three types of tyrannies of participation are identified by Cooke and Kothari in their opening chapter. Christens and Speer (2006:2) summarise the "tyrannies" and state that the first tyranny comprises the fact that "the decision-making control [is often] held by agencies

and funders", and second that "participatory practices sometimes contribute to the maintenance and exacerbation of local power differentials". A third issue discussed addresses the dominance of the participatory method, noting that "the overwhelming participation, particularly the goals and values expressed, has limited dialogue and even consideration of other methods for cultivating development". The role that participation plays in regard to disaster risk management will be discussed in the next section, which clarifies the role local communities can play in the management of disaster.

2.8.2. Community participation in disaster risk management

For communities to participate in activities that will reduce their vulnerability to natural hazards they need information and they need to provide access to information. This becomes extremely important when the flow of information is essential if the right decision is to be taken at the right time and there is to be accountability. Often the population concerned has already developed coping strategies during times of natural hazards as a result of past experiences. To further enhance those mechanisms it is necessary to consider and integrate the population into the planning process for disaster risk management activities. Heijmans (2004:n.a.) remarks that those capacities are emerging out of

> a process of experiments and innovation through which people build up skills, knowledge and self-confidence necessary to shape and respond to their environment. This provides people with a sense of "safety".

This becomes a key issue during emergency situations. Often the feeling of "safety" embodies a high potential for risk. People who thought they were "safe" may suddenly be surprised by an unexpected event with no time and no means to react. Because of changing climate patterns there is currently an increasing need to find new ways of adapting to hazardous events that go beyond past experiences.

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2.9. Addressing vulnerability to natural hazards

Anneliese Heijmans (2004:n.a.) distinguishes three different views of and strategies for addressing vulnerability. One view mentioned sees the cause of ”vulnerability” in nature and natural hazards whereas another sees it in the high costs prediction and mitigation technologies. Supporters of the third view consider societal structures as a cause for vulnerability that demands political solutions. In the latter case the “long-term solution lies in transforming the social and political structures that breed poverty and the social dynamics and attitudes that serve to perpetuate it (Heijmans and Victoria, 2001, p16)” (Heijmans 2004: n.a.). The first two views are considered to be politically neutral and focus mainly on disaster prevention and relief.

The latter view is supported by Wisner et al (2004), who provide a comprehensive analysis of the causes of vulnerability. They base their argument on the vulnerability approach that has developed during the past few decades. Supporters of this approach adopt the view that natural hazards are usually the trigger for disasters but they emphasise the different ways in which “social systems operate to generate disasters by making people vulnerable” (Heijmanns 2004:n.a.). For Wisner et al (2004:49) it is crucial to understand why disasters happen and that they are not only triggered by extreme natural events but are also the product of social, political and economic environments that structure the lives of people in different contexts. This approach is summarised in the following formula:

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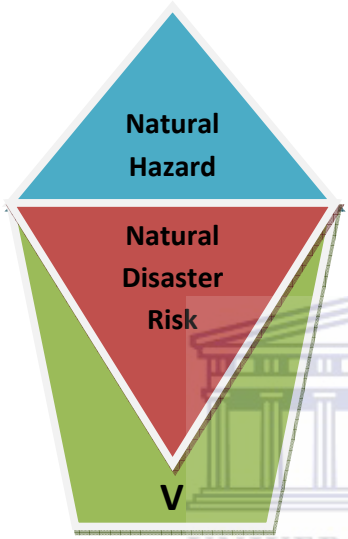
Risk = Hazard x Vulnerability

According to this formula a disaster can be described as a function of the risk process resulting from the combination of hazards such as floods, cyclones and drought, vulnerability and insufficient capacity to reduce the negative consequences of risk. Risk can be diminished either by reducing the hazards, which in most cases is not possible, or by reducing the degree of vulnerability.[39]

[39] Wisner et al apply the term “vulnerability” only to people and not to “buildings (susceptible, unsafe), economies (fragile), nor unstable slopes (hazardous) or regions of the earth’s surface (hazard-prone). Typically, social characteristics such as gender, age, health status and disability, ethnicity or race or nationality, caste or religion, and socio-economic status are the focus of attention” (Wisner et al 2004:15).

Figure 2.9.1. illustrates that those people living in the green area are characterised by a certain type of vulnerability (V). The people in the red and the blue triangles are affected by natural hazards as well. But because they are more vulnerable only those people in the red triangle are at risk of becoming the victims of a natural disaster.

Figure 2.9.1. Disaster Risk Concept



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To analyse how national policies and programmes related to the decentralisation process contribute to the reduction of vulnerability to disaster risk and to find out how local governments are making use of the transferred authority, the reversed Pressure and Release Model (PAR) by Wisner et al (2004) will be applied. The model will serve as an analytical tool to illustrate how the progression of vulnerability in a specific context can be reversed and safe conditions created.

2.10. Reversing the Pressure and Release Model (PAR)

According to the PAR model ”root causes”, ”dynamic pressures” and ”unsafe conditions” exist as processes that generate vulnerability. If a vulnerable population is confronted with a ”natural hazard” it might either be facing a higher level of disaster risk or, if the risk surpasses the coping capacities of the affected population, a disastrous situation may ensue. For Wisner et al (2004:50) this image resembles

> a nutcracker, with increasing pressure on people arising from either side – from their vulnerability and from the impact (and severity) of the hazard for those people. The ”release” idea is incorporated to conceptualise the reduction of disaster: to relieve pressure, vulnerability has to be reduced.

The model illustrates how the different pressures increase and illustrates the way they are interlinked. One example mentioned for ”root causes” is the limited access to power, which is connected to the function of the state and ultimately “with good governance, the rule of law and the capabilities of the administration” (Wisner et al 2004:52). According to the model, the characteristics of the root causes lead to certain forms of dynamic pressures and channel the root causes into specific forms of unsafe conditions.

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Anneliese Heijmans (2004:n.a.) remarks that the PAR model can be a useful tool for communities to analyse the root causes of their vulnerability. The PAR model helps to explore risk in relation to vulnerability in a specific hazardous situation and explains how disasters occur under specific circumstances. In addition the PAR model offers a way to find out about levels of risk resulting from both, hazard and vulnerability. It demonstrates which factors should be modified in order to reduce the level of disaster risk and to release pressure.

Christina Anderskov (2004:105) states that after testing the PAR model for an analysis of the 2001 floods in the Mutarara district “the model had a convincing explanatory power especially in regard to outlining the root causes and dynamic pressures contributing to the progression of vulnerability in Mutarara”. But she also detects “a series of conceptual and epistemological flaws” in the approach. Anderskov (2004:106) concludes that “the strategies and behavioural pattern of the flood victims

had no place in the analysis" and that the model "could not grasp the multi-linearity and complexity of the different phases of the disaster".

In the framework of this thesis the PAR model will be reversed and applied to explain how safe conditions can be achieved by addressing root causes, reducing pressures and achieving safe conditions while reducing hazards. The "progression of safety" will be analyzed by means of two case studies that were conducted in the Caia and Búzi districts after the floods in 2007.

Wisner et al (2004:343) state that "vulnerable people's access to resources can be improved, and changes in power relations can be made". In addition "social, economic and political mechanisms (dynamic pressures) that translate root causes into unsafe conditions for specific people can sometimes be blocked, changed or even reversed". They argue that in order to reverse the PAR model, fundamental changes in governance are required where improved governance is "the most important factor for reversing many of the dynamic pressures and even the root causes of vulnerability" (Wisner et al 2004:345). Wisner et al (2004:345-346) emphasise that the term "good governance" covers not only "the ideologies, power relations, formal and informal networks, and resource flows that determine the relationship between the state (at various levels: national, sub-national, local/municipal) and civil society" but it also implies "society-wide participation and negotiation that goes well beyond cosmetic institutional changes such as regular national elections".

In the framework of this thesis the reversed PAR model is used as an analytical tool to illustrate which role the decentralisation process plays in the context of Mozambique for the reduction of vulnerability to natural disaster risk. It is applied to determine whether changes in power structures and the transfer of responsibilities, finances and skills from the national level to the local government levels helped to reduce the vulnerability of the population during the 2007 floods. The role the different government levels played in releasing the "pressure" of disaster risk together with the affected communities is a central aspect that will be analysed in the context of the districts of Búzi and Caia in Mozambique.

2.11. Conclusion

During an initial discourse exploring the various concepts of ”risk” it became clear that the meaning of ”risk” has changed over time. An understanding was arrived at that risk can be managed and disasters prevented if dangers and insecurities are perceived on time and addressed adequately. In order to deal with extreme situations, the population concerned often develops a set of coping mechanisms and routines during hazardous events like droughts, cyclones or floods. But if extreme events occur that are outside normal experience and surpass anything that has happened before, new mechanisms and strategies must be elaborated to reduce the vulnerability of the population at risk and to prevent human and material losses that would aggravate poverty.

The negative impact of natural disasters on social and economic development is being recognised not only by development and aid agencies but increasingly by national governments. Consequently mechanisms and strategies are developed to respond to and to prevent natural disasters. The Mozambican Government is one of the countries in Africa that has already integrated disaster risk reduction into its Second Action Program for the Reduction of Absolute Poverty (PARPA II) as one aspect of sustainable development.

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When the different strategies for the reduction of disaster risk are examined, it can be stated that the approach has shifted in recent years from emergency management to a more development-centred approach that includes activities for the management of disaster risk. The latter approach aims to address political, social and economic factors while integrating them into strategies for poverty reduction.

Over the past three decades many governments have also tried to find strategies to promote social and economic development and to find new strategies for the political and administrative implementation of development projects. Concepts of decentralisation hold promise for donor agencies and have been adopted by governments with varying results, depending on the conditions and political frameworks. The various stages of the decentralisation process affect the allocation of resources and capacities and reflect the commitment of national governments to changing bureaucratic patterns. When adequate policies are implemented, officials at

lower levels of government are able to hold key responsibilities for the promotion of social and economic development while addressing the needs of the local population.

In the formulation of policies and strategies, governments, institutions and development agencies have to demonstrate that they are familiar with the situation on the ground and are willing to build up partnerships with local governments and the population that are based on trust and commitment. To address the population's vulnerability to natural hazards, the skills and coping mechanisms of the population concerned must be integrated into the planning and implementation of related activities. This can only be achieved if working communication channels between the different government levels exist and realistic amounts of resources are allocated for these activities.

In the context of this thesis the reversed PAR model is applied for the analysis of the findings of the empirical field research conducted in Mozambique. The model helps to explain if safe conditions could be created by addressing root causes, reducing pressures and achieving safe conditions while also reducing hazards. The empirical case study aims to test the following hypothesis: *Decentralization facilitated the management of disaster risk and contributed to the reduction of vulnerability of the population during the 2007 floods*. On the basis of the theoretical framework discussed in this chapter the following indicators (I) for decentralization as the independent variable (V1) and disaster risk management as the dependent variable (V2) were formulated:

Decentralisation as the independent variable:

V1/I1: *Policies and legal frameworks that promote the decentralisation process were in place.*

V1/I2: *Local governments did have the funds, knowledge and capacity to plan, implement and monitor development activities.*

V1/I3: *The needs of the local communities were addressed and the population was involved in the decision making processes and development activities.*

Disaster Risk Management (DRM) as the dependent variable:

V2/I1: *Disaster risk reduction became a development issue for national and local governments.*

V2/I2: *Activities for the prevention and mitigation of disaster risk were planned and implemented in the districts.*

V2/I3: *Effective early warning systems were in place involving the population concerned.*

V2/I4: *Districts and the population concerned did perceive the risk of natural hazards and reacted on time.*

V2/I5: *Human and natural losses were reduced.*

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CHAPTER 3: RESEARCH DESIGN AND METHODOLOGICAL APPROACH

Chapter 3 provides an overview of the setting and the methodologies that were applied during the empirical research conducted in Búzi and Caia. This chapter describes the qualitative and quantitative methods used, such as the analysis of secondary data, interviews, questionnaires and a participatory risk map. These methods were applied to test the hypothesis and to measure the indicators that were formulated for decentralisation as the independent variable and disaster risk management as the dependent variable. The methods of analysing the data are discussed, as are the limitations of the study.

3.1. Setting for the research

The research for this study took place in Mozambique from the middle of June to the first week of September 2007 and was embedded in an internship period at the German Technical Cooperation (GTZ) and the Mozambican National Institute for Disaster Management (INGC). During this period I gained insight into the project "Strengthening of National Disaster Risk Management Systems in Mozambique" (PRO-GRC)[40] and was able to collect most of the data within the framework of this project.

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Because I was part of a project team of a German and a Mozambican government organisation, I was able to make use of established linkages to national and local government representatives as well as to members and representatives of the local communities at risk of natural disasters. In addition to Búzi and Caia other districts were visited during this period as well as several communities where local disaster risk committees (C-GRCs) were already operating. Some members and facilitators of the disaster risk committees supported this study and helped to establish further contacts

[40] The overall objectives of PRO-GRC are to reduce human and material losses due to natural disasters and to contribute to sustainable development in Mozambique. The project attempts to strengthen relevant institutions at different government levels, establish new structures for the reduction of disaster risk, as well as capacitate key representatives in DRM. This includes activities such as the organisation of seminars, installation of early warning systems, the creation of local disaster risk committees and simulations in the affected regions. National Emergency Coordination Centres (CENOEs) are currently built up in Southern, Northern and Central Mozambique by the INGC in cooperation with GTZ and other donors.

with traditional leaders and community representatives. With their permission I was able to gain access to communities that had frequently been affected by disasters in the past.

Although I realised that there are several more districts that would have been of interest for the analysis I decided to limit my research to the districts Caia and Búzi.[41] This was not only due to the difficulties to travel long distances in Mozambique without own transport but also due to the advantages I could experience from existing contacts already established in these districts by the organizations GTZ and INGC I was attached to during my stay in Mozambique. Due to a relatively close distance of about five hours by car I was able to travel between the two districts whenever necessary. Another important criterion for the selection of these districts was that Caia as well as Búzi are both frequently affected by flooding rivers and are both located within the Province of Sofala. Búzi has been one of the first districts in Mozambique that has recognized the need to establish own mechanisms for DRM. It strives to serve as "role-model" for other districts and aims to transfer its knowledge and experiences made during past natural disasters to other districts that are facing similar challenges. The *vila* Caia is hosting one of the newly established CENOEs which are given the task to coordinate and support DRM related activities on the local level. During the 2007 floods Caia also served as a central meeting point for a whole range of international relief agencies responsible for the distribution of food and relief items in the region. At the beginning of 2007 it was observed that both districts "managed" the floods that occurred in the wake of cyclone Favio with their own resources and mainly without external help. Due to these characteristics the two districts were selected to find answers to the research questions and to gain knowledge about decentralised mechanisms and strategies for DRM at the local level to cope with natural hazards.

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The two districts will serve as "descriptive case studies", allowing me to gain knowledge in a relatively new scientific field. They open up a window into a complex process that might be of use for other districts at a later stage. Even though case studies are sometimes considered to be "nothing more than a method of producing anecdotes" (Flyvberg 2006:224) this criticism has been challenged by the view that case studies are

[41] See annex 1 for their location.

helpful to gain deeper knowledge about a certain issue. Eyseneck (1976:9 in Flyvberg 2006:224) concludes that it is important to "keep our eyes open and look carefully at individual cases – not in the hope of proving something, but rather in the hope of learning something!". Flyvberg (2006:227) also remarks that even if

> knowledge cannot be formally generalized [it] does not mean that it cannot enter into the collective process of knowledge accumulation in a given field or in society. A purely descriptive, phenomenological case study without any attempts to generalize can certainly be of value in this process and has often helped to cut a path towards scientific innovation.

How and why the two districts handled the emergency phase by their own efforts and how they applied disaster risk management strategies at the local level is a central question throughout the research.

3.2. Data collection

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For data collection a combination of quantitative and qualitative research tools and methods were applied to find answers to the research questions and to gather evidence to test the hypothesis based on the formulated indicators. In an attempt to find out about the impact of the decentralisation process on disaster risk management a combination of approaches was chosen to gain a deeper insight into a complex political process and the different factors related to reducing disaster risk.

Rao and Woolcock (in Bourguignon & Pareira da Silva (eds) 2004:165) see advantages to combining quantitative and qualitative methods and state that "integrating qualitative and quantitative approaches in development research and program evaluation can help yield insight that neither approach would produce on its own". In addition, qualitative approaches prove to be "particularly effective in delving deep into issues of process; a judicious mix of qualitative and quantitative methods can therefore help to provide a more comprehensive evaluation of an intervention" (in Bourguignon & Pareira da Silva (eds) 2004:167).

3.2.1. Decentralisation as the independent variable

Three sets of indicators were formulated for decentralisation as the independent variable, as shown in table 1.3.3. To find out whether policies and legal frameworks were in place to promote the decentralisation process, national policies and legal frameworks were analysed. National and district development plans and budgets should provide sufficient information to reveal whether local governments did have sufficient funds, knowledge and capacity to plan, implement and monitor development activities. This was furthermore complemented by interviews with the administrators of the districts of Búzi and Caia. Traditional leaders, community members and representatives of disaster risk committees in the two districts were asked about their involvement in the decision making process and activities related to the reduction of vulnerability to disaster risk.

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3.2.2. Disaster risk management as the dependent variable

For disaster risk management as the dependent variable five sets of indicators were formulated. In order to find out whether strategies to reduce disaster risk were developed and integrated into development planning by national and local governments, policies, Poverty Reduction Strategy Papers (PRSPs), District Development Plans (DDPs) and contingency plans were analysed. These investigations were supplemented by interviews and conversations with representatives of national and local governments, to find out about their experiences with the planning and implementation of activities for the prevention and mitigation of disaster risk. To find out whether effective early warning systems were in place and had been adopted by the vulnerable sectors of the population in the areas frequently affected by natural hazards, interviews were conducted with government representatives, experts and community members. The interviews and an additional analysis of reports should reveal whether the population concerned showed a timely perception of the risk of natural hazards and whether they were able to respond accordingly to prevent material and human losses.

3.2.3. Analysis of secondary data

Qualitative methods were used to prepare the research period. Secondary data consisting of relevant government publications, policy documents, and articles in newspapers and magazines were analysed to develop a deeper insight into the topic of DRM and decentralisation in the context of Mozambique. Policy documents and government publications were a significant source in gaining knowledge about the legal and policy framework as well as existing programmes and strategies for decentralisation and disaster risk reduction. How these policies are implemented and how they guide the decisions at the various government levels were questions to be investigated during interviews, conversations and observations, as well as by means of questionnaires.

3.2.4. Interviews

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During the research period in Mozambique all interviews with experts and government representatives were conducted in Portuguese. In regard to the conversations held with members of disaster risk committees and local authorities some had to be translated from Portuguese into *Cizena* and *Cindau* and vice versa by a local translator. Here notes were made in Portuguese by the researcher. The aim of these conversations was to obtain information how disaster risk was managed in the past and which improvements need to be made. In structured interviews with the district administrators of the two districts the researcher tried to find out how the implementation of DRM activities at the district level worked, where they encountered difficulties in the process and which structures were in place for the transmission of relevant information.[42] During these interviews a dictaphone was used to prevent the loss of relevant information owing to language constraints at the initial stage of the research period and to gain time for additional notes and comments that were written down during the interviews. The dictaphone also helped the researcher to concentrate

[42] See Annex 4 for guideline on interview questions.

on the interviewee and to ask additional questions in relation to the answers given. No dictaphone was used in the communities in order to avoid scepticism and fear.

During a two-week stay at the National Centre for Emergency Operations (CENOE) in Caia, the researcher gained insight into how the recently introduced structure for emergency operations worked during the 2007 floods. Representatives of the INGC, as the central coordinating body for disaster risk in Mozambique, as well as the regional director and representatives of the CENOE in Caia, were interviewed.

In addition, observations were made and informal conversations were held on a daily basis and available data (reports, budgets, plans, and policies) analysed. At a final stage of the research additional contacts with representatives of the Programme for Fiscal Decentralization (PPFD) in Maputo were established and observations with Paulo Zucula, the director of the INGC, discussed. For an elaborated list of interview partners and applied methodology, see Annex 5, table 1.

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3.2.5. Questionnaires

Between June and July three one-week workshops were organized by GTZ and INGC in the *vila* of Búzi. The aim of the workshops was to sensitise district planers, technicians, community leaders, local and national representatives of the INGC and members of disaster risk committees from Central, Northern and Southern Mozambique about issues relating to the management of disaster risk. On the last day of each workshop structured questionnaires in Portuguese with open questions related to the decentralisation of responsibilities and disaster risk management were distributed and filled out in the presence of the researcher. Twenty-eight questionnaires were filled out by representatives from Central Mozambique, 27 from the north of the country and 46 questionnaires by participants from Southern Mozambique. The purpose of this questionnaire was to find out how key planners and technicians at the district level see DRM in the context of Mozambique.[43]

[43] See Annex 2 for questionnaire Q1.

Although most of the participants did not belong to the districts of Búzi or Caia the questionnaires still serve as an instrument to find out about concepts and issues around DRM, attribution of responsibilities at the various government levels in DRM and ways to integrate DRM activities at the local level throughout the country. In the framework of these workshops three local communities (Muchenessa, Monamicua, Inhanjou) in the Búzi district were visited, together with the participants at the workshops. During the visits observations were made regarding the functioning of early warning systems and their effectiveness during the last floods and cyclone. Members of the community were asked about their experiences during the last floods and the effectiveness of the early warning systems that are in place.

As a quantitative method, a second structured questionnaire with open and closed questions in Portuguese was developed for use during visits to the local communities to collect data related to their past experiences with natural disasters.[44] The questionnaire was pre-tested in the district of Chemba before it was applied in the districts of Búzi and Caia. In the Búzi district 41 questionnaires were filled in and 28 were completed in Caia. The questions were read out aloud in Portuguese to the respondents by the researcher and in most of the cases translated into *Cizena* or *Cindau* by a selected member of the community or by a member of the local disaster risk committee. The responses as well as any additional comments were noted in Portuguese on the questionnaire by the researcher.

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Although it has been claimed that one cannot get to know a community fully without some knowledge of the local language, this cannot always be accomplished and goes beyond the capacity of the researcher (Bujra in Desai & Potter 2006:173). The advantages of using local translators are that they can be very helpful in initiating a dialogue and providing background information about the community which the researcher might not be aware of.[45]

[44] See Annex 3 for the outline of questionnaire Q2.

[45] José Magombe Gomes, interpreter from Búzi district, contributed extensively this study. Due to his local knowledge and capacity as translator of various local languages the researcher was able to interview more people than without his valuable support.

Janet Bujra (2006:174) states:

> A local interpreter is far more than a translator of language. They can and often do become 'informants in an ethnographic sense' (Bragson). They can become intermediaries who will open doors; they can also help to unravel why people behave as they do, who is related to whom or why the next village is different.

The community questionnaire mainly served to allow me to get a general impression of the communities and to learn about their current situation in relation to natural hazards and disasters. The questionnaire was also used as an entry point for getting in touch with some of the traditional leaders and initiating conversations with key community representatives and community members. In various conversations I tried to find out how the local population had experienced and dealt with extreme events in the past. The role the locally established disaster risk committees had played in the communities so far and how their work had contributed to the reduction of risk during the 2007 floods was another point of interest.

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3.2.6. The creation of a participatory risk map

During two visits to the *Regulado* Chandimba in the district of Caia, a participatory risk map was introduced and created by members of the community and the *Reinha* of Chandimba, with guidance from one representative of the DRM committee of the neighbouring *regulado* Chipuazo. This activity was aimed at pinpointing the main areas of risk, points of reference and evacuation routes in the area. Chandimba and Chipuazo are part of a resettlement area called Amilca Cabral together with two more *regulados* (Ndjezera, Marra) that were relocated and placed next to the existing *regulado* Tanga-Tanga.

3.2.7. Sampling

Various non-random sampling methods were applied for the selection of samples. A judgment selection was made for the interviews at the national and district level, where the focus was mainly on representatives from the national and local governments. Here people from the national coordinating body for disaster risk management (INGC) and

representatives from district administrations were interviewed. As part of the sampling process experts were consulted for the selection of interview partners and to gain insight into ongoing processes or past events that the researcher was not aware of or did not have access to. A random selection was made for the structured questionnaires with open questions where all the respondents were participants at a workshop on disaster risk management. So-called “snowball” sampling was applied during the visits to selected communities where the structured questionnaire with open and closed questions was filled out by members of the community, mainly selected by the respondents themselves. The last respondent normally recommended a neighbour or friend, who then filled out the next questionnaire.

3.3. Data analysis

In order to analyse the qualitative data that were collected in the form of interviews, questionnaires, budgets, development and contingency plans, policies, maps and conversations, different analytical methods had to be applied.

To analyse the recorded interviews the first step was to transcribe them. The transcription was intended to be helpful in facilitating the translation from Portuguese into English and structuring the answers according to ”thinking categories” related to decentralisation and disaster risk management and on the basis of the variables and indicators that were formulated. The interviews that were not recorded and that were captured through notes during and after the meeting were analysed in a similar way to the recorded ones. A content analysis was done in order to identify and summarise message content.

Observations made during visits to different communities in the districts and conversations that took place on various occasions during work situations were captured through notes in order to memorise points and observations that could possibly become relevant at a later stage and could provide answers to some of the research questions.

In addition policies were analysed according to the same categories with an emphasis on linkages between decentralisation and disaster risk management. The aim

was to find out which policies and laws for decentralisation are in place in Mozambique and how they are related to existing plans and policies for disaster management.

Budgets were analysed to get an idea of the amount of money that was calculated for DRM activities at the district level. Whether those budgets had proved to be realistic was one of the questions to be answered through the analysis of interviews with district administrators.

The participatory risk map which was drawn up by members of the Chandimba and Caia communities should also help to initiate a new disaster committee and to provide a "visual proof" next to the information which was gained during conversations and through the questionnaires. While the risk map was being drawn, additional comments were written down and analysed according to their relevance to the interpretation of the map and issues that currently concern the community.

The questionnaire, containing open and closed questions, that was developed for the communities was entered into the data analysis tool SPSS to find out about frequencies more easily. Open questions were mostly treated like qualitative data and were structured according to categories whereas the closed questions were treated like quantitative data and were mostly used to provide figures that would help to provide an impression of the situation in the community. Throughout the data analysis of the questionnaire with purely open questions all the questionnaires were typed. This proved to be a challenging task owing to the different handwriting styles and language constraints. Afterwards the answers in all the questionnaires were structured according to the questions and analysed again, using the categories created for the interviews. In addition, the frequencies with which similar answers were given were noted.

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3.4. Ethical considerations and limitations of the study

As part of a project team drawn from a Mozambican (INGC) and a German (GTZ) government institution for the duration of the field research and a student at the University of the Western Cape (UWC), I was closely linked to the rules and regulations set up by both institutions. While engaged in the research I respected the local

regulations and codes of conduct. This meant asking for an appointment at the district administration, where I was introduced by my colleagues from GTZ who had already been in close contact with the representatives as a result of their daily work in the districts. I always explained the purpose of my visit and the research objectives. Only after I had received permission from the administrator of the district did I begin conducting interviews and filling out questionnaires. For the interviews with government representatives I generally used a dictaphone and this was accepted by all my interviewees.

When the different communities were visited, contacts with the traditional leaders had to be established beforehand. Because of language constraints this was normally done with the aid of a local interpreter or members of the local disaster risk committees. Often several visits were necessary to set up a time and place for a meeting and to gain a broader understanding of how the community is structured and what the inner dynamics are, before the questionnaires were filled in or other activities were planned. To gain access to the communities, trust and confidence had to be built up in a relatively short period of time. Here it proved to be helpful to be part of a project team that has already established close contacts with the communities in the past. Before asking the questions formulated in the questionnaire for community members, I introduced myself and explained the purpose of the survey and for whom I was working.

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Even if the interviews with the communities at which the questionnaires were filled in were conducted in the company of a local person who was able to translate the questions into the local languages and explain them to people who did not speak or understand Portuguese, some relevant information still might have escaped the researcher. One possible reason is the different ways in which answers and questions could be translated into the various languages. The questionnaire had to be translated not only into Portuguese but also into English for the purpose of the thesis. Another constraint I experienced might have been related to the fact that I was a foreigner and therefore a stranger to many people. As foreigners are normally connected with emergency aid programmes in these parts of Mozambique, some answers might have also been influenced and directed by the hope of receiving some kind of financial support or food aid after the interview. In order to avoid misunderstandings, the

purpose of my presence had therefore to be clarified very carefully beforehand to avoid disappointments and the raising of false hopes among the communities visited .

3.5. Conclusion

Through the combination of a range of qualitative and quantitative methods it was possible to grasp a complex process and to highlight specific issues that came up during the research period. While analysing the different policies, programmes and plans the researcher was able to gain a feeling for the trends and directions of the national government in regard to the decentralisation process and DRM. But only through interviews, observations and questionnaires was it possible to put these policies into context and detect the challenges that came up during implementation. The interviews I conducted with government representatives proved to be very helpful, suggesting additional questions and allowing me to elaborate on certain issues. The questionnaires that were distributed after the DRM workshops were very helpful since they reflected the opinions of a relatively big group of government representatives and civil servants from all over the country. The workshop provided an opportunity to interview many people in a relatively short period of time and to pose questions that were partly related to the workshop but also to their past experiences in their own districts. As the questionnaire was anonymous the respondents seemed to be quite confident about responding to the questions although some of the questionnaires were not filled out until the end, which might have been related to the length of the questionnaire or the way some questions were posed. It would probably have been better to ask more closed questions or to reduce the number of questions. The length of the questionnaire also proved to be quite challenging when the questionnaires were analysed later on but provided valuable insight into the various processes related to DRM and decentralisation.

Visits to the communities were always very informative owing to a whole range of observations that were made either while walking around or during presentations given by the CGRs. In the rural areas I was able not only to see what conditions are like in the communities and the resettlement areas but also to observe how people interact

with each other and who plays a central role in the community. The questionnaires helped me to get in touch with different people and to initiate a dialogue that went beyond the framework of the questionnaire. With the help of translators and representatives of the C-GRCs I was able to get in touch with key community representatives and to gain access to traditional leaders. The drawing of the risk map also proved to be a helpful tool to initiate dialogue among members of neighboring communities which could in turn lead to future contacts and enhance the flow of information at a later stage. The presentation of the findings in the next chapter will show how complex the topic is and which mechanisms must be activated to address the needs of the local population and to guarantee the flow of information from national to local governments and vice versa.

CHAPTER 4: PRESENTATION AND DISCUSSION OF FINDINGS

The findings presented in this chapter emerged from the interviews and questionnaires that were conducted in the districts of Búzi and Caia in the Province of Sofala. The findings were further complemented by observations during conversations and visits to the different communities. I set out to determine which national and local actors were involved in the management of disaster risk and how the local population was integrated into related activities. A central aspect was the role disaster risk committees played in enhancing community participation in the areas affected by natural hazards during the 2007 floods. The mechanisms that were in place to warn the population are described as well as strategies on how to plan, finance and implement DRM activities at the local level. The chapter will conclude with the application of the reversed PAR model to analyse the findings and to find out whether the vulnerability of the population in the districts could be reduced and safety enhanced.

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4.1. National actors for disaster management in Mozambique

To implement strategies for DRM effectively and efficiently in order to reduce disaster risk in the areas frequently affected by natural hazards, actors and institutions responsible for disaster management must be appointed and their tasks defined. Presidential Decree 5/99 replaces the Coordinating Council for Prevention and Combat of Disasters (CCPCCN) with the Coordinating Council for Disaster Management (CCGC - *Conselho Coordinador de Gestão de Calamidades*), which is an organ of the Council of Ministers and is chaired by the Prime Minister. Its members include several cabinet ministers and the Director of the National Institute for Disaster Management (INGC). Since the beginning of 2006 the INGC has been headed by Paulo Zucula. The INGC has representatives at national, provincial and district level. Its main responsibility is to coordinate all the activities related to disaster management at the various government levels. This is done through the Technical Council for Disaster Management as an inter-ministerial body that includes representatives (mainly on the level of directors),

ministries (health, agriculture, public works and housing) that participate in the Coordinating Council as well as several stakeholders concerned with disaster management. In addition, various international stakeholders such as the World Food Program (WFP), GTZ and the Mozambican Red Cross (*Cruz Vermelha de Moçambique* - CVM) are involved. They have been very active in strengthening local disaster risk management committees among other organisations active in the field (eg Oxfam, Unicef etc.).

At the Provincial level there is the Provincial Technical Council for Disaster Management with the Provincial Governor as President. The Provincial Technical Council is a multi-sectorial body that includes governmental and non-governmental organisations. It is chaired by the INGC Provincial Delegate, who is appointed by the director of the INGC.

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4.2. Emergency Operation Centres (CENOEs)

The National Emergency Operation Centre (CENOE - *Centro Nacional Operativo de Emergência)* was established in 2006 as the regional coordinating body for emergencies. Headquarters are currently located in Maputo at the Mavalane military air base[46], Vilanculos (Inhambane) for the southern region and in Caia (Sofala) for Central Mozambique. Another centre is intended to be in operation until 2008 in Angoche (Nampula) to cover the northern region of Mozambique. The regional director of the CENOE in Caia, Valdemar Jessen, remarks:

> There is still a lot of work that needs to be done. When CENOE [in Caia] was created last year [2006] in December we were in the middle of emergency due to flooding in the Zambezi Valley. We did not have a lot of time to plan. But we now need to do the planning. We are all sitting together .[47]

The CENOEs cover certain provinces in the region. They are activated and coordinated from the central level when there is no longer sufficient capacity at the provincial level to respond to an extreme event. The coordination centres are equipped

[46] Big parts of the building were destroyed during a petrol explosion in August 2007. CENOE infrastructure was then temporarily relocated to offices of the INGC in Maputo.
[47] Interview with Valdemar Jessen, regional director, CENOE, Caia (04.07.2007).

to function 24 hours a day if necessary. CENOE as the coordinating body also integrates the National Civil Protection Unit (UNAPROC - *Unidade Nacional de Protecção Civil*) that operates search and rescue operations during a disaster. During emergencies, the regional director of the INGC or the National Emergency Coordinator heads the CENOE and directs its operations. Emergency levels are defined by different colours. Green does not imply an alert but sets in motion all the activities that need to be accomplished before an emergency situation. These activities comprise the identification of hazards, vulnerabilities and risk-prone areas at the local level as well as active participation in preparedness, prevention and mitigation activities. Yellow signifies a potential emergency situation in a certain area and orange is a sign of a possible disaster which could still be avoided. Red symbolises a state of emergency where all existing mechanisms must be activated and need to function properly. Depending on the levels of emergency, CENOE would operate partially or totally.

Valdemar Jessen explains this as follows:

> CENOE is the last instance when the situation is becoming very complicated and the Provinces are coming to ask for resources. We have boats, communication, and satellite phones. Provinces do play a role but CENOE is the last instance. CENOE is here to help provinces, districts and localities to mitigate disastrous effects.

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One of the duties of the regional director is to establish and to keep up contacts with the provincial governors in order to coordinate activities and exchange information. In the past this has proved to be more difficult than it seems. Provincial governments felt that they were being excluded from the decision making process and bypassed by the central government structures in place in the region.[48] INGC delegate, Mr Chicumbe, agrees:

> Yes, in the last year we had some problems and things were not very clear. Some Governors came here to sit down with us – but it is a new structure and to get used to it always causes some difficulties. But the core point is that the regional directorate does not substitute the responsibilities of the Provincial Governors.

[48] Various conversations with Carolina Celada, Wolfgang Stiebens and Mr. Chicumbe, regional adviser to the INGC at the CENOE, Caia.

Mr. Chicumbe further states that "the role of the regional directorate of the INGC could be described as a type of 'police' – but in reality it is not." He corrects himself and remarks:

> Until now there is no legal framework that says there is a regional directorate for disaster management …. But we know by rule that regional structures belong to the central structures. Therefore the regional directorate is not subordinated to the Governor of the Provinces but directly to national structures. Whereas the provincial directorates [of the INGC] are subordinate to the Provincial Governor and to Maputo. [49]

One advantage of a regional directorate is that it is located in the areas affected by natural hazards. Mr Chicumbe mentions other advantages as well:

> All the problems that exist are on the local level. For example, if a Province says that here are floods, then due to the distance, one in Maputo can only see the impact on the internet – but this is not the same thing as you would be already in the area. This is an advantage. Another advantage is that the regional directors and national directors need to be present during critical situations to take decisions.

In non-emergency situations CENOE centres are headed by a coordinator who is supported by INGC civil servants (GoM 2006c:3) and whose day-to-day task is to gather information about related issues, publish bulletins and keep the technical equipment running. Mr Chicumbe further explains:

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> CENOE works with official information. The administrator communicates with the communities and provincial regions. The administrator is responsible for the activities of the district like prevention and mitigation. But resources are limited to resolve a disaster – this is why CENOE needs to be activated.

So-called "focal points" (*pontos focais*) play an important role during emergencies. Operations officers from various ministries, institutions and organisations provide the CENOEs with information from their agencies and vice versa. In addition, there are various government institutions that play a key role in disaster management in Mozambique. The National Institute of Meteorology (INAM – *Instituto Nacional de Meteorologia*), which has been headed by Moíses Vincente Benessene since September 2007, is responsible for the monitoring of the weather. This institute is responsible for the management of the early warning systems for cyclones.

[49] Interview with Mr Chicumbe,, CENOE Caia (11.07.2007).

The four Regional Water Administrations (ARA - *Administração Regional de Água)* monitor and manage the hydrological networks and water levels of the big rivers like the Zambezi or Búzi in the Province of Sofala. The National Directorate of Water (DNA - *Direcção Nacional de Águas)* is also involved in early warning and policy making related to hydrological issues at a national and international level. DNA, together with ARA, INAM and the INGC, are responsible for the operation of the flood warning system.

The following sections illustrate how national policies for decentralisation affect the management of disaster risk at the district and community levels and how the population is involved to reduce their vulnerability to natural hazards. Although the districts of Caia and Búzi are both frequently affected by droughts, flood and cyclones and appear to share other similar characteristics, for the purposes of this study they will not be compared. They are used as examples to demonstrate experiences at district level in relation to the decentralisation process and the management of disasters.

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4.3. Integration of DRM in the districts of Búzi and Caia

As a result of the decentralisation process the district administrations are now officially responsible for the planning and implementation of activities related to social and economic development. This also affects activities related to disaster preparedness, prevention and mitigation. The district administrator (*administrador distrital*) heads the Technical Council for the district. This council is linked to the various sectors, governmental and nongovernmental organisations and INGC district delegates appointed by the INGC provincial delegate. In addition, upward and downward linkages to the central ministries and the administrators are established by sectoral ministries via deconcentrated field administrations. During emergencies COEs (*Centros Operativos de Emergência*) are activated. In line with LOLE and decree 15/2000, linkages to the communities are established via the administrative post (*posto administrativo*). The head of the administrative post (*chefe do posto administrativo*) is responsible for the promotion of community participation and the organisation of social, cultural and economic activities. He has close ties with the heads of the localities (*chefe de localidade*) who represent the traditional chiefs (*regulos/rainhas, nfumos etc*) of different communities and with the disaster risk committees in the communities. The

way the management of disaster risk is organised in the two districts of Caia and Búzi will be described in the following subsections.

4.3.1. The Role of disaster risk committees in community participation in DRM

At the community level disaster risk management committees (C-GRC - *Comités de Gestão de Risco de Calamidades*) coordinate and implement activities in the districts of Búzi and Caia. In Caia district there are currently six committees operating and in Búzi there are 12 committees (GoM 2007:9), but more are urgently needed and "are planned to be formed and trained as soon as possible".[50] The committees are normally composed of 12 community members who perform different functions and are equipped with kits comprising megaphones, torches, lamps, shuffles, lifebelts and bikes. The committee members are all volunteers and are selected by members of their own community and the community leaders. The selection is based on the population's perception of who are "reliable and physically capable" of fulfilling the tasks related to the management of disaster risk. Tasks include awareness raising about issues related to natural disasters, the identification of vulnerable people in the community, keeping records of the exact number of community members (as far possible, allowing for daily fluctuations as a result of deaths and births) and defining emergency evacuation routes.

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During a workshop that was held in Búzi for facilitators responsible for the formation of committees, additional criteria for the selection of committee members were mentioned. According to the participants the committee members need to be "dynamic and respected among community members" and to be able "to take quick decisions". In addition they should have "a good knowledge about the situation on the ground" and should prove to have "a vision for the development of the community".[51]

Findings from the questionnaires that were filled out by 101 technicians, planners, local INGC representatives from districts in Northern, Southern and Central Mozambique show that a central role is attributed to C-GRCs at the community level.

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[50] Conversation with Valdemar Jessen and Carolina Zelada.

[51] The workshop for the elaboration of a manual for community facilitators in DRM was organised by PRO-GRC from 09.-11.08.2007 in the *vila* of Búzi.

The answers that were given to the question *Who is responsible for disaster risk management on the community level?*[52] can be summarised as follows:

Central Mozambique:

Of the 28 respondents, 18 considered the C-GRCs to be the only ones responsible for DRM activities at the community level. Five respondents said that the C-GRCs, along with community leaders, technicians and planners and/or the local council, are responsible. Three respondents thought that the community leaders or the local council were solely responsible. Two respondents did not answer the question.

Southern Mozambique:

Of the 46 respondents 17 answered that only the C-GRCs are responsible, whereas 18 respondents found that the C-GRCs together with the community, the traditional leader, civil society, local secretaries, INGC representatives, the administrator and/or local government are responsible. The majority of the answers indicated the combination of the C-GRC, the traditional leader and the community as the people responsible. Ten people responded that they believe responsibility lies with the head of the localities, administrative post, traditional leader/ *regulos*, the community and/or the local council. One person did not answer the question.

Northern Mozambique:

Of the 27 respondents, 15 merely mentioned the committees but five respondents also mentioned traditional leaders and the community. Four respondents attributed full responsibility to the traditional leaders. Three people did not answer the question.

It can be observed from all the answers given to this question in the questionnaire that 50 per cent of all the respondents attributed a central role for DRM activities at the community level to the C-GRCs. Taking into account other respondents who indicated that the C-GRCs were responsible for DRM along with other people/ groups, the involvement of the committees goes up to 77 per cent. Although only a few of these 101

[52] Question 7c in the questionnaire in annex 2.

respondents belong to the districts of Caia or Búzi, the results emphasise the relevance of disaster risk committees at the community level and their linkages to local governments throughout the country.

From a local community perspective, the answers that were given in the questionnaire to question 16, *Who do they think is responsible for the "early warning"?*[53], also emphasise the central role of the committees within the communities. In the event of an imminent natural hazard, 13 of the 28 respondents in the district Caia found that the C-GRCs are responsible for the early warning of the population. Five respondents mentioned the C-GRCs together with other people such as traditional leaders, the administrator or the national government (which was only mentioned twice among all the respondents).

In response to question 15 of the questionnaire, *Which early warning systems exist in the community?,* some respondents considered the committee itself to be an early warning system. This is reflected in the following answers: "Before we had a committee the *regulo* normally called in a meeting", "committee comes to *regulo*", "committee with megaphone". Another important instrument for "early warning" which was mentioned is the "radio". In the local context "radio" can either be a radio in the usual meaning of the term or the information that is distributed by the community or via a national radio (station) as well as by means of a "walky-talky".

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4.3.2. The management of disaster risk during the 2007 floods

During various conversations and interviews with community members of the districts of Búzi and Caia it was mentioned that a lot of "trust" was placed in the committees during the floods at the beginning of 2007. Even in certain communities that did not form their own C-GRCs, the population followed the instructions given by C-GRCs from the neighbouring communities. One person of Chandimba answered in the questionnaire that it is the "committee of Chipuazo" that serves as the "early warning" system in their community. Further, the *rainha* of Chandimba stated that "the committee of Chipuazo was working very well during the last floods".

[53] See annex 3.

In response to the question how they experienced the flood in 2007 the following reply was received:

> We received the information out of the radio. After receiving the information we waited until we saw the water coming. People were arriving from the regulado Chipuazo to rescue. They worked very well. We do not have a methodology to measure water. We are not using sticks anymore to measure water but we know about the measurement for water provided by the Government located at the bridge. The INGC provided food. Also other organizations as the Cruz Vermelha [Red Cross] and PMA [World Food Program] came. But we still need more food.

At a meeting with committee members and leaders from Chipuazo the evacuation of the people was also described as "successful" because no life was lost. It was explained:

> In the "old" times it was the administrator who called the *regulo* and informed him about possible floods. But today the warning is either received via the radio and in some cases the *regulo* additionally confirms this information. The radio always stays with one person of the committee. Generally the district gives out the information and communicates it to the *regulo*. In 2001 when we did not have a committee there was more danger. This year we evacuated the people before the water entered. It took us only one day to get all people out of the low zones.

In this reply it was stated that the affected population was evacuated by the C-GRCs on time and a disaster prevented. But it was also pointed out that it is still important to prepare for future calamities. The people must gain access to resources in order to strengthen their capacity to cope with hazards that might be even more intense than the ones in the past. It has been observed that the hard times often start after the floods, which are sometimes followed by droughts causing immense hunger related to insufficient food reserves. In order to satisfy basic needs and improve the infrastructure in the communities and resettlement areas, disaster risk aspects must be integrated into the district development plans. This can also be seen in relation to some of the answers given in the community questionnaire presented in the next subsection.

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4.3.3. Life before and after a disaster

From the answers to questions 5 and 6 of the community questionnaire *Do you live on high or low grounds?* and *Do you have a field on high or low grounds?* it can be observed that 82,1 per cent of the 28 respondent, mainly from Chipuazo and Chandimba, live on high ground whereas 14,3 per cent live on low ground. Only 3,6 per cent of the

respondents do have two houses, one on high ground and one on low ground. During a meeting with community leaders and representatives of the C-GRC in Chipuazo it was confirmed that "a few people do have two houses and spend the week down at the river to work on their fields and do only come 'up' on the weekends".

The questionnaire also illustrates that 68 per cent of all the respondents live in clay houses and over 14 per cent in reed houses. Three people do not have a house at all or live in a tent that was left behind by some aid agencies during the last emergency. During a conversation people explained that at present most of the community members are busy producing bricks as a result of a decision that was taken at district level. It was decided that each family should produce at least 20,000 bricks for the construction of weatherproof houses. Only if this is accomplished will the families receive corrugated metal from the government for the construction of their roofs. These activities fall under the resettlement strategy of the national and local governments, which states that those people who are living in disaster risk areas should be relocated to higher ground as soon as possible and should be provided with adequate infrastructure.[54] Although people are motivated to construct their houses, local infrastructure still lags behind. For example, it was mentioned by the population of Chipuazo that they only have one water pump for five *regulados,* which is "not good at all" because they "have to walk and wait so long in line to get water" – to improve the situation "at least two pumps would be needed".

The answers given in the questionnaire also show that all the respondents from the Caia district do still have their fields on low ground close to the river except for one person who has a field on high and one on low ground.[55] One question that arises at this stage is how food provision will be organised in future during the possible occurrence of floods if the majority of people only have a field on low ground and also have a high risk of losing their crops during possible future floods. Sufficient fertile land is scarce in the areas where they were resettled. It must therefore be assumed that there will be dependency on additional food aid, not only in the event of flooding but especially during the drought which often follows severe flooding in the area.

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[54] See article 'CP da Frelimo analisa situação actual do país' (Frelimo is analyzing the situation of the country) in *Noticias de Moçambique*, 04.09.2007. Here it is stated that "Frelimo, according to their speaker, wants to see this process 'accelerated as quickly as possible' in the way that the affected population is resettled to safe places with good living conditions."

[55] This can also be seen in the risk map drawn by members of Chandimba where their *machambas* (fields) are all mainly located close to the river (see photograph of the risk map in annex 7).

At a meeting with the *rainha*, *nfumos* and the *escrivão* ("writer", "secretary") of Chandimba this assumption was addressed. The following complaint was voiced:

> [T]he community does not have enough food" because "now they suffer of drought" and that "this years flood was not a disaster only in that sense, that nobody got hurt, but the food provision by the government and aid organization was "bad" because they received food only three times between February and now [21 July 2007]. Not everyone was provided with food in comparison to "the floods in 2000/2001 where they even got clothing, pots and other benefits".

During the analysis of the answers that were given in (Q1) to the question *What is a disaster?* an interesting observation was made in regard to the meaning of the Portuguese word for "disasters". In Portuguese the translation for the English word "disasters" is *calamidades*. But owing to the "flood" of goods that were distributed by aid agencies during and after disasters like the 2000/2001 floods, the word expanded its semantic meaning. The word *calamidades* now refers not only to disasters like floods, droughts, war, diseases etc but also to the markets where huge amounts of second-hand clothes are sold. If someone asks, for example: "Where did you buy those nice trousers?" a frequent response is: "At the *calamidades*" (markets for second-hand clothes). In addition, second-hand clothes are also called *calamidades* (trousers, skirts, t-shirts etc). After the interpreter had explained the various meanings of the word to me I stopped wondering about some answers to the question.

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This linguistic observation also led to another interesting development related to *calamidades* which showed that a humanitarian aid issue can quickly turn into a development issue. For several years huge amounts of clothing has been imported on a regular basis in containers from Europe or the USA to harbours like Beira in Mozambique and other parts of Africa. These clothes are not meant to be distributed to people during emergencies any more but are sold by individuals and are used to provide new business opportunities. The way it works is that people buy containers full of pants, shirts or shoes, set up a stand and simply sell the clothing.[56] This also explains why in several questionnaires the answers that were given to the first question were not necessarily "floods", "disease", "war" etc but rather "pants", "shoes", "shirts" or "skirts"...

[56] The impact of such businesses on local textile markets, along with the study of new ways of generating income, could be interesting for further research.

Despite this little semantic excursus it could be observed that several answers were related to famine and hunger. For many people a disaster consists in suffering as a result of insufficient food which is often related to drought and plagues diseases and death. In addition I was told in the course of visits to the communities that they normally cultivate maize, sweet potatoes, beans, vegetables and manioc – but "due to this years [2007] drought [that followed the flood] nothing is growing". In addition, they "suffer a lot under hippopotamus and rats". Hippopotamuses often destroy whole fields and attack people if they are in "their" way. A week after my visit to Búzi a hippopotamus was shot in front of the police station after it got lost in the village while returning from a field where it had been eating sweet potatoes during the night. On our way to Monamicua I also talked to a little girl who was selling roasted rats next to the ferry terminal. She explained that during school holidays the children chase rats off the fields so that they cannot destroy the crops. Fires are set by the parents to scare the rats out of the fields. To earn some extra money for the family, the children sell the grilled rats to passing truck drivers who are transporting sugar cane from the fields in the area. Unfortunately in many cases a lot of these fires get out of control and destroy huge areas of land and sometimes also houses.

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4.3.4. Mechanisms for early warning

During a visit to Monamicua in the Búzi district I was shown how the water level of the river used to be measured in the past. An older woman from Monamicua explained that each family used to place a stick at the river bank. When the stick was covered with water they placed another stick a little bit higher to see whether the water was still rising. If the water continued to rise and reached a critical point they would prepare to leave the village. During visits to other communities in the districts of Búzi and Caia it was remarked that this traditional system does not exist any more. Communities now prefer to use the radio to receive the information that is distributed by the districts in regard to official measuring points placed along the river by the government. The water level is measured, written down and reported to the districts where adequate measures are planned to counter rising levels of risk.

The population is also aware of the early warning system for cyclones that was developed and set up at the national and district levels. Flags with different colours

signal approaching cyclones and symbolise different levels of disaster risk. When asked what the different colours signify, everyone in different villages was able to respond and to explain their meaning. With the help of the disaster risk committees they know what to do and when it is time to leave the village.

Next to megaphones, traditional instruments like drums and cow horns are still used to transmit the warning. It was remarked that communities do not always have the money to buy the batteries needed for the radios or the megaphones, nor do they have access to shops to buy the batteries. Various communities solve this problem in different ways. In Muchenessa in the Búzi district, for example, a very small amount of money is collected from all the community members for the maintenance of the equipment and the advance purchase of batteries. Other communities in Caia are thinking about small community projects that would help to cover these and other expenses.[57] The next section explains how the local governments operate to manage disaster risk at the district level in collaboration with the C-GRCs.

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4.3.5. DRM from a local government perspective

The administrator of the Búzi district, Sérgio Moiane, explains that in order to develop activities for the management of disaster risk the types of natural hazards that occur at the district level must first be analysed. In Búzi the most prevalent disasters he mentions are floods, cyclones and droughts. Together with donors, civil society (NGOs, the church, the Red Cross) and the private sector and especially with the communities, the district is responsible for planning and implementing DRM activities. Sérgio Moiane explains the matter:

> On the community level disaster risk committees need to be set up and sensitized about issues related to disaster risk. They need to be trained and supported by the district. The committees need to know how to read the hydrometric measure points along the Búzi River and how to transmit the information to the district because we need to know from where and when the water comes to be able to respond. [58]

[57] During a meeting with C-GRC members it was suggested that some additional goats and sheep should be kept to cover the costs.
[58] Interview with Sérgio Moiane in Búzi (04.07.2007).

Sérgio Moiane further explains that the Búzi district, together with other districts, is connected to an early warning system for floods. This system is called SIDPABB (*Sistema Interdistrital de Aviso Prévio pela Bacia do Rio Búzi*) and consists of various components. One component is the collection of climatic and hydrological data where temperatures and water levels are measured at different stations set up in the districts. The information is then transmitted to the centre located in the Búzi administration, where it is collected and transmitted via radio to the different C-GRCs in the communities.[59] He explains that "it is not enough to just collect the information but the biggest challenge is to find ways how to transmit the information to the population at risk". This is why relevant information is passed on to the Búzi community radio, which facilitates the spreading of the information. Moiane explains:

> In earlier times not every community had a radio and therefore radios had to be bought. Now every community with a committee has a radio. Disaster Risk Committee members are listening carefully– especially before an emergency – when they are awaiting for the information given by the administrator. Additionally simulations are planned to take place once per year to prepare and practice for an emergency situation.

The Administrator of the Caia district, Lucas Renço, attributes an important role to the disaster risk committees that are operating in the *barrios*. They help to establish links between the district authorities and the communities. The committees have a good knowledge of DRM and help to circulate the information that is provided by the Administrator. During the floods in 2007, "100 per cent of the population left the affected areas and no life was lost". [60] Although there are always a few people who do not want leave their houses during flood warnings, the major part of the population are usually willing to leave without hesitating.

Additional categories from one to five and a colour system were introduced as a precise system of labeling cyclones according to their severity. In the event of approaching cyclones the communities put up flags to signal the level of risk. Blue, yellow and red flags warn the population at risk about approaching cyclones. Blue signifies that a cyclone is two days away, yellow signifies that only one day is left and red that the cyclone will arrive within six hours.

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[59] See Annex 8 for illustrations.

[60] Owing to a restructuring process at the district level Lucas Renço was transferred to another district two months after the interview in Caia (16.07.2007).

The meaning of the flags is explained to the communities and they are regularly drilled by members of the C-GRCs. Lucas Renço explains that those systems are "kept up by GRC activists and people are following the instructions because they know it is to their own benefits". In reply to the question, *What still needs to be don*e?, Moiane said that they need to buy more equipment such as megaphones, boats etc but they also need to "form more committees and assist them because there are still a lot of areas with problems of disaster risk where no committees are in place yet".[61] He emphasises the following:

> The main challenge and goal is to prevent human and material losses. But we are recognizing a high participatory level of the communities. They are participating. During the emergency we are all together. The direction comes from the government – and that is its responsibility.

Speaking of the resettlement of the population who had to leave their homes during the last floods, Sérgio Moiane says that the people were all leaving the areas at risk voluntarily and to date 500 families were relocated. During the 2007 floods which started at 8 pm on 22 February a total of 6,054 people were accommodated. Two days later the water level in Grudja went up from 7.50 metres to 9.50 metres, reaching the Vila Sede do Búzi, Guara-Guara, Chiquezana, Companhia de Búzi, Muchenessa and Monamicua and Mandir 1 and 2 on February 25.[62] Sérgio Moiane adds that they are still having problems setting up enough water pumps and that the communities are currently making bricks with which to construct houses.

In response to the question, *How can DRM contribute to the development of the district?,* Sérgio Moiane made the following admission: "Here the main problem is poverty. The floods are even bringing more poverty – we recognize this in the way that we put DRM in the District Development Plan". Moiane went on to refer to activities to achieve prevention and preparedness and the creation of micro projects to support the communities in a sustainable manner.

[61] This point was also stressed by Carolina Zelada, Mr Chicumbe, Valdemar Jessen, José Gomes and Joksabet Guerrero during various conversations.

[62] Presentation given by Sérgio Moiane during a workshop in Búzi. In addition, see also Annex 8 for photographs illustrating the capturing of water levels and the situation in Búzi during the floods in 2007.

The administrator from Caia, Lucas Renço, agrees that DRM contributes to development in the district. He states:

> If we can accomplish to successfully manage the risks we can prevent human and material losses. We also need to convince the population to leave the areas of risk. Currently we are preparing resettlement areas which will be transformed in normal *barrios* and where the houses will become better. People will live safer and can start planning their life.

When asked *how the decentralization process affects the district* Lucas Renço responded as follows:

> Decentralization will make our interventions in the process of DRM different. Now we can implement how we want it. We now have autonomy to decide what can be done. In this sense decentralization plays a fundamental role.

Moiane confirmed that "decentralization turns the districts into autonomous organs that are taking their own decisions". He proudly remarked:

> We managed this years flood with our own resources because we were not waiting anymore until someone from the higher level is taking the decisions. We were taking it on the district level.

The importance of "own resources" for planning, implementing and monitoring activities at the local level is emphasised by Sérgio Moiane. Which mechanisms are in place to finance these activities and which hurdles districts are facing are questions that are addressed in the following section.

4.3.6. How to finance DRM activities

District administrator Moiane came up with some important aspects that need to be considered in the acquisition of funds for DRM activities in the Búzi district. He explained that "in the past districts had to wait for funds to come from higher government levels. But in 2007 they themselves integrated activities for the mitigation of emergencies in the 2008 Economic and Social District Plan (PESOD - *Plano Económico e Social do Distrito*)". He explains that "only if DRM activities are integrated in the PESOD, the district can receive additional resources from the National Government".

In addition a contingency plan was developed for the district of Búzi. This plan contains an estimate of which activities need to be planned, and what financial resources are required for the management of extreme events in future. The costs are

calculated down to the level of localities, and it is stated how many people are living in risk, how much money is needed in case of an emergency etc.. The plan is then integrated into the Provincial Contingency Plan of the Province of Sofala and then into the National Contingency Plan together with plans from other Provinces. But despite the newly created ways to apply for additional funding, the districts are still not able to cover all the costs of the planned activities. Sérgio Moiane complains that one of the challenges they are facing in the district of Búzi is "the little resources to implement everything what they have planned. This is why we are also cooperating with ARA and INAM of Sofala."

Lucas Renço explained that on the basis of their planning process, activities are developed and their costs calculated in the budget, which is then included in the district development plan. But he also remarks that this does not necessarily signify that they will get all the money that was calculated in the budget:

> It can be the case that when the plan is approved by the higher organs the district is receiving less than originally calculated. Instead of receiving 70.000 *Meticais* only 25.000 *Meticais*[63] are approved. But at least one can do something with it.

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According to the answers that were given in the questionnaire (Q1) to the question on *how DRM can be integrated on the district level,* 37 per cent of the respondents found it important to integrate DRM into the planning, into the district development plans and into the PESODs. António Matavel, who works for the Rural Development Program (PRODER) in Beira, emphasised that the development plans are normally made for a period of five years, whereas the PESODs are intended as short-term planning, meaning planning for a maximum of one year. According to António Matavel, they are a central instrument for receiving additional funding from the national government for activities related to social and economic development at the district level. But before integrating DRM into the PESOD it is important to integrate the activities into the district development plan first.[64] Jean-Paul Vermeulen, consultant for the Program for Decentralized Planning and Finance (PPFD) in Maputo, remarks that because of the fact "that DRM is still a quite new sector in Mozambique, one has to think about how to

[63] The local currency of Mozambique.
[64] António Matavel during a presentation on the role of PESODs. The interview was conducted in Búzi (03.07.2007).

integrate activities related to DRM in the PESODs". In addition it must be clearly elaborated where and how to integrate DRM into the Local Organs of State.[65]

4.4. The reversed PAR Model

In this section the reversed PAR model will be applied to analyse the findings that were presented in previous sections. It will help to sum up the factors that enhanced the progression of safety and identify areas where improvement is still required. It will also determine whether the "root causes" of vulnerability of the population in the districts of Búzi and Caia were addressed and whether attempts were made to release "pressures" in order to "achieve safe conditions".

4.4.1. The progression of safety

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The previous sections demonstrated that there are currently several actors involved in coordinating activities for the reduction of disaster risk in Mozambique. Depending on the district and the region, the type of disaster risk differs as a result of various factors. Some of the areas tend to be affected by droughts while others are more prone to floods and cyclones. In both districts efforts were made to find new ways to reduce disaster risk or to build on the knowledge that was acquired during various disastrous events in the past. Most of the people have gone through disasters in the past and have developed coping mechanisms. But in order to break the vicious circle of the poor becoming even poorer, existing structures needed to be slowly transformed and new ones created. A core issue was to find ways to include the population concerned in decisions for the planning and implementation of activities for DRM. This was important not only to address the needs of the population but also to integrate valuable information and knowledge from past experiences into DRM activities. At the various government levels in Mozambique it was recognised that in order to fight poverty the reduction of disaster risk must be seen as a developmental issue and it was integrated into the various

[65] Conversation with Jean-Paul Vermeulen (Maputo 28-08-2007). See annex 7 for a (modified) draft by Jean-Paul Vermeulen showing where DRM functions could be integrated into the local organs of state.

strategies for poverty reduction as stated in PARPA II and in the district development plans of the districts of Búzi and Caia.

4.4.2. Addressing root causes

According to the reversed PAR model by Wisner et al (2004:345), pressure must be released and "root causes" addressed in order to achieve a higher level of safety. "Root causes" often consist in power structures and limited access to resources. In the case of Mozambique it was evident that colonialism, war and unequal power relations had created an environment of poverty and dependency and increased the vulnerability of the population even more. One can still encounter traumatised people on a daily basis who are wandering around in the communities, often weighed down by past experiences of extreme hunger and violence. With independence in 1975 and the "peace" agreement that was signed between Frelimo leaders and Renamo forces in 1992, the first steps were taken towards the establishment of "safer conditions". The attempt to decentralise responsibilities to local governments and to include traditional authorities in governance decisions contributed to the promotion of the democratic process. Although it can be observed that in Mozambique the achieved level of decentralisation lies closer to deconcentration than to devolution, attempts have been made to gradually transfer responsibilities to lower organs of state and to implement financial reforms as reflected in the policy frameworks (LOLE, SISTAFE).

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In regard to the management of disaster risk, it could be observed that efforts were being made by the different levels of government to promote local development and to reduce the vulnerability of the people in the areas frequently affected by disasters. Tools like development plans and social and economic plans were officially in place to regulate the planning and budgeting of resources. In order to increase the limited financial means for DRM, Búzi took advantage of the newly attributed responsibilities and integrated emergency response activities in the PESOD 2008 after development plans and contingency plans had already been successfully drafted and applied in the past. How much freedom in the form of additional financial resources will be transferred from the national governments in future is a matter that must still be analysed and monitored on a regular basis.

In regard to the difficulties that were observed between the national field administrations of the INGC/ CENOE and the provincial government, the best solution would be to resolve the issues through a clear definition of responsibilities and a political environment that enhances and supports communication between the different spheres of Government. In the literature the importance of field administrations is also emphasised by Adamolekun (1999:53), who states that field administrations can become helpful in promoting national standards in specific areas that "maximises the use of trained professional officers who are deployed to exercise their professions within defined areas and with a clear chain of command and lines of responsibility". To build up knowledge and capacity in regard to the management of disaster risk, the civil servants in charge must be committed and must have a clear conception of their role, responsibilities and existing tools and mechanisms. They must be aware of the situation on the ground and familiar with the needs and inner dynamics within the communities and resettlement areas. Only if everyone involved is able to channel the information on time and is able to plan DRM activities together with the population concerned can progress be made towards the reduction of pressures.

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4.4.3. Reducing pressures

In the two districts the administrators were aware of the situation and they supported various activities to prevent and mitigate natural disaster risk. In order to contribute to the reduction of "pressures", training sessions and DRM workshops were organised by the INGC and its development partners for district representatives and members of the CGRCs. More than a hundred local government representatives from all over the country were sensitised to and trained in DRM. This demonstrates a certain commitment to the gradual introduction of policy frameworks and strategies for DRM as a component of local governance. In order to plan, budget and implement activities related to DRM, appropriate methods and tools had to be applied and a profound knowledge developed on how to plan and integrate activities into development and contingency plans. Because of different local conditions and types of hazards in the various districts, activities must always be adapted to the local conditions and should not be implemented as a blueprint in other areas. Carefully conducted assessments on a

regular basis are therefore the key to the planning of successful disaster risk management activities. Because natural disasters do not stop at borders it is clearly helpful to exchange experiences among the districts and also coordinate activities among the different provinces affected by natural disasters. This is one way to improve the learning process and to stimulate the establishment of partnerships between the different governments and the local communities. Existing knowledge of how to read early warning systems had to be constantly refreshed and the information had to be transferred to the communities at risk in order so that it could become an integral part of their daily lives. Signs had to be read correctly and noticed in good time if they were to become effective. At the same time, it is important that local experiences and mechanisms for coping with disaster risk should be integrated into the new early warning systems. If this can be successfully accomplished via established channels, then the framework for the progression of safety will have been set up successfully and in a sustainable manner.

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4.4.4. Achieving safe conditions

To achieve safe conditions attempts were made in the districts to relocate the vulnerable population to safe areas where they are currently busy producing bricks for the construction of safer houses. But despite minor efforts to improve the situation in the resettlement areas and the barrios, the conditions and the infrastructure are still not adequate for the large number of people living in those areas. In order to find out what local needs are and how the problems can be solved, the population concerned must be consulted on a regular basis and commitment must be shown to improving the situation. The problem of food shortages during and after emergency situations is still a topic for development agencies such as the World Food Programme, Unicef or Oxfam. It could also be observed that as soon as the emergency situation was over the aid agencies pulled out and left a gap where the population was struggling to satisfy their daily needs owing to drought, the lack of opportunities to earn an income and insufficient access to fertile land. In order to reduce dependency on external aid, strategies must therefore be elaborated for the development of drought-resistant crops, drainage and food storage systems.

Regarding preparedness, prevention and mitigation activities it could be observed that in both districts functioning early warning systems were in place involving the population proactively. Disaster risk committees contributed to the distribution of relevant information and served as a link between the communities, the *regulo*, administrative post and the district administration. As a result of the active involvement of the population in DRM activities, the people were capable of perceiving risk in time before and during the 2007 events in response to symbols and signs like flags and colours that were set up in the region. Although traditional early warning systems were replaced in most of the cases by ”new” systems, valuable local knowledge is still kept alive and should be integrated into early-warning.

It became clear in the course of the interviews that the management of the 2007 floods was considered by all actors involved to be “successful” and “well coordinated”. This was again attributed to the properly functioning early warning systems and the mechanisms in place for the transmission of relevant information. In addition, the disaster risk committees in the districts Búzi and Caia played a key role in the coordination of activities and the transmission of early warnings among the population even in remote areas. This contributed immensely to the successful evacuation of all people in the flooded areas, which was not always the case in the past.

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4.4.5. Reducing hazards

The names given to past floods by the population are summarised in Annex 6. Some of them contain information about attempts to ”control” hazards. The 2007 floods for example have the same name as the 1978 floods and reflect their origin and intensity. Both floods are called *Kariba,* which is the name of one of the neighbouring dams. Owing to heavy rainfall and limited capacity of the dams, water had to be released. Zandaender Vasco from the C-GRC in Marra explained: “When the doors of *Kariba* were opened all the discharged water entered in *Cahora Bassa* (dam) which led to intense flooding in the area.”

In order to reduce the negative impact of manmade hazards like uncontrolled fire and erosion of the river banks, the population had to be informed about the

consequences and side effects of such activities. This might become increasingly important in the future if the predictions and forecasts related to changing climate patterns are taken seriously. In this regard it will be even more challenging to find ways of reducing the intensity and frequency of natural hazards in future and adapting to the new developments. Droughts and floods will consequently have a stronger impact on food security and on the lives of people living in disaster-prone areas. This is why a focus must be placed on DRM activities in local governance to strengthen local capacities and strategies in order to be able to adapt and prepare for a changing environment.

4.5. Conclusion

During the application of the reversed PAR model as an analytical tool it became clear that the progression of safety in the two districts was enhanced by a chain of developments that were related to each other. In order to reduce vulnerability to disaster risk, root causes needed to be addressed, pressures reduced, and safe conditions achieved. It became clear that changes in governance structures contributed to the level of safety in both districts. Although the model is quite helpful in illustrating the progression of safety, it does not provide an insight into the dynamics that arise out of changes that are made throughout the different stages of the process. The model assumes a linear process to achieve safety and to reduce losses. But it gives little scope for the analysis of the side effects and synergies that develop throughout the process. In the next chapter I would therefore like to take a final look at the indicators that were formulated to see whether the hypothesis has been confirmed or rejected.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

To test whether the hypothesis was confirmed, the next step is a final examination of the indicators that were formulated for the independent variable "decentralisation" and the dependent variable "disaster risk management". Recommendations for governments, development agencies and the local population might help to improve the management of disaster risk in future. Finally, recommendations for further research are made.

5.1. Summary of the findings

5.1.1. Independent variable: Indicators for decentralisation

Indicators that were formulated:

1. **Policies and legal framework for the promotion of the decentralisation process were in place.**
2. **Local governments did have funds, knowledge and the capacity to plan, implement and monitor development activities.**
3. **Local communities were involved in the decision making process and development activities.**

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To find evidence for the formulated indicators, relevant policies and legal frameworks related to the decentralisation process were analysed. Here it could be observed that the Mozambican governments promoted reforms with the aim of gradually transferring responsibilities for social and economic development to local governments. Although the process was stimulated by the international donor community's hindrance of the sustainability of the process (Fandrych 2001:168), at local government levels efforts were made to accept the new role. With the adoption of the new constitution in 1990 and the peace agreement in 1994, the basis for the decentralisation process was laid. With the gradual administrative reform (PROL), responsibilities were deconcentrated

to local government levels. Although close links are still retained with the national government, local authorities have gradually replaced the centralised administration which was meant to enhance the consolidation of a unitary state after independence from Portugal in 1975.

With the program for fiscal decentralisation, competencies for planning and budgeting were transferred to deconcentrated state organs. With the Law on the Institutional Framework (3/94), a successive transformation of administrative state organs at the district level into administrative, fiscal and financially independent municipalities was initiated. Law 2/1997 provided for democratic elections in 33 municipalities in urban and semi-urban areas. The inclusion of rural areas in the election process still remains a major task that needs to be addressed.

In addition, structures and policies were created to include the part of the population that was formerly excluded from the reform process. A first step towards addressing the situation is reflected in decree 15/2000, where traditional authorities are legally recognized as interlocutors between civil society and local organs of state. It is the responsibility of the traditional authorities to stimulate the participation of the population in the rural areas in the development process. In order to prevent a one-sided relationship, where the population only serves the goals of the governments, the local population and communities must play a bigger role in the decision making process. With the adoption of the Law of Local Organs of the State in 8/2003 the districts were officially recognised as budgetary units and the autonomy of provinces and districts partly increased. The National Guidelines for District Development Plans support the role of the districts in planning and budgeting for their activities. With the implementation of an integrated financial management system (SISTAFE), a long-term goal has been set, namely to improve the efficient management of public funds in Mozambique.

Despite the existing legal frameworks it could be observed that during the training workshop in DRM for local government officials, many participants were not necessarily familiar with the tools and changes which resulted from the reforms. A great need still exists to transfer capacities and knowledge concerning their new tasks to the districts and to the population. Tools and mechanisms still need to be explained to the

responsible civil servants at the local government levels on a regular basis because this guides the transfer of funds from the national to the local governments. If the planned activities for DRM are not integrated into the development plans and PESODs, no funds will be transferred and the situation will remain the same despite an existing legal framework. In the case of Búzi and Caia it can be positively stated that the districts were familiar with most of the existing tools. They made use of them to plan, implement and monitor activities related to DRM. In addition, linkages to national state organs, governors of the provinces and sector representatives play an important role in the planning and coordination of activities. Here it must be remarked that without a stronger commitment to the acceptance and inclusion of the districts as equal partners in the development process, the flow of information and an efficient and effective coordination of activities at the district and regional level cannot be guaranteed. As the district is the unit that is supposed to maintain close ties with the administrative posts and the population, it plays a key informant role in the transfer of local knowledge to the upper levels of Government and vice versa. Only if this is supported can adequate policies be formulated at the national level with the aim of improving the lives of the people and reducing poverty in the rural and remote areas in a sustainable way.

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5.1.2. Dependent variable: Indicators for disaster risk management

Indicators that were formulated:

1. **Disaster risk reduction has become a development issue for national and local governments.**
2. **Activities for the prevention and mitigation of disaster risk were planned and implemented.**
3. **Effective early warning systems were in place involving the population concerned**
4. **Districts and the population concerned did perceive the risk of natural hazards and reacted accordingly.**
5. **Human and material losses were reduced.**

During the analysis of policies, strategy papers, development plans and interviews with local and national government representatives, it was indicated that DRM plays a central role in the reduction of poverty in Mozambique. The document that guides the actions for social and economic development in the country (PARPA II) emphasises the need for greater district-involvement, improvement of the finance systems and development of internal revenue systems. Through the consolidation of DRM as a cross-cutting aspect in the strategy to reduce the vulnerability of the population and to protect the infrastructure, an important contribution was made towards the reduction of poverty in the country. The study analysed the way the two districts managed the 2007 floods. In order to stimulate a "culture of prevention" and to reduce the impact of disasters like floods and cyclones, strategies and mechanisms for prevention were developed at the district and national levels. Attempts were in addition made to find out about the various levels of risk the people in the concerned areas were facing and which mechanisms for early warning and information systems had to be developed beforehand.

In the National Emergency Centre (CENOE) in Caia it was explained that CENOEs were built up to serve as coordinating bodies for emergencies at the regional level and that they "help provinces, districts and localities to mitigate disastrous effects". They are activated and coordinated by central government representatives and they respond to extreme events that are beyond the capacity of the provincial level. The levels of emergencies were assigned different colours that define whether the CENOEs are operating either partially or totally. In order to guarantee the smooth functioning of the CENOEs, the roles and responsibilities of the provinces and districts during emergencies still need to be defined more clearly to prevent conflicts and misunderstandings among the different actors. As was stated during one of the interviews, attempts must be made to define unambiguously whether the CENOEs are considered to be a "regional directorate for disaster management" or whether the new organisational form continues to be defined as a central structure owing to the fact that there is no legal framework for a regional directorate. In addition, the CENOEs should find ways to collaborate more with the districts because they are present in the area and cannot ignore local concerns.

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It could also be observed that various intersectoral institutions play a central role in DRM. The Regional Water Administration, the National Directorate of Water and the National Institute of Meteorology collect data and monitor related developments in the framework of early warning systems that were established at the national and local level.

In addition, the responsibilities which were transferred by the national governments to the local level to develop and plan their own strategies were taken seriously and were transformed into concrete activities for DRM in the two districts of Búzi and Caia. In order to implement early warning systems and strategies for the prevention and mitigation of disaster risk, different communication systems were established. At the various government levels channels of communication were created to support the information flow and to define responsibilities and tasks among the actors involved. In order to reduce the vulnerability of the population living in disaster-prone areas and depending mainly on agriculture, systems for early warning were established. To integrate local knowledge, disaster risk committees were established. During the 2007 floods they kept in close contact with the administration and they played a key role in the implementation of DRM activities at the community level. Changes in community structures could also be observed in places where people from different communities were relocated and suddenly found themselves having to share with strangers. In *Amilca Cabral* it was remarked that the disaster risk committees contributed to enhancing communication between the different *regulados*. During the evacuation of the people they supported the neighbouring *regulados* and also contributed to the creation of a risk map to help initiate a new disaster committee in the *regulado* of Chandimba. Because of their permanent presence in the communities, the C-GRCs created trust among the population and encouraged the integration of local knowledge into the activities. They had the confidence to assume ownership of the successful management of disaster risk.

In addition, the community radio played a central role in transmitting information on time. It was stated that the radio replaced most of the traditional methods of early warning in the districts although drums and cow horns are still used from time to time for the transmission of messages. The active involvement of the population in the measurement of water levels along the Búzi and Zambezi Rivers raised the community's

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level of responsibility and contributed to the effectiveness of the central early warning system SIDPABB.

The district administrators of Caia and Búzi also recognised the importance of the C-GRCs and their central role during the 2007 floods. No lives were lost and it was possible to prevent a major disaster. The communities participated and followed the directions that were transmitted from the district administration via the committees. Every level therefore had its own responsibilities and the combined result was to provide an effective and efficient early warning system. A central statement was that of the district administrator of Caia, Lucas Renço. He emphasised that DRM will become "different" owing to the fact that they are now able to make autonomous decisions. Even if not all finances are transferred, as calculated in the PESODS, some important activities could still be implemented. In regard to the resettlement areas, Lucas Renço was quite optimistic and stated that those areas "will in the near future be transformed into normal *barrios* with better houses".

However, the population also complained that basic infrastructure was promised but never reached their villages. Consequently, a big part of the population in the Caia district still go back to their old houses or to their fields on the low grounds. In contrast, in the Búzi district a higher number of people do have two fields and seem to be more flexible in adapting to changing situations. In Caia people complained a lot about food shortages as a result of drought and insufficient fertile land. They mentioned food aid that was promised to them but never reached the communities because the emergency period was considered to be officially over. How these challenges can be resolved in future is closely related to improvements in infrastructure and in research conducted on drought-resistant crops, for example. Technical solutions for irrigation or the construction of silos to store crops against food shortages could possibly help to improve the situation in the long run.

5.1.3. Hypothesis

During the presentation of the findings and the application of the reversed PAR model it became clear that the successful implementation of DRM activities in the areas affected by disaster risk is closely linked to the provision of a policy framework that promotes decentralised responsibilities for social and economic development. In order to set up structures that enable local governments to finance and manage their own activities, legitimacy and trust between the citizens and the local administrations were gradually built up. Channels were created to transmit relevant information for DRM on time to the population at risk. Legal, financial and technical frameworks were established by the national government that gave local governments more freedom to plan and implement activities together with the population. The establishment and training of disaster risk committees proved to play a central role in the prevention of losses and the safety of the population during the 2007 floods. This helped to transform unsafe conditions into safe conditions and to reduce the vulnerability of the population at risk.

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5.2. Recommendations

Although the decentralisation process contributed to the successful implementation of DRM activities at the local level, there are still aspects that need to be addressed in the future. Natural hazards will continue to occur and are likely to increase in intensity and frequency as a result of changing climate patterns. Existing strategies must therefore constantly be trained and adapted to new situations. In the mid-term and long term efforts should be made at the different government levels to prepare for future extreme events. The role of the national government is to support local organs of state in their task of promoting social and economic development in the areas hardest hit by disasters and poverty and provide sufficient funds for the training and implementation of the planned activities formulated in the PESODs and DDPs.

In addition, a clear line of responsibility for deconcentrated state organs must be defined and the exchange of information between provincial and local governments guaranteed. The local governments continue to play a central role in the assessment of risk in the district and the identification of the vulnerable population in the area. C-GRCs

and the local authorities must be consulted on a regular basis to draw an accurate picture of what is needed in the communities and how problems can be addressed effectively. In regard to the resettlement strategies, local conditions must be improved and land for agriculture provided to create incentives for the people to stay in the safe areas. It is important to pay more attention to the needs and concerns of the local population. This becomes relevant in cases where the population lives on remote islands and in areas where access is complicated and the training of disaster risk committees is still a challenging task. Only if all the actors involved are aware of the dangers and risks they are facing can the negative impact of floods with names like *Bomane*, *Sassira*, *Canhoera*, *Kariba* or *Chipeo* be prevented in future.

5.3. Areas for further research

In the framework of the thesis the emphasis was placed on the role of local governance in the reduction of disaster risk. Throughout the research it became clear that there are various factors that can influence the reduction of vulnerability to natural hazards. An interesting point for further investigation might be to test the assumption in relation to potential side effect of disaster risk management for the decentralisation process. It was mentioned that DRM could help to enhance good governance, transparency and participation. Although I am convinced that the groundwork for successful DRM has already been laid through the strengthening of local governance structures, it appears likely that the established administrative structures and communication channels for DRM could also serve other objectives. This could mean that if responsibility for DRM is accepted and ownership of DRM taken, then there may be a strong probability that these capacities could be helpful in the accomplishment of other objectives that enhance social and economic development in Mozambique.

Another aspect that could be investigated in more detail is demonstrated in Annex 6. Here the possible integration of DRM into the local organs of state is outlined. In order to delineate responsibilities and make recommendations for action, it is necessary to define clearly how DRM should be integrated into the local organs of state and which other sectors could play a central role in DRM. Attempts have already been made in Búzi

to integrate DRM into the local curricula and the health sector. To integrate the topic into other sectors and into the institutions that are responsible for the training of civil servants, doctors, teachers etc, curricula could be developed and additional funds for DRM requested from the Ministry for Education. Regular analysis of how the responsibilities for social and economic development are implemented in other sectors at the local level would undoubtedly contribute to the improvement of the monitoring of the decentralisation process in Mozambique.

5.4. Final conclusion

At this point I would like to conclude with a statement made by a 77-year-old man when asked what he thinks a "disaster" is. According to this man, "a disaster is poverty – people who do not have anything to survive". This response struck me, because it sums up all the aspects that were addressed in the framework of this thesis. Poverty is already a disaster in itself and poverty in return consists of people who do not have anything on which to survive. During visits to the communities it became clear that the population does have a very thin base to live on and are in addition weakened even more during extreme events. In order to improve the situation it is necessary not only to promote effective mechanisms and strategies for DRM but also to improve access to fertile land, income opportunities, education and especially local governance. There is still a big demand to be heard even in the remotest islands in Mozambique. Additional channels must therefore be created to connect the communities with government so that they are able to contribute to and participate in the development process not only in regard to DRM but also in regard to other issues as health and education.

When visiting the communities I could observe an attitude of silent endurance among the people as a result of their experiences during almost two decades of war, violence and extreme hunger. Often a disaster is endured without complaint due to extreme suffering in the past. People know that after a drought another will follow and that the probability exists that some development agency will drop rice here and build up a tent there. But local conditions do not really change if structural changes continue to be a low priority. Therefore, national and local governments must show even more

commitment to improving the situation on the ground and supporting the local communities as they courageously try to manage disasters by drawing on their own resources and with self-respect, as it was stated in the *Director Plan for Prevention and Mitigation of the Natural Calamities* (2006a:29).

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ANNEXES

Annex 1: Maps

Map of Mozambique (modified source: www.mapquest.com)

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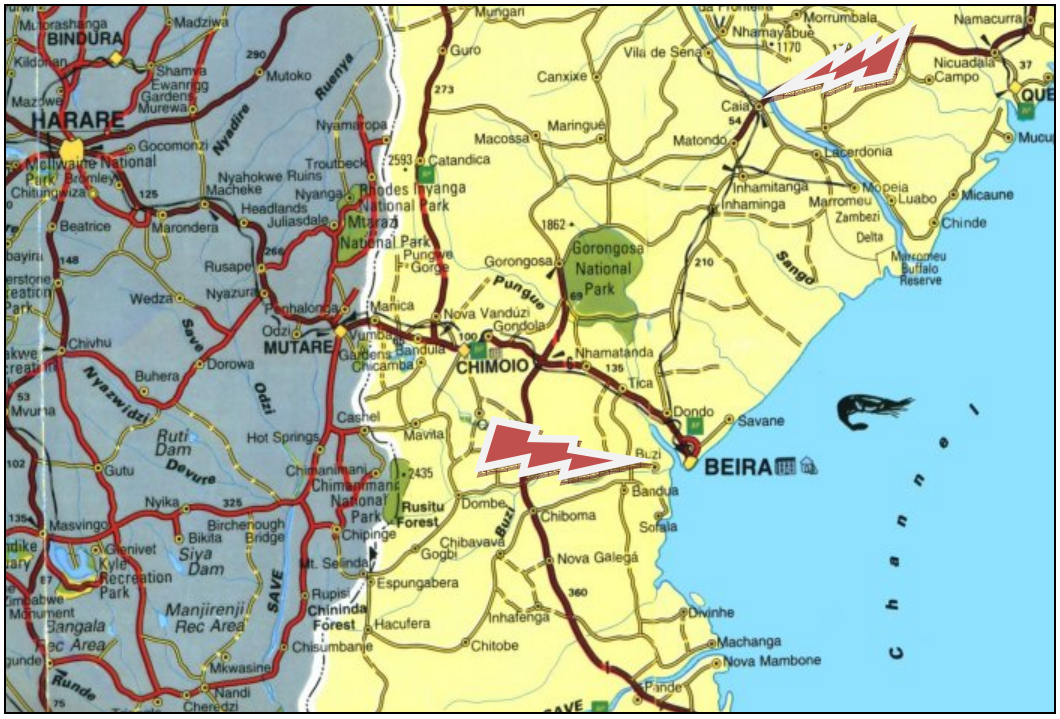
Location of Búzi and Caia



Annex 2: Questionnaire for district planners etc. at DRM workshop (Q1)

Questionnaire No. _____

The information given will be kept confidential and anonymous. It will be only used for research objectives related to Disaster Risk Management (DRM) in Mozambique by the Ruhr-University Bochum, the University of the Western Cape and PRO-GRC.

Sex: m___ f___ Age: _____

Occupation: _____

_____

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Questions related to Disaster Risk Management (DRM) in Mozambique:

1.) How do you define "risk"? What is a "disaster"?

2.) What are the risks of natural disasters in Mozambique and how do they affect the population?

3.) How vulnerable are the Mozambican communities to disasters?

No. _____

4.) How does natural disaster risk affect the development of Mozambique?

5.) Which regions, provinces and districts in Mozambique are affected the most by natural disasters?

6.) Which mechanisms do exist for the prevention of disasters?

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Questions related to the decentralization of disaster risk management in Mozambique:

7.) Who is responsible for the management of disaster risk in Mozambique?

a.) On the national level?

b.) On the district level?

c.) In the communities?

No. _____

8.) How does the communication work between the different levels?

9.) What are the responsibilities of the INGC (National Institute for Disaster Management)?

10.) Which role do local governments in Mozambique play in disaster risk management?

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11.) Do the communities have their own mechanisms to manage disaster risk?

12.) How can disaster risk management be integrated at the local level?

13.) Where to you see your role in disaster risk management?

Thank you very much for your cooperation!

Annex 3: Questionnaire for communities in Búzi and Caia district (Q2)

Statistical Information:

Sex: m ☐ **f** ☐

Age:_____ Ethnic group:_____ Language:_____

Occupation:_____

District: Caia ☐ **Búzi** ☐ **Other _____**

Community: _____

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1. What is a disaster?

_____
_____
_____

2. Which natural hazards do occur in your community?

Flood ☐ Cyclone ☐ Drought ☐ Earthquake ☐ Other_____

3. Do you live in an area that is affected by natural hazards?

Yes ☐ No ☐

1

4. (If response in question 3 is "yes") How did natural hazards affect your life?

Loss of house ☐ Destruction of field and crops ☐ Loss of livestock (goats, chicken etc.) ☐

Death of family members ☐ Cause for diseases ☐ Other _____

5. Do you live on high or low grounds?

Low ☐ High ☐

6. Do you have a field on low or high grounds?

Yes ☐ Low ☐ High ☐ No ☐

7. What is the material of your house?

Clay ☐ Brick ☐ Wood ☐ Reed ☐ Other _____

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8. Are you taking any precaution measures against natural hazards?

Yes ☐ No ☐

9. (In case the response in question 8 is "yes") Which precaution measures are you taking?

_____
_____
_____
_____

10. Are there any shelters in your community in case of a disaster?

Yes ☐ No ☐

11. (In case the response in question 10 is "yes") Where are they situated at?

_____
_____
_____

12. Is there a disaster history in your community?

Yes ☐ No ☐

13. (In case the response in question 12 is "yes") What kind of disasters occurred in the past in your community? Do you remember in which year it was?

1. _____Year: _____ 6. _____ Year: _____

2. _____ Year: _____ 7. _____Year: _____

3. _____ Year: _____ 8. _____ Year: _____

4. _____ Year: _____ 9. _____Year: _____

5. _____ Year: _____ 10. _____Year: _____

14. Is there an "early-warning" system for natural hazards in your community?

Yes ☐ No ☐

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15. (In case the response in question 8 is "yes") How does it work?

_____
_____
_____

16. Who is responsible for the "early-warning"?

Traditional leader ☐ Disaster Risk Committee ☐ District Administrator ☐

Non-Governmental Organization ☐ National Government ☐ Other_____

Thank you for your time and valuable contribution!

3

Annex 4: Interview guideline for district administrators etc.

1.) How do you define “risk”?

2.) What kinds of hazards do affect the district?

3.) What needs to be considered for the making of decisions related to the development of DRM activities in the district?

4.) Who is responsible for DRM here in the district?

5.) Where do you feel limited in the implementation of DRM activities?

6.) Which aspects do you consider to be favorable?

7.) Which role does the decentralization process have for DRM?

8.) How does the coordination of DRM activities between the national, provincial and district level work? What are the difficulties in this process?

9.) Do the communities take part in this process?

10.) How does DRM contribute to the development of the district and Mozambique?

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Thank you!

Annex 5: List of Interview Partners and Methodology

Table 1: Individuals

NAME	POSITION	DATE of Interview	PLACE	METHOD
Moises Vicente BENESSENE	National Director of the Institute of Meteorology, Maputo	Various	Búzi	Conversations, Presentations
Rui BRITO	Lecturer Politécnico Maputo, INGC Maputo, PRO-GRC	20-08-07	Maputo	Unstructured interview
Manuel A. CAMISA	DRM Committee Nharungue/ Caia	25-07-07	Búzi	Conversations
***RAINHA* Chandimba**	*Rainha* of Chandimba	21-07-07	Chandimba/ Caia	Conversation, Risk Map
Antonio CHARIFO	PRO-GRC	Various	Búzi	Conversations
Antonio CHICO	DRM Committe Chipuazo/ Caia	12-07-07 14-07-07 21-07-07 06-08-07	Caia	Conversations
Mr. CHICUMBE	Consultant INGC Caia	11-07-07	Caia	Structured Interviews
Sandra CHILENGUE	Human Resources INGC Maputo	Various	Búzi	Conversations, Presentations
***RÉGULO* Chipuazo**	*Régulo* of Chipuazo	15-07-07	Caia	Conversation
Carlos CIFUENTES	Consultant Guatemala	25-07-07	Maputo	Conversations
Rossane DAÚTU	Head of Women's Association Búzi	25-07-07	Búzi	Unstructured Interview, Questionnaire

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NAME	POSITION	DATE	PLACE	METHOD
José Magombe GOMES	Facilitator PRO-GRC, Head of Farmer's Association Búzi	Various	Búzi	Conversations, Unstructured Interviews
Joksabet GUERRERO	Consultant PRO-GRC	Various	Búzi, Maputo	Conversations, Workshop
Valdemar JESSEN	Regional Coordinator CENOE Caia	04-07-07	Búzi	Structured Interview
Paulo LORENÇO	Lecturer IFAPA	31-07-07	Beira	Structured Interview
Claudia MAENNLING	PPFD Program Coordinator GTZ	29-08-07	Maputo	Conversation
Ana Cristina JOÃO MANUEL	Prevention& Mitigation INGC Maputo	Various	Búzi	Conversations, Presentations during Workshop
Domingos MATAIS	Secretary Chandimba	21-07-07 06-08-07	Chandimba/ Caia	Unstructured Interview, Risk Map
António MATAVEL	PRODER Beira	03-07-07	Búzi	Structured Interview
Sérgio MOIANE	Administrator Búzi	04-07-07	Búzi	Structured Interview
Pita MUTINBIBNA	DRM Committee Inhanjou	29-07-07	Búzi	Unstructured Interview
Eduard NIPIGOTE	*Nfumo* Chandimba	21-07-07 06-08-07	Chandimba/ Caia	Unstructured Interview
Lucas RENÇO	Administrator Caia	16-07-07	Caia	Structured Interview
Casimiro SANDE	Coordinator INGC Maputo	Various	Búzi	Conversations, Presentations during Workshop

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NAME	POSITION	DATE	PLACE	METHOD
Rosa SÁNCHEZ	Consultant Guatemala, PRO-GRC	25-07-07	Maputo	Conversations
Anselmo SIMBE	*Nfumo* Chandimba	21-07-07 06-08-07	Chandimba/ Caia	Unstructured Interview
Wolfgang STIEBENS	Coordinator PRO-GRC Maputo	Various	Maputo, Búzi	Conversations
Zandaenda VASCO	DRM Committee Marra	25-07-07	Caia, Búzi	Conversations
Jean-Paul VERMEULEN	Consultant PPFD, MAE	28-08-07	Maputo	Conversation
Carolina ZELADA	Consultant PRO-GRC Caia	Various	Búzi, Caia, Chemba, Beira	Conversations, Workshops.
Paulo ZUCULA	National Director INGC	27-08-2007	Maputo	Conversation

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Table 2: Groups

GROUPS	DATE	PLACE	METHOD
Local gov. representatives Central Mozambique	21-06-07	Workshop Búzi	Questionnaires (28)
Local gov. representatives Northern Mozambique	05-07-07	Workshop Búzi	Questionnaires (27)
Local gov. representative Southern Mozambique	26-07-07	Workshop Búzi	Questionnaires (46)
Community members	28-07-07 29-07-07	Chiquezana, Macurungo/ Búzi	Conversations, Unstructured Interview Questionnaires (41),

GROUPS	DATE	PLACE	METHOD
Community members	12-07-07 14-07-07 21-07-07 06-08-07	Chandimba, Chipuazo/ (Amilca Cabral) Caia	Unstructured Interviews, Discussion, Questionnaires (28), Risk Map (1)
Community members	22-06-07	Monamicua/Búzi	Observation
Community members	04-07-07	Inhanjou/ Búzi	Observation
Community members	25-07-07	Muchenessa/ Búzi	Observation

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Annex 6: Natural Disaster History of Chandimba (Caia district)

Disaster	Year	Name[66]	Additional Comments[67]
Flood	1952	*Bomane*	"Those floods whose currents destroyed houses" ("*Aquela cheia há corrente de agua e fazia caer casas*")
Flood	1958	*Sassira*	"There was a man who was approached by the floods and who tried to escape. But the water was still after him"("*Havia um senhor que estava inundado e se fugiou, mas o agua ainda estava em procura dele*")
Flood	1966	*Canhoera*	"In a place with no water from one moment to the other water came and flooded everything" *("Num sitio así onde não se encontrava agua de repente trazia agua e se molhava*")
Flood	1978	*Kariba*	"Name of one of the dams. When they opened the doors of Kariba all the water entered in Cahora Bassa [dam]" ("*Nome duma das barragems quando se abriram as portas de Cariba o agua entrou em Cahora Bassa*")
Drought	1986		
Drought	1992		
Earthquake	1992		July 16
Drought	1993		
Small Flood	1997		
Big Flood	2001	*Chipeo*	"When there was this flood there was also a cyclone"("*Quando havia aquela cheia havia tambem ciclone*")
Drought	2005		
Flood	2007	*Kariba*	"Name of one of the dams. When they opened the doors of Kariba all the water entered in Cahora Bassa [dam]" ("*Nome duma das barragems quando se abriram as portas de Cariba o agua entrou em Cahora Bassa*" [Similar to the 1978 floods)

[66] Floods are named by the population according to the specific characteristics of the flood.

[67] Additional comments on the names were provided by Zandaender Vasco (C-GRC Marra) (27-07-07 in the *vila* of Búzi).

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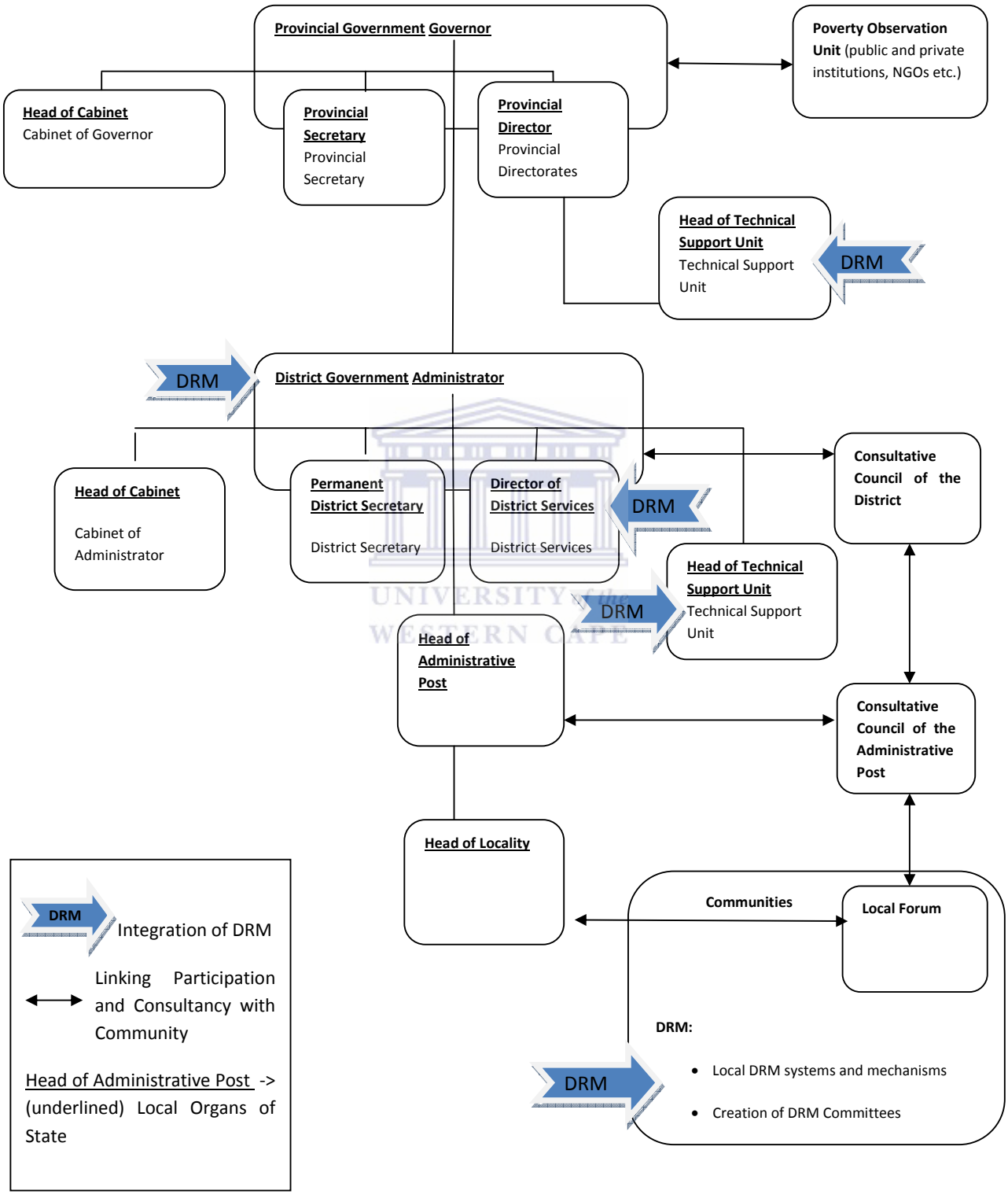
Annex 7: Possible integration of DRM into local organs of state



Source (modified): Drafted by Jean-Paul Vermeulen/ PPFD

Annex 8: Photographs

Photograph 1: 2007 Floods 2007 in Búzi district (The photograph was presented by the Administrator of Búzi, Sérgio Moiane while describing experiences during the 2007 floods.)

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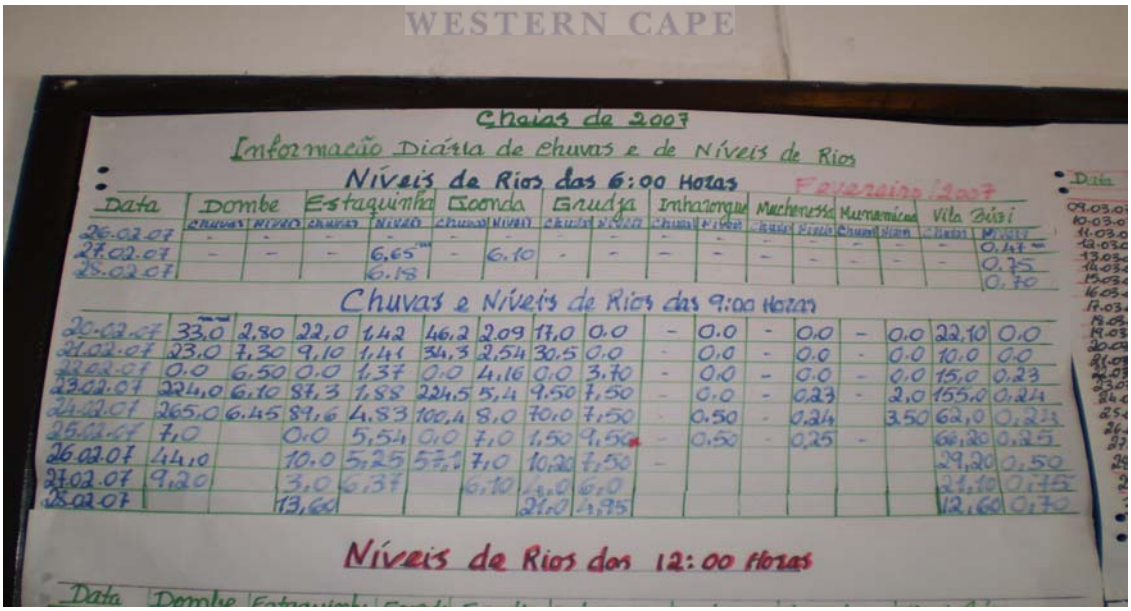

Photograph 2: Hydrometeorological data that were collected in Búzi before and during the 2007 floods

Photograph 3: Participatory risk map of Chandimba (created 06-08-07)

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