Traditional Food Crisis Coping Mechanisms

A regional perspective from Southern Africa

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Abbreviations

ACAT	Africa Cooperative Action Trust
ADD	Agricultural Development Division
CBNRM	Community Based Natural Resources Management
CBO	Community Based Organisations
CC	Christian Care
CEDES	Ecumenical Committee for Social Development
CSO	Central Statistical Office
DEA	Diakonie Katastrophenhilfe (Diakonie Emergency Aid)
ICESCR	International Covenant on Economic, Social and Cultural Rights
IGA	Income Generating Activity
IKS	Indigenous Knowledge Systems
LDS	Lutheran Development Services
LIRDP	Luangwa Integrated Resource Development Project
LRRD	Linking Relief, Rehabilitation and Development
NGOs	Non-governmental Organisations
TFCCM	Traditional Food Crisis Coping Mechanisms
SACCOs	Saving and Credit Cooperatives

Foreword

This regional perspective from Southern Africa on traditional food crisis coping mechanisms has been successfully realized due to the efforts of different institutions and individuals. It started in 2002 when Diakonie Katastrophenhilfe, in co-operation with "Brot für die Welt", commissioned a team to accompany a joint learning process with partner organisations in Southern Africa.

All partners were involved in relief as well as development interventions, and not always satisfied as to how those interventions were linked. The aim of the learning process was, thus, to share experiences on how organisations implement both intervention types and, if possible, come up with conclusions as to how relief and development interventions should be carried out best, in order to achieve short term alleviations of hardships as well as longer-term positive impacts on people's livelihoods.

In 2002/2003, three workshops were held in Zambia, Zimbabwe and Swaziland hosted respectively by one of the partners. Besides focus group discussions, mini-reviews of the carried out respective development and relief interventions of the hosting organisation were conducted. This was done through interactions in the field with beneficiaries, followed by review sessions, coming up with conclusions for an improved way forward. The process was tailored in such a way that between the workshops organisations had time to implement improvement options and report back in the next workshop on the respective effects.

One very important general lesson was that relief and development interventions need to be much better linked, in the South as well as in the North (with Diakonie Katastrophenhilfe and "Brot für die Welt" for example). Another important lesson was that traditional food crisis coping mechanisms (TFCCM) played and still play a very important role during times of food shortages. These mechanisms are however continuously eroding, among others due to (continuous) relief interventions, and the respective knowledge is in the process of getting lost.

With assistance from Diakonie Katastrophenhilfe, six partner organisations commissioned studies in their countries/working areas on TFCCMs and presented their findings during the third and last workshop in Swaziland in October 2003. The findings from the different studies were considered meaningful and valuable for the work of all participating organisations. This study summarizes the insights from the case studies and puts them into the contextual framework of food security and relief interventions, based on the work of Mr. Lovemore Marisa whoch prepared an initial draft document. We want to thank all participants of this process and hope that the study can provide a useful contribution to the debates around local coping strategies and relief interventions.

Martin Kessler
Head of Diakonie Katastrophenhilfe

Stuttgart, March 2012

1 Introduction

In the early 2000s, Southern Africa was threatened by a massive famine. It was triggered by extreme climatic fluctuations over the last years with alternating periods of floods and droughts, and the absence of rain during not only the months of the usual rainy seasons, but, in some locations, for several years. The yield was so bad that, in late 2002, the region was lacking 43 percent of its crop needs. Above all the provision of the population with maize, the traditional staple food (70-80 percent of food intake), was interrupted and the population could no longer afford to buy maize due to the extreme increase in prices. More than 14 million people were, therefore, threatened with famine in Zimbabwe, Malawi, Zambia, Lesotho, Swaziland, Mozambique and Namibia (FAO/ GIEWS 2002).

Factors contributing to the crisis were numerous and varied from country to country. As well as the natural calamities, these included erroneous development policies, such as a considerably reduced focus on agriculture, (e.g. World Bank reducing its credit volume for agriculture from 19 to 9 percent in 10 years), the disregard of food production, economic mismanagement and poor economic performance, and thus increasing poverty. Due to foreign exchange shortages, grain imports were more frequently delayed and natural calamities impacted more strongly, primarily on the poorer strata of the population. In addition corrupt, weak and careless governments must bear their share of responsibility for the famine.

Diakonie Katastrophenhilfe in cooperation with its partners in Southern Africa, not only responded to the hungry people's immediate and urgent need for food, but, wherever possible, supported the affected population to cultivate their own food again and to provide for their future as soon as possible. Diakonie Katastrophenhilfe eagerly took the lead in demonstrating further approaches, e.g. by particularly supporting projects that enhanced food security for affected people in a way that was more sustainable and could, thus, prevent future calamities.

1.1 The learning process so far

In this context, Diakonie Katastrophenhilfe, together with "Brot für die Welt" and their joint partners in Southern Africa (see Table 1) initiated a dialogue and learning process as to how to better link its relief, rehabilitation and development interventions in order to enhance food security. A team of Diakonie Katastro-

Table 1: Partner organisations

Organisation	Participant(s)
Lutheran Development Service, Zimbabwe	Rev. Naison Shava & Mr Tabani Mpabanga
Christian Care, Zimbabwe	Mr Chris Somerai
LWF/Zambian Christian Refugee Service, RCDM Project, Zambia	Mr Benett Siachoono
Kaluli Development Foundation/ Naluyanda Integrated Project, Zambia	Mr Richard Nambwalu, Nyambe Luhila & Mr Elias Chibamba
Oram Zona-sul, Mozambique	Mr Silva Michaque
CEDES, Mozambique	Rev. Jacinto Mandlate
Lutheran Development Service, Swaziland	Mr Nhanhla Motsa, Nkululeko Mkhabela & Ms Pamela Meggitt
Africa Co-operative Action Trust, Swaziland	Mr Danger Nhlabatsi & Mr Enock Dlamini
Churches Action in Relief and Development, Malawi	Mr Melton Luhanga & Mr Hetherwick Mandere
Diakonie Katastrophenhilfe, Germany	Ms Ulla Felsenstein, Ms Ulrike Binder, Mr Berthold Schrimpf & Mr Roland Schlott

phenhilfe and "Brot für die Welt" in Stuttgart accompanied a series of regional workshops with various partner organisations in Southern Africa and tried to harmonize strategies and support to partners in that field. Table 1 lists the participating organisations.

The process involved a combination of consulting partners, activating partners' know-how and experiences as well as exploring possibilities for improvement. During the process, traditional food crisis coping mechanisms (TFCCM) were shown to be a very important, but much neglected aspect of many interventions in situations of crisis. Thus, participants commissioned case studies on the topic in the participating countries, which were evaluated during a joint workshop in Masvingo. The case studies were discussed and participants presented their conclusions and recommendations in a joint declaration.

This document intends to complete the process and finalize the draft summary of the case studies (reference document), which are perceived as being still valid today. By doing this it is envisaged that Diakonie Katastrophenhilfe and other organisations are assisted in giving more value to TFCCM and in consequence to a more adapted fight against future famines.

1.2 Some definitions and concepts

1.2.1 Coping

Traditional Food Crisis Coping Mechanisms (TFCCMs) can be defined as a collection of people's responses to declining food availability and entitlement in abnormal difficult seasons or years, when food sources become insufficient. Such mechanisms are often passed on from generation to generation within communities and households and are based on the assumption that abnormalities follow a familiar pattern, to which people's earlier actions could serve as a reasonable guide for the future.

Coping mechanisms are closely related to resources and assets and, thus, they are finite and dependant on the socio-economic status of the people as well as on their socio-cultural background and context, including age, gender and spiritual traditions and practices. Based on their vulnerabilities and capacities, communities mobilize diverse resources to face disasters following a set of sequences. They tend to adopt strategies in the first instance, which secure the sustainability of their livelihood as much as possible. People would rather eat less, or eat less preferred foods than be forced to sell their assets (livestock, tools, etc.), which undermines their livelihood in the long term.

Coping strategies are generally useful in the short term, but do not necessarily bring a change in livelihoods. They may not be economically and environmentally sustainable and may become inadequate when the magnitude of a hazard impact is beyond the capacity of the community or the individual person to cope with. The real crisis emerges when vulnerable communities shift from reversible (non-erosive coping) to non-reversible (erosive or failed coping) mechanisms.

It is considered helpful to subdivide TFCCMs (or coping mechanisms in general) into different stages. Peter Walker from the Feinstein International Centre describes four stages, while the following from the WHO/EHA/EHTP (1999) distinguishes three stages (see Table 2).

1.2.2 Adaptation measures

While in other publications the difference between coping and adaptation is less strict – e.g. Brahmi & Keophet (2002) state that "coping mechanisms are adaptive strategies in the face of adverse circumstances" – we find it useful to distinguish between coping and adaptation mechanisms. Coping is a direct reaction to the calamity limited to alleviate the immediate problem.

Adaptation goes beyond coping as it strives to change the situation in a sustainable manner in order to avoid the impact of future calamities. Some of the non-erosive coping mechanisms such as institutionalised social support systems, more resistant crop varieties and enhanced food processing and storage measures are enhancing resilience to crises and are, thus, more in line with adaptation.

Table 2: Stages of coping strategies

Stage	Examples
Non-erosive coping: insurance systems, risk-minimizing, loss management	social support systems, whereby the less vulnerable assist the more vulnerable members of society
	institutionalised community safety-net systems like Zunde Ramambo[1]
	selection of crop types and varieties that were known to be more resistant to dry weather in case that traditional early warning indicators forecast a drought[2]
	increased food processing and storage of cultivated but also especially of wild fruits[3] when food shortages are anticipated by traditional early warnings
	cheaper foods and non-preferred foods (e.g. fruits and tubers from the wild)
	intensified efforts of different members of the family to raise money to buy food through fishing, hunting and honey production or the processing and selling of handicrafts (weaving mats or making baskets with locally available resources like grasses or palm leaves)
	sale of small livestock and non-productive assets
	loans
	reduction of meals
Erosive coping: disposal of productive assets	shark loans,
	sale of large livestock, land and tools
	partial or phased out-migration (entire family during certain times or seasons of the year, or by one or two family members only – migrant labour)
	bonded labour arrangements
	child labour
Failed coping: destitution / dependency on	charity
	total out-migration
	prostitution
	sale of children

Source: WHO/EHA/EHTP (1999)

1 In Chipinge, Zimbabwe the Zunde Ramambo concept, whereby the whole community contributes labour and seed towards the cultivation of the chief's crop field was practised. The harvest would be stored at the chief's place (usually underground, below the cattle kraal) to help the most vulnerable households in times of need. Chiefs and village heads would identify the most vulnerable members of society and ask for the community to contribute food to them. Chiefs would inform their subjects on where to go and look for food.

2 While in most of the studies it was reported that spirit mediums were able to predict the coming of food shortages and warn their subjects to prepare, other signs in nature were and are also reportedly known and used to predict the coming of drought periods (such as the fruiting patterns of certain trees or meteorological indicators).

3 In Malawi, a notable traditional means of survival was the making of cake from Imbula (Parinaria curatellifolia) fruits which are then dried and kept in storage bins for consumption in times of lean food supply.

1.2.3 Food security

Food security is defined as

> *"the access to sufficient good quality food for all people, at all times, to permit an active health life" (Dutch Inter-Church Aid, cited by Christian Care, 2003).*

"Access" to food is a requirement in guaranteeing food security at the household level by producing, trading, or receiving it from someone else. "Sufficient" refers not only to total energy consumption but also to contents of the food basket.

"For all people" acknowledges the aspect of equal distribution of food amongst the people. Food security at upper levels (national, regional) does not imply automatically food security at the lower levels (community, households). Even at household level, different members can be affected more by food insecurity than others as a result of unequal distribution that is often based on socio-cultural factors. Often, women and children are affected first by shortage of food.

Food security "at all times" refers to the objective of a permanent situation of dietary intake throughout the year, especially during the dry season. This aspect aims at a reduction in vulnerability to food crises. While, traditionally, seasonal food insecurity was known to come in cycles and was, thus, experienced as a temporary, but recurrent crisis, chronic food insecurity means a household incurs a continuous high risk of not being able to meet the food requirements of its family.

1.2.4 The right to adequate food

While the concept of food security serves to analyse and describe the nutritional situation of people, the concept of the right to food is an agenda for policy action. The right to adequate food is a human right which is legally binding by the International Covenant on Economic, Social and Cultural Rights (ISESCR). The implementation of this right is therefore guided by specific government obligations. Food security describes a goal; the right to adequate food obliges governments make a qualitative response to the problem of hunger and malnutrition. While the right to adequate food has not been integrated in the process described in this paper, it remains central for supporting local coping strategies and improving food security.

In general, one can say that famine is most severe in certain regions of a country owing to, for instance local environmental calamity, remoteness, poor infrastructure, or higher pre-famine levels of hunger and nutrition. A lot has been written about the links between HIV/AIDS and agricultural production. HIV/AIDS increases food insecurity and food insecurity increases the likelihood of HIV infection and speeds the transition from HIV to AIDS. Other vulnerable groups include orphans, widows, widowers, the poor, former commercial farm workers in Zimbabwe, the sick and the disabled.

2 Country case studies

In this chapter, the research findings of case studies from Malawi, Swaziland, Zambia, and Zimbabwe are highlighted. In Zimbabwe and Zambia two research studies were carried out, each focusing on different provinces, while in Swaziland and Malawi one study was conducted respectively. Table 3 highlights some poulation trends in Southern Africa. The number of people estimated to have been food insecure in the region were 6.7 million people in Zimbabwe, 3.3 million in Malawi, 2.9 million in Zambia and 590,000 in Mozambique (Mushita and Mpande 2003).

A multitude of social, economic and cultural factors were found to be important in coping with food crises in different regions, a diversity which was as interesting as the different vegetation and terrain encountered in each geographical area. All the studied people tend to live in marginal and arid environments. The languages they speak are different; their natural resource bases are also varied and their cultural beliefs and social norms are quite divergent. However, noticeable social and cultural "cross-pollination" over the years evolved through migration, inter-marriages and trade. Although results are given per country, generally, the findings show huge similarities between countries. This is due to a nexus of influences like climatic, socio-cultural, and traditional and development policy practice (government, NGOs and donors), that have been experienced in Southern Africa. Evidently, it is imperative that past, present and continuing food coping mechanisms need to be analysed. The existing knowledge base on TFCCM would then form the basis for linking relief, rehabilitation and development activities.

2.1 Malawi case study

Malawi is a country in Sub-Saharan Africa covering an area of 119,000 km^2 and dominated by a lake. It occupies the southern part of the East African Rift Valley and is bordered by Tanzania to the north, Zambia to the West and Mozambique to the South and East. Lake Malawi and smaller lakes occupy approximately 20 percent of the land area. According to the 2008 census, the population was 13.2 million, with a growth rate of 2.4 percent (estimated 2009), and a population density of 111/km^2. This makes it one of the most densely populated countries in Southern Africa.

Agriculture and livestock development are the backbone of the Malawi economy. It supports about 85 percent of the population, accounts for 35 percent of the Gross Domestic Product (GDP), employs about 80 percent of the labour and provides about 90 percent of domestic

Table 3: Population trends in Southern Africa

Country	Population (millions)				Average Annual Growth Rate (%)		
	1950	1990	1995	2025	1980-85	1990-95	2000-2005
Angola	4.13	9.19	11.07	26.62	2.63	3.72	3.05
Botswana	0.39	1.24	1.43	2.85	3.40	2.92	2.69
Lesotho	0.73	1.75	1.98	3.78	2.78	2.47	2.39
Malawi	2.88	9.58	11.30	24.92	3.43	3.31	2.42
Mozambique	6.20	14.20	16.36	36.29	2.27	2.88	2.87
Namibia	0.67	1.44	1.69	3.75	2.94	3.18	2.91
Swaziland	0.26	0.75	0.86	1.74	3.07	2.68	2.64
Tanzania	7.89	25.99	30.74	74.17	3.28	3.36	2.99
Zambia	2.44	8.11	9.38	20.98	3.58	2.84	2.56
Zimbabwe	2.73	9.95	11.54	22.89	3.22	2.97	2.48

Source: SADC, Lesotho

exports. Smallholder production contributes about one third to foreign exchange earnings through the production of export crops such as tobacco, tea, sugar, groundnuts and cotton. The agriculture sector is also a reasonable source of raw materials for the manufacturing sector. The Office of the President and Cabinet (1994) states that the industrial sector is the second most important in terms of output accounting for about 13 percent of the GDP and wage employment.

At a national level, Malawi, being a landlocked country, has traditionally faced high transport costs for its imports and exports. Thus, it is in the country's interest to be as self-sufficient in food as much possible.

Malawi, like most countries in the sub-region, is frequently hit by natural disasters (e.g. drought and floods). Frequent droughts, especially since 1991/1992, have seriously disrupted agricultural production and negatively affected the country's economy. In addition, domestic food production has been constantly well below the country's food requirements. Over a nine-year period, between 1991 and 1999, the average food deficit (excluding seed requirements) was 273,209 tons of maize equivalents per annum. This deficit increased to 332,035 tons of maize equivalents when seed requirements are taken into account. Malawi, therefore, faces a national food insufficiency problem and the situation is expected to deteriorate in the medium to long-term.

Up to date data (available at the time this study was revised and finalised in 2010) show that the Malawian overall food insufficiency situation continued until 2006. From 2006 until 2010, a period of sufficient rainfall during maize planting seasons more than doubled the national maize harvest and allowed Malawi to even export some maize. From 1.3 million tons of maize in the 2004/05 growing season the national maize harvest increased to 3.2 million tons of maize in the 2006/07 growing season – remaining at this high level with a slight drop in 2009/10, due to weak El Niño conditions with localised droughts and floods.

These general crop production increases have been attributed to several factors including good rainfall performance as well as the "fertiliser and input subsidy programme" implemented by the Government of Malawi.

It has to be noted, however, that the Malawian Government spent most of its national agricultural budget on it (e.g. in 2008/09, subsidy costs accounted for 80 percent of the public budget to agriculture and 16 percent of the total national budget). SOAS et al (2008) show that benefit-cost ratios for the 2006/7 programme could, with reasonable variation in assumptions, range from 0.76 to 1.36, with a mid estimate of 1.06 – clearly suggesting that there were insignificant economic returns on the investments of this rather inefficient program.

While the food security situation at national level has sometimes been satisfactory, at household level the situation is often precarious. While annual food requirement for an averaged Malawian is estimated at 2,325 Kilocalories per person per day, not all individuals have access to this amount of food due to differences in factors such as income, access to land and health.

The majority of smallholder farmers in Malawi are food insecure except for those in the Lilongwe, Mzuzu and Kasungu Agricultural Development Divisions (ADD). About 70 percent of households in the ADDs use up their food stocks by December. The situation is worse in the Machinga, Blantyre and Salima ADDs, where over 80 percent of households run out of food by January. This is serious considering the next harvest (which is inadequate) starts in late April or May. Only a third of smallholder farmers are self-sufficient in maize production or produce a surplus. The remaining two thirds are maize deficit households despite the fact that they grow mostly maize. This contributes to high malnutrition and infant mortality rates.

Alongside unfavourable climatic conditions crop failure may result from poor land management. Soil degradation is rampant, thus negatively affecting productivity. Some farmers rely on marginal areas for farming and, coupled with a weak agricultural support base, crop yields are always low. The mere fact that some households have few domestic animals has reduced the application of organic manure or use of draught power.

Table 4: Coping strategies

Strategy	District							
	Nsanje		Salima		Karonga		Mwanza	
Common Strategies	J	G	K	T	I	M	C	TC
Use of famine foods (wild tubers, fruits, vegetables & roots)	+	+	+	+	+	+	+	+
Sale of livestock, firewood, crafts	+		+	+	+	+	+	+
Hiring out labour (for money/food)	+	+	+	+	+		+	+
Hunting & fishing		+	+		+	+		
Beer brewing					+			+
Winter cultivation especially sweet potatoes	+			+				

J = Jimu Village K = Kandulu Village I = Iponga Area C = Chimbwinda Village
G = GVH Msamba T = TA Msosa M = Mlale Area TC = Tchale

2.1.1 Situation in the study region

The research into the situation and TFCCM in Malawi focused on four districts:

- Nsanje District (Jimu 2 Village, GVH Msamba Village)
- Salima District (Kandulu Village, T.A. Msosa Village)
- Karonga District (Iponga Area, Mlale Area)
- Mwanza District (Chimbwinda Village, Tchale Village)

The major sources of food in the four districts studied depend on rain-fed subsistence agricultural farming, producing crops such as maize, beans, rice, cowpeas, cassava, sweet potatoes, groundnuts and sorghum. Winter cropping (Dimba farming) is also practiced where crops such as beans, cowpeas, maize, sweet potatoes and other vegetables are produced. Earning money through casual labour makes it possible to purchase food. Livestock rearing is also a source of food through slaughtering for meat, household consumption or selling. Common livestock are cattle, goats, chicken and pigs. Other minor, but frequent sources of food are fruit trees, primarily mangoes and paw paws, which contribute to people's diet. Small-scale subsistence fishing is undertaken, but fish-catch or fish landed has significantly dwindled over the years, due to decreased fish stocks in the areas.

2.1.2 Coping strategies

Communities in the four districts of Nsanje, Salima, Karonga and Mwanza adopted a large diversity of strategies to eradicate household food shortages. These strategies vary between villages, but a commonality tends to exist, for example, in the use of famine foods such as wild tubers, fruits etc. Table 4 documents the various coping strategies that were found.

The table shows various strategies adopted by communities to mitigate food crises. It can be noted that some strategies like using famine foods, hiring out labour, and trade (e.g. livestock, firewood, crafts) are quite prevalent in most villages. Other strategies, such as reducing the number of meals per day, hunting, cash remittances or use of chips/flour from sweet potatoes, were not widely used among the villages. However, the various coping strategies documented clearly show that, over the years, communities have adopted mechanisms to eradicate food shortages and famine.

2.2 Swaziland case study

Swaziland is landlocked, with South Africa and Mozambique as neighbours. As one of the smallest countries in Africa with an area of 17,353 km^2, it is a microcosm

of Southern Africa, encompassing within its small area four major geographical zones: the mountainous Highveld in the west up to a height of 1,200 metres; the rolling grassland of the Middleveld in the centre; the bush savannah of the Lowveld below an altitude of 150 metres; and the Lubombo plateau in the east.

The World Bank carried out a poverty assessment survey in 1995, covering the study area, according to which 85 percent of households were defined as either poor or very poor. Two consecutive years of drought have increased poverty in the region. According to a survey from the Livelihoods Based Vulnerability Assessment of April-May 2003 in the food economy zone, the Middleveld has a population of 255,000; their main economic activities are food crops, paid employment, cash crops, trade and non-food production. For the Lowveld, the main economic activities of the 43,000 inhabitants were employment, livestock rearing and the production of crops for sale and consumption.

Households depend to a great extent on the purchase of food to cover their needs: an average wealthy household in the Middleveld has to buy 25-40 percent of annual food needs, while poor families buy even up to 40-60 percent. The population in Lowveld depends even more on the purchase of food indicated by the fact that even rich households have to buy half of the food to cover the needs while, in Middleveld, it was only 10-20 percent.

Kinship ties are still very strong in rural Swaziland. It is normal for disadvantaged household members to take advantage of their kinship rights and approach their kin for food, especially in times of need. Thus, gifts and relief donations play a prominent role in covering the food needs of poorer people.

The need to purchase food introduces the need for cash and its importance in the countryside. It is primarily the poor that depend on employment for income. Most adults migrate to South Africa in search of employment. That is why remittances have contributed immensely to the survival of many households in Swaziland. Richer households also rely on other sources such as livestock sales and cash cropping.

Generally, it was noted that there is an overall decline in livelihoods, reduced access to casual labour and regular employment. Promotion of drought-tolerant crops such as cotton by governmental programmes was unsuccessful, because the input costs are high and the economic power of the local population is weak. Thus, cotton production is on the decline and problems have been compounded with the closure of the national market and of the ginning factory. Thus, the poor rarely grow cotton; instead, they try to grow maize, a crop that due to low rainfall levels is unsuitable most years. They also have no cattle or goats, but depend on daily labour to cover their food requirements.

There are various reasons behind the food crisis in Swaziland. The main causes are highlighted in the box “Food crisis in Swaziland”.

2.2.1 Situation in the study region

The area of study lies in the Lowveld and Middleveld regions. The Lowveld is the driest part of the country with an average rainfall of 350 mm/annum and has an average temperature of 29^0 Celsius. The Lowveld climate does not favour maize production, yet maize is the staple food of Swaziland. The Middleveld has an average temperature of 22^0 Celsius and, in the dry Middleveld areas, an average annual rainfall of 800 mm, which is still insufficient for reasonable maize production.

The area comprises 85 communities receiving assistance from government and other institutions. The frontline NGOs are the Lutheran Development Services (LDS) in the Lowveld and Lubombo; and the African Cooperative Action Trust (ACAT) in the dry Middleveld.

Communities in the study area under normal circumstances grew maize, sorghum, peanuts, cowpeas, jugobeans, pumpkins, melons, watermelons, bhatata (sweet potatoes), imfe, mngomeni, and emaselwa, ematabhane. These food crops are planted in summer since the rural communities depend on rain-fed agriculture. Since the rural communities are subsistence farmers, they grow their food crops on small pieces of land, about 1.7 hectares per household (World Bank Report 2000).

Food crisis in Swaziland

Unsuitable agricultural practices: People in the study communities were found to be growing maize in areas which were not suitable due to little rain. This is done at the expense of other food crops, a practice that exacerbates food shortages in many households. The rearing of livestock continued to take place, even in areas where keeping cattle, for example, could not be profitable.

Inability to access modern agricultural inputs: many poor households in the study area could not afford modern agricultural inputs such as fertilizers or pesticides and had often forgotten traditional methods. Infertile land, pestilence and diseases affecting crops and livestock consequently lead to failure, even when there is sufficient rainfall. The state of food insecurity worsened as households failed to control pests such as weevil during the storage period.

Drought: the most serious and prevalent cause of food crises was the drought that ravaged the whole of the Sub-Sahara region. This problem has depleted water sources such as local streams and dams, making it impossible for communities in the study area to grow their own food.

Land tenure and land inequalities: there is an unequal distribution of land in Swaziland given the two land tenure systems that exist, i.e. title deed or freehold tenure and the Swazi Nation Land tenure systems. Inequality is entrenched by rich households that took advantage of the freehold tenure system to buy huge pieces of land to which they have title deeds. On the contrary, those under the Swazi Nation Land, mainly poor rural dwellers with no financial capital to buy land, are reduced to acquiring very small plots of land, for which they hold no title deeds.

Source: ACAT and LWS, 2003

Most of these foodstuffs are harvested, dried before being processed and kept in permanent storage for winter usage. These include maize, sorghum, peanuts, pumpkins, melons and watermelons. Maize and sorghum are kept in underground pits dug in the kraals to keep them safe from weevil and other damaging pests. This method lost popularity as modern means were introduced. Other foodstuffs such as peanuts, jugo beans, cowpeas, and mngomeni are first dried in the sun after harvesting and then stored in etigugwini (woven grass containers) kept inside the traditional kitchen called lidladla. Pumpkins, melons and watermelons remain in the crib until the time they are taken to prepare meals.

Communities in the case study kept livestock such as chicken, ducks, goats and cattle on a small-scale basis and not for sale; corresponding with the tradition that a Swazi home must have livestock. While almost all interviewed households had chicken, which they used as relish[4], a large number of households had no goats or cattle. The Central Statistics Office in its Annual Agricultural Survey of 1997 confirmed that 40-50 percent of households under the Swazi Nation Land have no cattle at all.

2.2.2 Coping strategies

A range of non-erosive coping mechanisms are used when the staple food runs out. Livestock owners, for example, sell their livestock to raise money which is used to purchase or exchange food. However, during these periods, animal prices are low since everybody is selling and few are able to buy.

Another common strategy for income generation, used mainly by women, is traditional beer brewing from sorghum. In summer, beer is brewed from the fruit of the marula tree, which grows wild and is widespread. People pick the fruit, extract the juice and ferment it into alcohol, which is mainly then sold along country roads and in urban centres. The marula brew is so popular in

4 In this study, relish is referred to as the common sauce (with ingredients such as vegetables, meat, egg or fish) which is eaten with porridge made from sorghum or millet meal. It can also describe ingredients which give food a special taste, such as mice in the Zambian case study.

the country that there is an annual national celebration of the fruit, involving His Majesty the King and Queen Mother at the Hlane Royal residence.

People in the study communities also make a living from selling craft products, including traditional chicken nests; sleeping mats, imitsanyelo (brooms) and imigcwembe (wooden dishes).

Also in times of food shortage, "famine food" starts to enter into people's diets. Some households resort to gathering wild fruits such as emakhiwa (figs), tineyi, emanumbela, emantulwa, ematfundvuluka, emaganu, (marula) ummfomfo, emahlala and ematelemba. These fruits are used to supplement the staple food thus reducing overall costs. Vegetables gathered include chuchuza, ligusha, imbuya, emahala, emaphoti and lilies, which are mainly used as relish.

Most communities dry vegetables (unfuso) for use during winter, when they are in short supply. However, green vegetables such as ligusha, imbuya, chuchuza etc. were found to be used as a relish served with maize porridge.

Hunting wild game (kutingela) is popular in rural communities. Men, in particular, hunt wild animals such as rabbits and birds to provide meat as relish. In times of surplus, meat from bigger animals is dried as biltong (Umcweba), preserving it for times of food shortages. This method, which means the meat can be kept for a long time without spoiling, is commonly known and practised throughout rural communities.

Traditionally, chiefs who are responsible for their people, primarily in rural Swaziland, have a duty to provide food to household members who are in crisis. The harvests from the chief's fields are kept in storage tanks at his home. This Indlukhulu concept ensured that produce from the chiefs' fields was used to help his subjects during food crises. The main food crops produced are emabele, sorghum, and maize. These are harvested and processed by the community and stored in underground containers (ingungu), which keeps the food grain safe from being destroyed by weevil and rats.

All these non-erosive coping mechanisms are still more or less practiced, depending on the specific situation of each community and household. The latter solidarity mechanism has almost disappeared nowadays.

When food crises persist, more and more erosive coping mechanisms are applied, often irreversibly depleting the assets of households and often starting a vicious cycle of poverty. For example, households suffering most from food insecurity have to engage on farm piece-work in the fields of those with money or food. They are paid in cash or kind (by being given some food). Often, they cannot pay enough attention to the cultivation of their own fields and, thus, remain in exploitative labour arrangements. Women and unemployed youths generate some income from collecting firewood, which they cut to sizes fit for fireplaces and stoves, then sell them to townspeople and butchers along the main country roads. This, however, contributes to the deforestation of the region.

When even these coping mechanisms fail, destitution threatens poor households. During critical times, the frequency and amount of meals are reduced. The seriousness of the food shortage dictates the procedure to be followed in reducing meals. First, meals are reduced from three to two, beginning with the adults, while children continue with three meals. If the bad situation continues, the children meals are reduced to two while adults will have one meal a day. The worst situation leads to everyone having one meal a day only or the adults may even start skipping days. Thus, hunger becomes a feature of daily life.

Famine relief is the only means of survival for some households. Food is given in three forms – as food-for-work, free food for the aged and disabled, or sold at subsidised prices to households who can afford it. The food-for-work programme is administered through non-governmental organisations.

2.3 Zambia case study

The total population of Zambia is approximately 10.3 million (CSO 1998). In Zambia, the studies were carried out in two of the nine provinces, namely in the

Eastern and Southern Provinces. The Eastern Province is subdivided into eight districts and has two main productive and habitable regions: the Plateau and Luangwa Valley Region. Game Management Areas cover most of the Luangwa Valley which leads to a low average population density in the province. Population density in the Eastern Province is 19 people per km^2, and its total population was estimated to be 1,496,000, or around 13 percent of the total Zambian population (CSO 2000).

There are six main ethnic groups in the Eastern Province: Chewa, Ngoni, Tumbuka, Senga, Bisa and Kunda. These tribal groups are organised in village clusters headed by Chiefs. For example, two paramount Chiefs head the Chewa and Ngoni ethnic groups. The lingua franca for the whole region is Nyanja.

The Southern Province consists of the valley along the Zambezi River and Lake Kariba (300,000 ha), the escarpment (1,074,500 ha), the plateau (5.9 million ha), the Kafue flats (1 million ha) and a stretch of the Barotse plains in Kazungula district. The province covers both the low and medium rainfall areas in agro-climatic classification that ranges from 700mm to 900mm. It has a total land area of 85,283 km^2, with a population density of 15/km^2 (CSO 2000) and a total population of around 1.3 million, of which 85 percent are rurally based. Ethnically, the province is inhabited mainly by the Tonga who form around 95 percent of the population, and by small numbers of Bembas, Ilas, Lozis, Ndebele and Ngonis. A major displacement occurred in the province in 1958 when the Kariba Dam was commissioned. Nearly 60,000 people, then about 12 percent of the provincial population, were resettled from the Zambezi valley to new villages in higher areas of the valley and a few parts of the plateau.

2.3.1 Situation in the Southern Province

The main crops grown in the Southern Province are cereals (maize, sorghum and millet), legumes, oil crops (groundnuts and cotton) and tubers such as sweet potatoes. More than 75 percent of interviewed households cropped maize. Small grain crops such as sorghum and millet are mainly grown in the valley region.

Alongside crop production, the people also engage in livestock rearing. The major livestock includes cattle, goats and chickens. However, the livestock population has decreased in the last ten years due to the outbreak of diseases such as corridor disease and the selling of livestock or exchange against food during the various droughts.

There are various reasons that explain food shortages in the Southern Province. These are depicted in the box "Causes of food shortages". It can be noted from the box that food shortage is a result of various factors. The causes are both natural and man-made, including e.g. also poor governance. As a way of avoiding hunger people have come up with different coping strategies. Some of the coping strategies are highlighted in the next section.

2.3.2 Coping strategies

Non-erosive coping strategies in the Southern Province mainly concern various income generating activities. When food runs out people sell livestock and brew beer for the local market. Piecework on agricultural fields of those with access to extra money or food is a coping strategy, especially of poorer households even during seasonal food shortages. To reduce vulnerability, women often develop non-farming activities such as weaving baskets and mats (Siavonga district), and, to a smaller extent, baking and knitting. Poor crop production during the drought years led to increased fishing activities especially in the valley area. People move into fishing areas from drought-stricken communal lands.

Migration has also played an important role as a survival strategy for household support. In difficult times some men tend to migrate to urban areas in search of employment. Those who are employed usually send money or/ and food back to their families.

Households adopt unfamiliar eating habits or schedules. Some households resort to gathering wild fruits, vegetables and tubers to cope with food shortage crises. Some of these wild fruits are poisonous, which means they require effective processing before consumption. Notable among these is Mubbiti (Nakabombwe).

Causes of food shortages

Government Agricultural Policies: The main reason was misguided agricultural policies that were biased towards maize production. Thus, farmers concentrated on maize production, even in areas with unsuitable soil texture. This shift occurred at the expense of traditional crops that had assured both a greater degree of security against risk of crop failure and a higher nutritional value. Thus, many of the non-staple crops that had assured variety, mostly legumes, were abandoned, reducing the nutritional value of household production for own consumption.

Traditional Beliefs and Attitudes: Some beliefs such as "production of leguminous crops is a woman's responsibility" reduce the production of crops like groundnuts, as they are not given priority. Crops are planted and weeded late because the women are expected to do most of the work in the fields in their own time e.g. after working in the main family fields.

Climatic Conditions: These include erratic rainfall, drought and floods, and have a negative impact on agricultural production.

Pests and Diseases: These include various crop and animal pests and diseases, which have caused a decline in agricultural production.

Poor Food Storage: Most rural families rely on stored food. However, high storage losses of up to 30 percent are experienced as a result of storage pests.

Limited Animal and Draught Power: Farmers' food self-sufficiency depends firstly on the hectares they can cultivate, then on the yield/ha that is determined by both soil fertility and timeliness of planting. Ownership of cattle is the prime determinant of productivity, due to its impact both on the area that can be planted and the timeliness of planting. Cattle, apart from being important as a method of savings and an indicator of status and wealth in the Tonga society, provide draught power. This valuable capital resource base has however been reduced in the past due to animal disease outbreaks.

During critical times meals are reduced in both frequency and amount, often when physical strength is most needed for cultivation.

Relief food is a common measure when acute food crises have occurred.

2.3.3 Situation in the Eastern Province

Agriculture is the main source of food in the region. However, agricultural activities tend to vary in intensity according to the landscape, i.e. there are distinct differences between valley and plateau systems.

The Valley System is dominated by maize and sorghum semi-shifting cultivation. Mechanized agriculture, through the use of ploughs and tractors, is not common because of a lack of cattle and income. The main food crops grown include maize, sorghum, cowpeas, pigeon peas and sweet potatoes. Cash crops include cotton, groundnuts, sunflower and rice. The Valley is one of the main producers of cotton and rice in Zambia.

The Plateau System can be described as a food surplus region, characterised by a farming system on fertile soils that is dominated by maize and livestock farming. Land under cultivation varies from 1 to 10 ha per farm, ploughs drawn by oxen and, to a smaller extent, tractors are used.

Main cash crops grown are hybrid maize, sunflower, groundnuts, tobacco, paprika and cotton; and assorted vegetables, rice, bananas and fruit grown on riverbank-gardens (dambos). Subsistence crops include local maize, sorghum, finger millet, cassava and beans. Vegetables and fruits are mainly grown in gardens.

Despite this potential of agriculture in the Eastern province, the situation at household level is quite different. Due to a number of problems, agricultural yields for the disadvantaged groups of society (subsistence farmers, women-headed households, HIV/AIDS patients, youths, disabled etc) and those living in the Valley areas have always been low. According to the Baseline Study of Mambwe District by LIRDP in 1987 more than 50 percent of respondents ran out of food before the next harvest. From the fieldwork findings, it was evident that many households in the Province face serious food shortages, particularly between December and March.

In the Valley, the main causes of food shortages are unreliable rainfall distribution including droughts and floods that have both resulted in poor yields. Labour shortages, limited extension services, credit and marketing support have negatively affected agricultural production. To a certain extent, crop destruction has been intensified by wildlife, for example, birds.

2.3.4 Coping strategies

Several non-erosive coping strategies were noted. For many years, livestock has generally only played a small role in the agricultural economy of the Eastern Province, since large areas, in particular the Luangwa Valley, are infested with tsetse flies. The few big cattle belonging to families running small farm are primarily kept as a symbol of prestige or as a form of saving "on the foot".

Selling cattle once in a while can help meet family such expenses as school fees. It is rare to find someone killing cattle for family consumption. Some milk is, however, consumed or occasionally sold. The field study revealed that poultry, including chicken, ducks, pigeons and guinea fowl were commonly kept by almost all the tribes and played a major part in the diets and economy of the people. Despite the large numbers of livestock in the Province, it should be noted that there is very little livestock marketing activity in the small-scale production system.

Gathering wild foods, tubers and cereals is also a common coping strategy. Traditionally, wild foods were a major source of protein, carbohydrates and vitamins for the dietary requirements of the people. People could freely collect wild tubers, fruits, mushrooms, caterpillars, insects and amphibians. Fish, game meat from hunting, and birds caught by trapping or shot with catapults, provide a lot of protein. These "wild foods" could be exchanged for maize grain.

Traditional hunting, particularly in the Luangwa Valley, before it was regulated through licensing by the colonial government in the 1930s and 1940s, was the main source of animal protein meat in areas that had limited or no livestock. In the past, the few hunters that existed killed and distributed meat according to their lineage, receiving maize and other plant foods from the cultivators in return. Such a hunter became a meat provider through clan relationships and inheritance. Children and other people sometimes hunted, using catapults and traps to catch birds. Other hunting activities include wild collections of food sources include mice, amphibian/reptiles, insects and honey harvesting. In most cases, mice were collected by digging or trapping (e.g. in farmland, near the bush, and dambos). Mice were used as a relish food and regarded as a delicacy.

Most wild foods have been used continuously as food sources up to the present time, though in different forms. Others are disappearing due to overuse, environmental changes or simply a loss of such knowledge among the present generation. Wild tubers are also used as sources of food; a good example is the wild yam (mpama). There is confusion about this tuber in terms of identification and preparation. It must be boiled for several hours before it is actually cooked.

Wild cereals recorded included wild rice and sorghum that were gathered from the bush. The grain was collected using baskets and then cleaned or husked. It was then pounded to produce meal. Other sources of carbohydrates included a number of plants, which produced bean like seeds (fruits) and were used for preparing porridge. Some of these were poisonous, and would result in fatality if not properly prepared. The local names include kampaza, uthetha and chitedze (wild buffalo beans, velvet beans). These beans must be

cooked, changing the water several times, before they are pounded, washed, squeezed in a sack to remove extract, before being cooked again and eaten.

Wild fruits are collected in the forests and eaten as snacks. Some fruits had multiple uses, for instance imbula (Parinari curatellifolia) and mkushu (Ricinodendron rautaneni). The nuts were used as sources of oil (energy); some could be crushed to produce juices for drinks or, as in the case of imbula, pounded to make cakes that can be stored for a long time etc.

Parinari curatellifolia is an example of a multi-purpose tree that is highly appreciated and plays a key role in complementing not only the diet, but also serving as a resource for crafts and medicine. It is a spreading tree, striking because of its semi-circular, almost mushroom-shaped canopy in shades of blue-green and grey.

Generally, these trees are not cleared away as the fruit is very tasty and can readily be made into nutritious syrup or more commonly into porridge. The fruit is occasionally used for brewing alcoholic beverages. The oily seeds are eaten raw in the form of nuts. The leaf extracts and bark may be used as a remedy for symptoms of pneumonia or to treat ailments of the eye or ear. The bark and leaf extracts can be used for tanning purposes, for example the tanning of leather.

Many traditional medicines incorporate the bark of Parinari curatellifolia. The roots are also useful for the treatment of cataracts and earache. The availability of these wild fruits varies throughout the year, but most are available at the beginning of the year and during the rainy season when food is limited.

Apart from wild food collections, pottery, carvings/ crafts work, blacksmithing, house thatching/building, and fishing contributed to people's livelihoods: These activities form an important component of income generating activities that can be promoted through government and NGO interventions. The main rationale for engaging in the aforementioned activities was to generate income that would then be used to buy such household necessities as food and clothing.

2.4 Zimbabwe case study

The population of Zimbabwe was estimated to be 14 million in 2002, but with only 11.4 million actually residing in the country at the time of the census (Census 2002). This disparity is attributed to people emigrating to the Diaspora and neighbouring countries. Two case studies were carried out in different provinces. The first was carried out in the three provinces of Matabeleland North, Matabeleland South and Midlands. The second study looked at the three provinces of Manicaland, Masvingo and Midlands and, thus, covered all five agro-ecological zones of the country, offering an opportunity to reveal crisis coping mechanisms employed under a great variety of environmental conditions.

The Zimbabwe case studies covered most Zimbabwean ethnic groups including the Ndebele, Shona, Tonga, Nambya, San, Kalanga, Venda, Shangani and Remba, a rich cultural mix of people offering a wealth of experience on traditional food coping mechanisms.

2.4.1 Situation in the South Western and North Western Regions

The study was targeted at the three provinces of Matabeleland North, Matabeleland South and Midlands. Food is derived from two main sources: plants and animals. Plants grow in the wild and their fruits or tubers are collected and eaten as food, either processed or in their natural state. This happens to be the case among the San who are food gatherers. On the other hand, the Bantu developed crop cultivation and ate cereals such as sorghum, pearl millet and finger millet.

Climatic conditions tend to influence cropping patterns. Crop production is undertaken in summer during the raining season. In the dry winter season, there is limited agricultural activity, except for small gardens, where women mainly grow vegetables. Food grown during the rainy season is harvested, processed and stored in safe places for future consumption. During the dry winter season people regularly had to face mini-crises since there was no food production. Apart from the San, the dietary habits of other ethnic groups relied on plant-

derived food instead of animal protein. For them, intermittent food shortages could be the result of crop failure brought about by floods and droughts or by pests such as locusts which devour the growing crops.

A closer look at the dietary patterns of most people under study reveals their over-reliance on plant foods. Ethnic groups like the San, who lack crop cultivation, depend much on wild fruits and tubers. Mostly, the fruits were harvested from drought-tolerant trees like the baobab. The Sotho/Birwa of Gwanda, with a history of inhabiting dry areas, ate an equally wide range of wild fruits.

To a great extent, wild animals were dominant and a reliable source of protein for many societies. Hunting was usually done with dogs or traps of various kinds. Some animals, however, were revered for totemic reasons. As a general rule, meat was eaten fresh. However, meat from domestic or wild animals quickly spoils. Larger amounts were, therefore, cut into thin strips, salted and dried. This dry meat or biltong can be stored for a long time.

The Ndebele cooked the meat, salted it and allowed it to dry. It was then ground, using pestle and mortar, into a powder. The Bantu people kept domestic animals like cattle, sheep, goats and also birds. Livestock was important for the meat that served as relish to accompany the thick porridge made from sorghum or millet meal. The Ndebele, however, used to eat meat as a complete meal and not as accompaniment to thick porridge. Cattle culture was so important among these people that long distance raids into neighbouring ethnic groups' territories were undertaken to capture cattle.

Many diseases afflicted domestic animals, particularly cattle. These were rinderpest, quarter evil (black leg), and foot and mouth disease. In tsetse fly infested areas, the nagana disease was a serious threat. There were also tick-borne diseases. The cattle breeds kept by the various ethnic groups were indigenous to the area where they were raised. Over the years, the animals had adapted to the environment and developed resistance to disease and harsh climatic conditions. To supplement this acquired hardiness, the people have developed herbal treatments for the animals. They had cures for anaplasmosis and quarter evil.

Inter-tribal wars were also a threat to cattle herds. More powerful groups used to raid weaker groups for cattle, leaving the affected groups vulnerable. It must be remembered that although meat did not constitute an important part of the diet, cattle could be bartered for cereals.

Another observation was that the San ate a wider range of wild creatures. For example, they also ate pupae from the mopane worms and even toads. This was expected of people who depend more on eating meat than on cereals. The San did not undertake any cultivation of crops.

2.4.2 Coping strategies

Highly prioritized strategies among the communities to cope with food crises were the strategic selection of crops to grow and grain storage for future use. The cereal crops grown in south western and north western Zimbabwe prior to colonisation were sorghum, pearl millet (inyawuthi) and finger millet (rapoko). Farming small grain crops had an advantage because of their suitability for marginal rainfall regions. They also mature early, meaning that communities are assured of early harvests. In addition, small grains tend to resist most crop diseases, thus cutting costs on pesticides. After colonisation, the cash nexus was introduced and maize became a staple food, which soon dominated traditional small grain cereal crops. Due to changing attitudes imposed by colonial governments, small grain varieties are disdained for being out-dated in contrast to maize, which is considered a crop of civilisation.

After harvesting, grain must be stored in a way that ensures it will lasts at least until the next harvest, which is only possible with sound grain storage arrangements. In some places, crops were allowed to remain in the fields until the onset of the cold season e.g. June. The low temperatures hardened the grains, thereby making it difficult for the grain weevils to feed on them. Once stored, grain can be under threat from such pests as

weevils and rodents, including rats and mice. In addition, the storage of grain in moist places, coupled with poor ventilation, resulted in grain becoming mouldy and unsuitable for human consumption or as seeds for agricultural purposes.

The first consideration in grain storage was the construction of storage structures. The Ndebele, for example, wove grass bins (izilulu), in which grain was stored. To keep moisture and ants out of the containers, the bins were placed on a platform standing on stone boulders. The Shona, Kalanga and other ethnic groups built mud granaries on platforms to keep the grain dry. The use of a mixture of cow dung and mud to plaster grass grain bins was an example of the indigenous knowledge used to keep away pests. Similarly, the inside walls of mud granaries were plastered with a mud mixture and ashes used as a covering layer on top of the stored grain. The opening of the bin was tightly closed, just like that of the granary. After being sealed, a watery mixture of mud and ashes was applied over the opening, making it water and air-tight. The ashes provided protection for up to four years.

As a means of enforcing the clean handling of grains, certain taboos were used, for example, that only a few individuals, especially elder women were allowed to enter granaries. Their experience in health care and attentiveness qualified them for this responsible job.

Considerable importance was also given to the production and consumption of supplementary crops like groundnuts, pumpkins, beans, sweet potatoes, watermelons, okra and squash. Most of these crops are drought-tolerant. These supplementary crops also have the advantage that seeds may be collected from them. Thus, the timely availability of agricultural seeds for the next season was ensured.

Traditional societies used traditional methods to ward off pests and vermin. Traditional doctors were solicited to protect fields from the crop destroying activities of birds and locusts. Thus, birds and locusts did not visit fields that had been “doctored”. Once fields were treated, their owners were subject to various prohibitions or taboos, which had to be observed, in order for the efficacy of the doctors’ medicine to remain in force. For example, harvested crops were not to be eaten before the “first fruits ceremony” was conducted.

2.4.3 Situation in Manicaland, Masvingo and Midlands Provinces

In these three provinces, agricultural practices were reasonably similar. Mixed cropping was dominant and practiced in a way to maximize yields from the existing small plots of land. This method of inter-cropping ensured the production of grain varieties for household consumption. Since many families had only small plots of land at their disposal and only limited access to cattle as draught animals, hand-tillage was common. Zero tillage was also practised, where draught power was not available. Shifting cultivation ensured the food security of communities, since only fertile land was used, while infertile land was abandoned and reserved for future use.

The semi-arid conditions experienced in the study areas favoured small grain production. Maize production was adopted earlier as a cash crop. In Gutu, for example, maize was first introduced in the 1940s, especially after the 1947 famine, and was only grown on anthills where the soils were more fertile and retained more water. Table 5 shows the the crop varieties grown in the districts studied.

Most of the crops shown in the table are drought-tolerant, for example sorghum, pearl millet and finger millet. However, the existence of tobacco as a crop in Gokwe North shows the penetration of commodity marketing in the district. Tobacco is an important foreign currency earner in Zimbabwe.

During the study, it became evident that food crises in Zimbabwe are nothing new, since adverse weather conditions in the past have resulted in severe food shortages. For example, in Gokwe food shortages are a perennial problem due to erratic rains. The study showed that in all the three districts studied, just as in the rest of Zimbabwe, the last five years were marked by erratic

Table 5: Crop Varieties Grown

Crop type			Chipinge	Gutu	Gokwe
English name	**Shona name**	**Botanical name**			
Pearl millet	Mhunga	Pennisetum typhoides	+	+	+
Sorghum	Mafunde	Sorghum vulgare	+	+	+
Finger millet	Rukweza	Eleucine coracana	+	+	
Groundnuts	Nzungu	Arachis hypogea	+	+	
Watermelons	Mavise		+	+	
Pumpkins	Manhanga	Cucurbita maxima		+	+
Round nuts	Nyimo	Voandzeira subterranean		+	
Melons	Magaka	Citrullus lanatus	+	+	+
Maize	Mabarwe/Magwere	Zea mays	+	+	+
Cow peas/black-eyed peas	Nyemba	Phaseolus vulgaris	+	+	+
Sunflowers	Chiringazuva		+	+	+
Sweet potatoes	Mbambaira	Ipomoea batata	+	+	+
Tobacco	Fodya				+

+ indicates crops grown in the area

Source: Christian Care, 2003

rainfall distribution, thereby contributing to below-normal yields. Group discussions revealed that there have been no meaningful harvests except for cotton. Hence, most people have moved away from producing grain/food crops and switched to cotton. Cotton had been introduced by the Dheruka people. The emphasis on cotton has led to the marginalization of traditional grain production.

Indigenous Knowledge Systems (IKS) serve as indicators of good or bad harvests. These are described in the box "Indicators for good or bad harvests".

The causes of food shortage indicated by the respondents were droughts, cyclones and floods, and locust invasions. All these have contributed to famines in one way or another since the early 1900s.

Although documented evidence shows that one of the worst droughts in living memory was the drought of 1991/92 (Chenje et al 1998), the people interviewed in the study vividly remember the one of 1933. That year, drought and locusts invaded the country and wiped out crops, trees and pasture. People and livestock starved to death. As survival strategies, some people resorted to eating bones and animal hides, which they crushed and consumed. Others became destitute as they wandered around in search of food, and begging became commonplace.

2.4.4 Coping strategies

As a way of coping with food shortages, various famine foods were consumed by people, for example some fruits and wild plants, several of which are unpalatable, poisonous or of little nutritional value, demonstrating the level of desperation in times of famine. In addition, chuff, produced after the winnowing of cereals such as sorghum and millet, was not thrown away, but stored for future use. Unusual varieties of ants, termites and beetles were also eaten. Additionally, there was a reduction not only in the number of meals to one per day or one in a number of days, but also in meal sizes.

Meat was salted and dried in the sun or over the fire and stored as biltong. In the Chipinge wards of Mutema and Mwacheta, biltong was one of the items used in exchange for grain from more food-secure areas like the Chipinge Highlands and even from across the border in Mozambique.

Indicators for good or bad harvests

Some common signs were known in different regions of being indicative of a good rain or farming season. An abundance of fruits from certain trees, such as shuma, muunga and barati, around October was regarded as a sign of good harvests in the next cropping season. In Gokwe North, a lot of resin from the mupanda trees indicated plenty of rains for the season. In Gutu, they rely on the rumbling of sacred mountains in the area such as Mt Rasa and Mt Zvamumugwe. However, it was said that if the smaller mountains rumbled before the large ones, then that season would be dry and people would have to be prepared for hunger. Elders in the two wards in Gutu said they also relied on the prevailing winds to determine the state of the season. The most rain-bearing winds are northerly. If they blew long from east to west it was a sure sign of a drought.

Animal signs were also recorded. Large numbers of dendera birds in an area signalled the onset of a good rainy season. In Gokwe North, clay pots were traditionally kept in sacred places, especially beside the graves of chiefs in the hills. These would mysteriously fill up with water towards the rainy season, and this was regarded as a sign for the season. A full moon with a blue ring on the inside (dziva remvura) was indicative of a good rainy season. Many more local indicators were mentioned. Even if people used to predict the fate of the seasons, they had no control over environmental factors such as droughts and cyclones, both resulting in crop failure and subsequent famine.

Storage of food and seeds was very important among rural households. Generally, the ways to preserve, process and store food were more or less the same among the Ndau, Karanga, Shangwe and Tonga people of Zimbabwe, specific to each crop and its multiple uses. Cereals were stored in granaries that had different names depending on location and size. The tsapi, for temporary storage, was normally built in or near the field on rock outcrops in Gutu District. The dura or hozi were located at the homestead, but the latter was much bigger than the former. Some crops, such as watermelons and sweet potatoes, were buried in pits or under ash heaps. In Gutu, the Karanga also stored grains in clay pots (makate) and bark bags (nhava). The Shangwe and Tonga people of Gokwe North dug pits inside the cattle kraals/pens to store their cereals. The pits were then first sterilized by heating and plastered with cow dung. They were then filled with grain and subsequently sealed. Chief Madzivazvido of Gokwe North reported: "Our grain would last for up to five years in such storage pits and we would get it from there as if it was harvested just yesterday."

Grains from the previous harvest were used as seed for the next cropping season (open pollinating varieties). Good quality cobs or ears of seed were tied under kitchen roofs or under big trees at homesteads. Smoke from the kitchen fire preserved the seed from weevil attack. To avoid the temptation of eating the grain reserved for seed, it was common to mix the seed with sand or cow/goat dung and then store it in clay pots.

There were extreme cases where women would use their hair as a form of storage for seeds, especially among the Ndau of Chipinge. These women would go for months or years without washing their hair. On the first rains they would go into the fields and rub the seed off their hair as a way of sowing. Seed was also obtained by digging out tunnels in the fields, in which mice and ants had stored their food.

2.5 Summary of case studies

This chapter has shown that food crises in Southern Africa are severe and mainly a result of climatic conditions. Drought and floods have continued to affect food production in Malawi, Swaziland, Zambia and Zimbabwe. Agricultural production is varied in each country, according to the different agro-ecological zones. In communities living in dry prone areas like Lowveld (Swaziland), Matabeleland North and Midlands (Zimbabwe), and marginal areas in Zambia and Malawi, perennial food shortages are experienced. However, communities have adopted traditional food crisis coping mechanisms (TFCCMs) that have evolved over the years. Table 6

Table 6: Overview of Coping Strategies in Case Studies

Common Strategies	Malawi	Swaziland	Zambia		Zimbabwe	
			1	2	1	2
Use of famine foods (wild tubers, fruits, vegetables & roots)	+	+	+	+		+
Sale of small livestock, firewood, crafts	+	+	+			
Hiring out labour (for money/food)	+					
Hunting & fishing	+	+	+	+		
Beer brewing	+	+	+			
Storage of food		+				+
Storage of seeds					+	+
Reduction of number of meals		+	+			+

gives an overview of the common coping strategies that were found in the case studies.

Most of the communities in the region rely on natural resources in times of hunger. Since hunger occurs unpredictably, communities have adopted food preservation methods including building storage facilities for later use. Various farming and non-farming activities have been adopted as traditional coping mechanisms. Farming activities include growing drought-tolerant crops/ small grains such as rapoko, sorghum etc; growing cash crops like tobacco, cotton, maize; producing own seeds; and livestock rearing.

On the other hand, many different non-farming activities were recorded, and these tend to be similar across the region. They include hiring out labour, out-migration in search of employment and engaging in such Income Generating Activities (IGA) as beer brewing, crafts, fishing etc. Hunting is also important, where meat is used for sale and consumption. In Southern Africa, searching for wild foods – fruits, roots and vegetables – is also widespread.

While traditional coping mechanisms are worth knowing and need to be promoted, not all of them can be practically implemented in all places. For example, activities like hunting are illegal in most countries. Instead it is reasonable to support activities that have a wider positive bearing at a community level e.g. dam projects for irrigation and livestock, food preservation and storage facilities, support for IGAs, and a general change in development policy. However, these activities need to be implemented with due respect to appropriate Indigenous Knowledge Systems (IKS) and stakeholder participation in development projects.

Based on the study results, the next chapter looks at activities that need to be carried out in order to improve food security in Southern Africa. Emphasis is placed on Linking Relief, Rehabilitation and Development.

3 Conclusions and recommendations

It is obvious that food security is of paramount importance to sub-Sahara Africa and other countries in the world. Despite the fact that traditional food crisis coping mechanisms (TFCCM) have an immense role to play in food security, their marginalization is a point of worry.

It is hoped that this regional analysis will stimulate a debate among scholars, policy makers, relief and development institutions and the civic society at large in efforts towards incorporating TFCCM in issues related to food production, processing and storage.

Not all traditional food coping strategies are applicable today, but some are – and must be promoted. In this final chapter, there is an emphasis on elucidating and putting forward practical TFCCM methodologies that can be implemented.

Thus, this chapter discusses some important themes that emerged from the lessons learnt during the workshop process and from the country-specific studies followed by appropriate recommendations for relief and development institutions.

3.1 Recommendations for early relief measures

Providing food emergency relief during acute food shortage was never questioned in the countries of the study, but it was seen as an appropriate short-term measure.

One important conclusion from the studies and the workshop learning process was that if food aid is continued even in times without food crises, the dependency syndrome tends to result and, in the long run, the people would be incapable of maintaining sustainable food security mechanisms.

■ **Provide food aid cautiously**, do it at short-term and refrain from it as early as possible to avoid dependency and further erosion of TFCCMs.

Food-for-work programmes were discussed as a means with potential to limit the dependency on food aid. As they are providing food not for "free" but for "work", they keep people busy and productive. At the same time they can meaningfully contribute towards maintaining infrastructure, or even the build up of communal assets like anti-erosion bonds for enhanced soil fertility or the planting and protecting of communal woodlots or forests.

■ **An appropriate system of "food-for-work"** should be used wherever possible after the emergency phase with a clearly demarkated time-frame that should not keep people from their traditional income earning activities and non-erosive TFCCMs. Take care to ensure that "food-for-work" does not create dependency and thereby contribute to the further depletion of TFCCMs.

An important observation to emerge from the study is that relief and development interventions must not be all-encompassing. Universal development paradigms hardly provide solutions to food security in a specific context. While it is true that TFCCMs in Southern Africa do not vary much in principle, many are shaped by local context. This implies that replication of projects may not automatically succeed from country to country. Projects to promote food security need to take into consideration socio-cultural, economic and political factors embedded within communities.

■ **Adapt relief/rehabilitation projects** to the local context of the situation. Make them specific instead of using blueprints. General similarities do not mean that replications of project types in the specific situation will work.

Within the Southern African context, in times of severe food crises, indigenous knowledge systems (IKS) have been very useful in assisting communities to cope with crises. They are, however, slowly but continuously vanishing for a variety of reasons, the most prominent being that constant relief support makes them useless and that they are no longer passed from generation to generation, young people being no longer interested. Reports

from all participating countries indicated that the growing erosion of this type of indigenous knowledge is worrisome.[5]

The slow but permanent loss of the indigenous knowledge of TFCCMs calls for urgent measures at all stages of the interventions, starting from relief, via rehabilitation to development.

■ **Look into options of documenting and revaluing TFCCMs** as early in a food crisis as possible (possibly even during the food aid provision phase). Inventories of traditional "famine foods" obtained with participatory methods (e.g. pair-wise ranking) help to generate interest also in the younger generation. They are useful for documentation but more importantly for keeping TFCCMs alive in future generations.

The study revealed that some local coping mechanisms are still practiced in different regions while others live on only in the memory of the people but are no longer applicable due to environmental, social and cultural changes during the last decades.

Particularly severe is the loss of biodiversity and the shrinking resource base on which these coping mechanisms are based. At social level, it was observed that the current circumstances have become so urbanized that contact with social and cultural norms and practices (solidarity mechanisms) has been lost.

3.2 Lessons and recommendations for the transition phase

Bearing in mind the afore-mentioned suggestions for keeping alive/enhancing TFCCMs during the relief phase, the following lessons learnt and recommendations that propose deliberate programmes to enhance food security are regarded as forming the link between relief, rehabilitation and development and are thus intended for relief organisations as well as for development organisations intervening in Southern Africa.

3.2.1 Storage

Appropriate storage is one key measure to extend the availability of quality food and thus reduce the vulnerability of farmers to seasonal famine. However, many traditional granary constructions have either been forgotten or have other inconvenient aspects.

Thus, the promotion of modern granaries, which are relatively expensive, tend to exclude the very poor farmers (who may also not have sufficient harvest to store).

Another challenge is the impact of HIV/Aids: it seems people under HIV/Aids do not regard granaries as a priority, but access to food itself.

However, for NGOs, it might be worthwhile to look into the possibilities of improving traditional granaries for the sake of the poorer people. Local expertise is needed to find the right mix of local materials and modern techniques as well as to develop a technical package to support the management of the stored products. Important points to consider are:

- durable structure with a long life period,
- easy and cheap to construct (mainly using local materials),
- multipurpose so that different grains could be kept in one granary,
- effective in keeping out termites, mice and moisture,
- safekeeping of grains against thieves.

5 Reports from Malawi suggest that the drought in the 1940s was even more severe than the present one in 2003, but people did not suffer so much as they knew which wild tubers and fruits were edible and how to prepare them so that they lose their toxicity. People who remembered some of this indigenous knowledge made attempts with some tubers, but did not process them properly and thus suffered heavily from toxic substances and a number of people died.

The aforementioned chiefs' granaries in Swaziland and Zimbabwe have been, and still are, in some parts of the respective countries effective concepts to alleviate times of food scarcity.

Proper storage treatments, preferably through natural means such as ashes or plant based deterrents, increase the effectiveness of storage facilities – both at individual and communal level.

3.2.2 Processing and storing of fruits from the wild (famine foods)

The use of "famine foods", which means changing food habits by including collected wild fruits, tubers or grains, is a frequently reported coping strategy. One example is the cake made from the fruits of the Imbula tree (Parinaria curatellifolia), prepared and stored in preparation for times of lean food supply; another is the processing of collected fruits from the Marula or Sheabutter trees, which have potential as income generating activities.

Also, new methods of food processing and preservation/storage of traditional and non-traditional foods, e.g. meat, leaves and vegetables, have been developed as coping strategies.

It is recommended to intensify respective investigations, to encourage and further develop these types of coping strategies in the different phases of intervention. As a starting point, the experience of the participating partner NGO could be used.

3.2.3 Small grain and tuber production

A major finding of the studies is that small grains and tuber crops, which are adapted to local conditions and more tolerant to drought and pests, are of paramount importance, especially in marginal areas with limited rainfall.

While the promotion of hardy tuber crops such as sweet potatoes and cassava seems to have become standard practice during the rehabilitation phase, more attention will need to be given to small grains.

Communal seed banks for small grains and the support of communal commercial seed growers are recommended (producing seeds for the market).

3.2.4 Enhanced tree promotion

Diversifying agricultural production systems, not only by substituting e.g. maize with sorghum, but by enhanced tree cover, was one of the continuously reported success stories. With a deeper root system and long lifespan, trees have so far managed to thrive well under conditions where annual crops failed. This refers to fruit trees, famine food trees as well as soil improvement trees (especially Acacia albida).

The promotion of these different tree types is highly recommended as a means of enhancing food security (the facilitating of self-sustainable nurseries being just one of the key interventions).

3.3 Lessons and recommendations for longer term development interventions

Climate change impacts have reduced precipitation and made rain-fed agriculture in some parts of the region impossible. Most of the vulnerable farmers in the study only have access to traditional irrigation, river beds, or swampy valleys, which they can use during the dry season to complement their dryland farming. However, in Southern Africa with its huge underground water resources and vast amounts of surface water, irrigation has great potential to enhance food security and should be promoted widely.

3.3.1 Irrigation

Irrigation needs to be well-designed and maintained to avoid salinity problems. It also needs high levels of community mobilisation and organisation (requiring water-use systems, water committees) and is thus recommended mainly for the longer term development intervention.

Since irrigation in the mainly drought prone areas under study was seen as very important to the participants,

the idea was pursued in greater depth. Dams of different types were considered as very useful, although challenging to implement. The two dam case studies visited in Zimbabwe highlighted the weaknesses and strengths that are characteristic of this type of project:

- limited control of livestock access to the dam basin, which led to dam degradation, as the topsoil is constantly disturbed through livestock movements and grazing. Coupled with inadequate soil conservation around the dam basin, there is a likelihood of increasing siltation;

- the potential area for irrigation was underutilized due to internal conflicts;

- conflicts between different users of water were noted, and solving them became problematic. Men were afraid of excessive use of water for dry season gardening, leaving cattle with insufficient drinking water. Since gardens are usually regarded as the domain of women, just as livestock is that of men, conflicts were bound to rise;

- the mere fact that it is a "common property resource" may lead to over-exploitation and mismanagement at a local level.

Thus, many points have to be addressed if a dam project is to be successfully realised. The most important are:

- creating a sense of ownership through high participation of the different user groups in each stage of planning, construction and management;

- good technical support for the community during all stages of the project; also, after the physical construction phase, follow-ups should be foreseen for the support of maintenance and appropriate management;

- encouraging environmentally sound and sustainable farming practices in the irrigation areas.

However, the availability of dams alone, is not enough. There must be a synergy of relations between the beneficiaries and the supporting development agencies.

3.3.2 Enhanced management of natural resources

While it is a very common strategy to use natural resources as much as possible during times of crisis, not that much experience prevails for the management of these natural resources during other times. Additionally, the legal frameworks of communal lands have often changed (for example with the introduction of Game Parks or other reserves) to the detriment of the locals (e.g. by prohibiting the killing of game for food).

Only a sustainable resource base reduces the vulnerability of the poorer sections of the population. One first attempt to balance the different interests of the multiple stakeholders, is the concept of Community-Based Natural Resources Management (CBNRM) that has gained momentum in rural development due to its strength in incorporating the legal and indigenous methods of managing natural resources.

It seems promising to lobby and advocate CBNRM strategies for income generation, better access to foodstuffs and sustainability of the resource base in longer term interventions.

3.3.3 Diversification of livelihood sources

Coping strategies during times of longer and more severe crises often include looking for help outside the farm and even the village.

As well as remittances (that are beyond the influence of projects and programmes), income from the processing of natural products and handicrafts traditionally complements the farm income. Livestock often plays the role of savings for farmers, but has less attention from outside interventions. A well-balanced mix of crop production (food and cash crops), livestock production of different types as well as processing and handicraft reduces the vulnerability of the local population. Thus it is recommended to explore possibilities especially for women to diversify the income sources because it is often the women that have to respond to the basic needs of the family.

Table 7: Institutional needs

Government	Design policies directed towards food security promotion
	Keep abreast with agricultural changing patterns (foresee things to happen), including early warning systems e.g. weather, soil fertility
	Maintain good international relations, but have a firm standing on own issues of interest
	Co-ordinate relief and development efforts
Development Agencies	Develop policies aimed at promoting food security
	Design dynamic strategies adapted to changing situations
	Advocate the creation and promotion of a local funding base
Community	Identify food security needs
	Share traditional knowledge and experiences on food security
	Participate in policy formulation both in government and development agencies
	Clear self reliance strategies
Donor Partners	Seek to understand the plight and priorities of Governments, NGOs and the communities
	Be flexible on time frame
	Be prepared to be in long term partnership

Source: Lusaka Workshop, Dec 12th and 14th 2002

3.3.4 Saving and Credit Co-operatives (SACCOs)

Especially in the aftermath of calamities, when resources are depleted, there is often a lack of capital and access to micro-credits, which results in most Income Generating Activities being carried out on a subsistence level. Thus, better access to loans may help to boost some of these IGAs. The earnings would help stabilise household income and thus reduce vulnerability.

Despite the importance of SACCOs in rural areas, many issues must be taken into consideration if positive outcomes are to be achieved. Based on two case studies (Mazvihwa and Negove SACCO in Zimbabwe), the following weaknesses were identified:

- limited accountability resulted in risks associated with loss of funds through mismanagement;
- limited security;
- lack of training for the management committees;
- not enough guidance and control of the economic activities implemented with the loans granted;
- limited services and products from the SACCO;
- cumbersome and slow registration process by government.

In development interventions, SACCOs are often a priority request of the communities. They can have a positive bearing on food crisis preparedness and food security at a local level, especially for the poorer strata of the rural population. However, it is a field in which professional technical expertise is required from the onset of the design of the programme, in order to avoid the repetition of mistakes made elsewhere.

3.3.5 Institutional capacity and participation

In Southern Africa, there is a high level of institutional weaknesses inherent in development interventions within food security. An emphasis must be put on stakeholder participation in order to have viable food security mechanisms. Table 7 shows how different agencies should cope with the prevailing situation. A common threat within development interventions is the marginalisation of traditional institutions despite the fact that they play an important role in rural transformation. Tra-

ditional norms, values and leadership must be incorporated for effective intervention measures from governmental and non-governmental organisations.

This chapter has shown that aspects of maintaining food security are varied and complex, as is the LRRD factor. There is a need to have institutional capacity building and stakeholder participation for desirable outcomes. It seems due recognition must be placed on applying intervention measures based on the specific context. For example, water-harvesting through the construction of dams is appropriate in most dry prone regions. Thus, activities linked to dam projects such as livestock rearing, fish farming and market gardens can be promoted through the assistance of NGOs. On the other hand, income generating activities may help poor communities to move from the web of poverty that is a constant threat. The role of SACCOs may help to ingrain a cash nexus in rural communities.

The possibilities to reduce food losses through sustainable processing and storage should be spread amongst people. Granaries may be constructed and emphasis must be placed on affordability. Advocacy and lobbying governmental institutions should be strengthened. This should try to increase the awareness and support for Traditional Food Crisis Coping Mechanisms and link it with the demand for the realization of food security and the right to adequate food. Thus, linking relief, rehabilitation and development is an option that must be translated to state and non-state intervention mechanisms.

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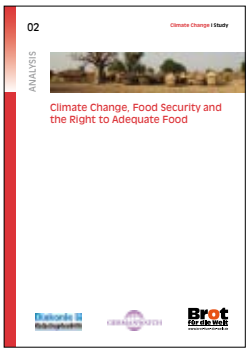

Climate Change, Food Security and the Right to Adequate Food

The study documents the important facts about the relationship between climate change and food security. It gives recommendations for the national and international policy focussing on strategies to adapt to climate change.

English version, 212 pages, Stuttgart 2008

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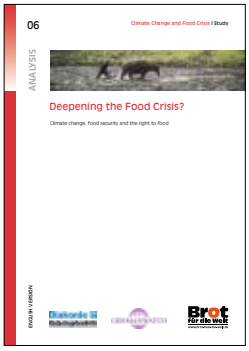

Deepening the Food Crisis?

Summary of the most important facts of the above main study “Climate Change, Food Security and the Right to Adequate Food”. With recommandations for the national and international policy.

English version, 28 pages, Stuttgart 2009

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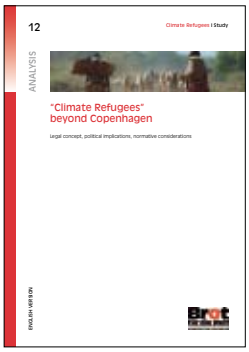

“Climate Refugees” beyond Copenhagen

Partner organizations of “Brot für die Welt”, as well as their target groups, are directly affected by the impacts of climate change. The analysis recommends policy-making on climate change to be aligned with human rights principles – in order to both prepare for the unavoidable and foreseeable effects of climate change, and to reduce future Green House Gas emissions.

English version, 32 pages, Stuttgart 2010

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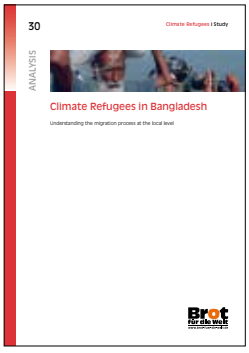

Climate Refugees in Bangladesh

The study is an attempt to describe in a comprehensive way the phenomenon of climate induced migration in Bangladesh and analyses possible remedial measures in accordance to national and international human rights laws.

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