

NAMIBIA CASE STUDY

**COMMUNITY DROUGHT MITIGATION
STRATEGIES**

Prepared by

Bruce Frayne

April 1997

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APPROACH TO THE CASE STUDY

The approach to the case study and the format suggested in Section III of the Project Strategy makes two clear assumptions:

1. That development agencies and organisations in Namibia are working together with communities; and
2. that drought mitigation is an overt development objective of such agencies and organisations at community level.

In both cases the assumptions do not apply to Namibia as a whole. The literature is clear on the fact that drought mitigation strategies have almost exclusively been top-down in approach, and have had little to do with community development. The aim has been to reduce the negative impacts of drought through a range of strategies which by their very nature do not foster the expansion of the institutional and technical capacity of communities which is a requirement for engaging communities in the development process. The actions to date in Namibia have been reactive, attempting to limit the socio-economic impact of drought on the most vulnerable members and/or groups in society, rather than being part of an ongoing proactive strategy which has socio-economic development as a central theme.

It is important to understand the context which underscores this situation in Namibia. Independence from South Africa in 1990 marked the end of a protracted guerilla war, and has only provided Namibia with a six year window of opportunity to engage all sectors of society in the development process. History has favoured a top-down and largely 'paternalistic' development approach, and reversing one hundred years of colonialism is no simple event. The active repression of community initiatives and agency-community partnerships has not only impoverished communities throughout Namibia, but has also removed much of the incentive for communities to take control of their own destinies. Revitalising the capacity of communities to participate in their own development is in itself an enormous endeavour. Namibian society has only just begun the journey of empowerment and self-determination.

An additional and important factor is the heterogeneity of both Namibian society and the geography of the country. The diversity of culture reflects the varied and contrasting physical conditions which prevail in Namibia. The elevation of the country ranges from sea level to almost six thousand feet in the interior. The average annual rainfall varies from less than 30mm in the Namib desert to over 700mm in the eastern Caprivi. Population distribution is uneven, matching the geographical distribution of natural resources. Development is also highly uneven, reflecting the geo-political history of the country, and Namibia's relationship to international markets.

Approximately 70% of Namibia's population is rural, the majority of which is engaged in primary agricultural activities within the former communal areas. Although in many cases farming may provide a significant proportion of household income, alternative sources are usual and necessary for the economic survival of the household. Drought is one obvious factor which makes non-farm income diversification a crucial survival strategy for rural (semi)-subsistence households (Næraa, *et al.*, 1993, Devereux, *et al.*, 1993).

In the interests of conformity, every effort has been made to follow the case study format as outlined in Section III of the Project Strategy. However, given the factors outlined above, some fundamental changes have been made to accommodate the issues raised. More importantly, the changes attempt to make the Namibian case study as informative as possible in evaluating the relevance and potential application of the proposed training programme to Namibia.

The following key changes have been made:

1. Rather than identifying a *single community* as the case study subject, the *case study has been defined as the 1992/93 drought*. This is a key conceptual shift from the outline, but is justified in that the 1992/93 drought is the only event which has been researched and documented to any significant degree in Namibia. In addition, by concentrating on this event, regional differences which are fundamental to the aim of the case study (and the final national programme) can be identified and compared.
2. Given the socio-economic and geographic diversity of Namibia, two different regions of the country have been selected to provide the context for the case study of the 1992/3 drought. Each region is instructive *vis-à-vis* the aims of the programme¹.
3. As a means of providing detail not possible at a regional level, two communities which have been studied in terms of the impact of the 1992/93 drought on the household economy have been selected, one from each region, and are presented as appendices.

Based on the findings of the case study, relevant gaps in the existing literature have been identified with recommendations for further action. In addition, conclusions as to the relevance and practical implementation of the drought mitigation training programme are drawn as an attempt to assist the Namibian representatives to develop an appropriate and realistic national training programme at the April 1997 workshop to be held in Cape Town.

¹ Please note that the term 'region' is used here to denote a number of geographically similar and contiguous political regions. For example, the 'western region' refers to the geopolitical regions of Erongo and Kunene.

SUMMARY OF THE FINDINGS

This summary is based on the findings of the case study, and is divided into three sections, as follows:

1. A comparison of the entitlement to food within the two case study regions during the 1992/93 drought (similar for all recent droughts);
2. a comparison of the drought impacts and household/community level coping strategies employed within the two case study regions during the 1992/93 drought; and
3. The relevance of a community drought mitigation training programme in Namibia.

COMPARISON OF ENTITLEMENT TO FOOD WITHIN THE TWO CASE STUDY REGIONS

REGIONS	DIRECT ENTITLEMENT: STAPLE FOOD PRODUCTION	DIRECT ENTITLEMENT: SECONDARY FOOD SOURCES	EXCHANGE ENTITLEMENT: FOOD PURCHASES	TRANSFER ENTITLEMENT: INFORMAL AND FORMAL GIFTS
NORTHERN CENTRAL AND NORTH-EASTERN (Omusati, Ohangwena, Oshikoto, Oshana, Kavango & Caprivi)	Maize Millet Sorghum	River products: water lilies (Kavango and Caprivi) fish Forest Foods: fruits, nuts Edible animal products: meat, milk	Employment: formal sector, informal sector Agriculture: surplus crop sale, livestock sale	Formal: pensions, food aid Informal: remittances, food sharing
WESTERN (Erongo & southern Kunene)	None	Edible animal products: meat, milk	Employment: formal sector, informal sector Agriculture: livestock sale	Formal: pensions, food aid Informal: remittances, food sharing

Source: Næraa, *et al.*, 1993: 113.

COMPARISON OF DROUGHT IMPACT AND HOUSEHOLD COPING STRATEGIES WITHIN THE TWO CASE STUDY REGIONS

REGIONS	DROUGHT IMPACT ON STAPLE FOOD PRODUCTION	HOUSEHOLD COPING MECHANISMS	DROUGHT IMPACT ON SECONDARY FOOD SOURCES	HOUSEHOLD COPING MECHANISMS
NORTHERN CENTRAL AND NORTH-EASTERN (Omusati, Oshana, Oshikoto, Oshana, Kavango & Caprivi)	Crop failure lead to 75% reduction in average annual cereal output at the household level	<ul style="list-style-type: none"> • Rationing • Consumption of surplus seed • Reduced spending • Borrowing • Famine foods • Livestock sales • Informal transfers • Migration/split households • Asset sales 	Herds reduced by 30% in northern central regions Herds reduced by 5% in Caprivi (average of small and large stock)	<ul style="list-style-type: none"> • Move livestock to better grazing areas • Livestock sale
WESTERN (Erongo & southern Kunene)	None	<ul style="list-style-type: none"> • Rationing • Reduced spending • Borrowing/ credit • Livestock sales • Informal transfers • Migration/split households • Asset sales 	Herds reduced by 50% in northern central regions (average of small and large stock)	<ul style="list-style-type: none"> • Move livestock to better grazing areas • Livestock sale

Source: Adapted from Næraa, *et al.*, 1993: 113 & Devereux, *et al.*, 1993: 40.

RELEVANCE OF A COMMUNITY DROUGHT MITIGATION TRAINING PROGRAMME IN NAMIBIA

The conclusions drawn from this case study regarding the proposed project are as follows:

1. Rural communities in Namibia could benefit from training and support in establishing pre-emptive drought mitigation strategies;
2. rural communities do not have well developed community structures with which change agents can cooperate in developing such a strategy; and
3. any programme aimed at developing drought mitigation strategies at the community level will first require substantial investment in establishing and developing community level institutions and the capacity to allow those institutions to enter into true partnership programmes with the change agents.

BACKGROUND DESCRIPTION OF THE CASE STUDY REGIONS

Given the socio-economic and geographic diversity of the country, two regions have been selected within which to examine the issues relating to drought mitigation in Namibia as observed and recorded during the 1992/93 drought. Although the country has approximately seven distinct socio-economic and physiographic regions (north-west, central north, north-east, west, central, east and the south), little is documented on all but two of the regions. The decision therefore has been to select the two regions which have been most researched and reported on. The choices made will serve to highlight the key issues and differences which face both the wetter and more populated regions, and the more arid and sparsely populated regions of Namibia. In addition, rainfall patterns in Namibia determine that cereal production is limited to the northern and north-eastern areas of the country, with the remainder of the rural areas are reliant on livestock production as the predominant rural economic activity. The regional choices therefore reflect this distribution of agricultural activity in Namibia.

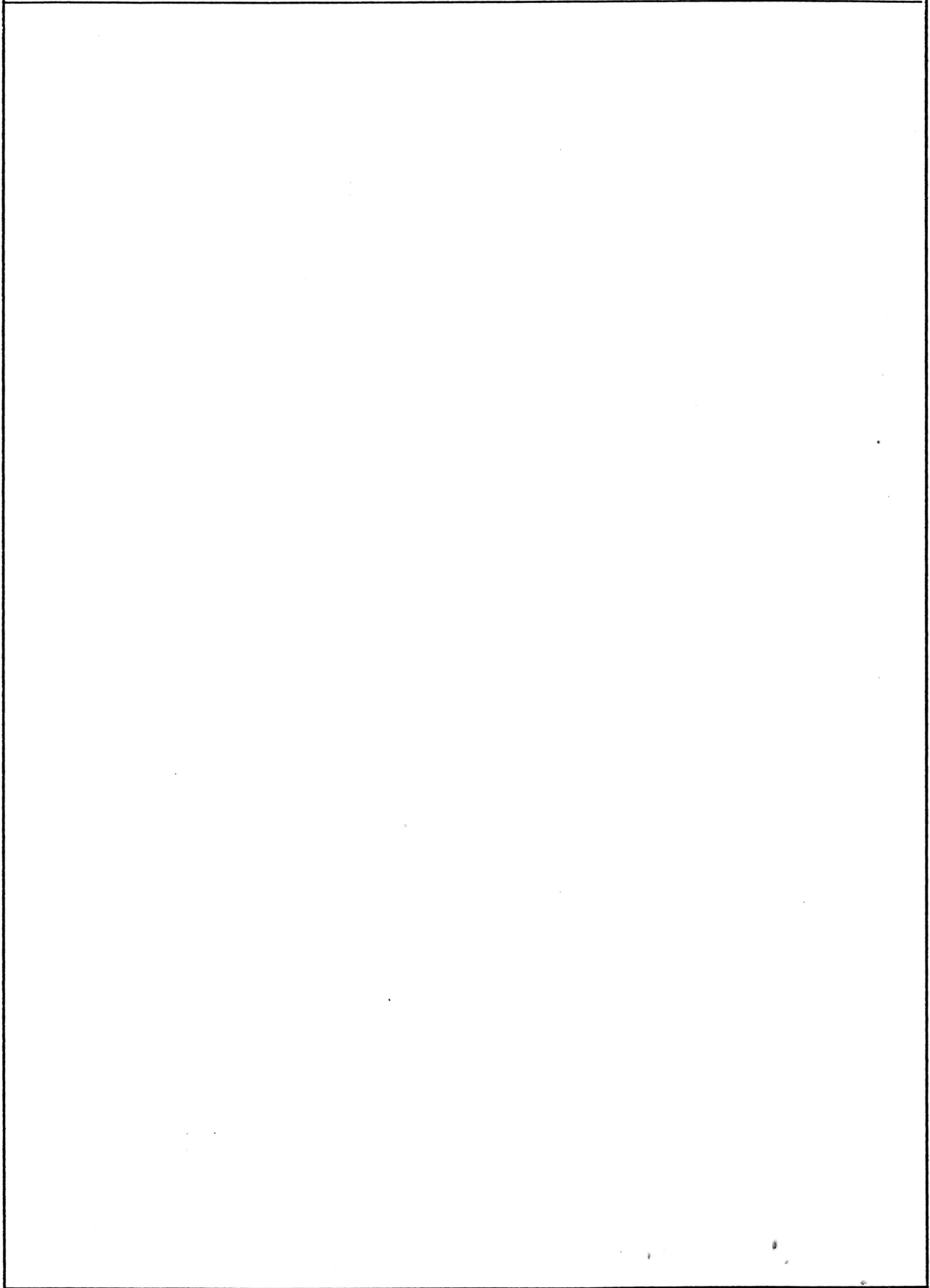
Because of the concentration of rural households within the communal areas, the commercial farming areas have not been considered in this case study. In addition, commercial farm workers are generally not organised at the community level in any way.

The first case study area is drawn from the northern and most densely populated regions in the country. Although there are intra-regional differences, the society and geography is largely homogeneous in terms of social structure and economic activity within the central and eastern north. The regions under consideration are Oshana, Ohangwena, Omusati, Oshikoto, Kavango and Caprivi (Map 1). These regions are cereal and livestock producing areas, and so differ significantly from the other communal areas within Namibia.

The second broad region which has been selected is the western part of Namibia. This includes southern Kunene and Erongo (Map 1). This part of the country is quite distinct from the north in a number of important ways, not least of which is the fact that rainfall limitations make cereal production impossible. These distinctions help to highlight the drought mitigation strategies and issues which this case study explores.

Each case study is examined in some detail according to the headings and questions posed by the case study outline in Section III of the Proposed Strategy.

MAP 1 : REGIONS OF NAMIBIA



BACKGROUND DESCRIPTION OF THE REGION

Regional Overview

The northern central and north-eastern parts of Namibia are home to more than half the national population of approximately 1.5 million (Map 2). The bulk of the population lives in rural villages scattered throughout the regions, although there are a number of important urban centres in which economic activities and social services are focused (Map 3).

Despite being better watered than most of Namibia, drought is endemic, and when coupled with the annual population growth rate of 3.1% (CSO, 1991) and a fragile resource base, economic hardship is a way of life for most rural households and communities. Land is generally under communal ownership, and access to land and concomitant land use patterns are controlled by traditional community leadership structures. Cattle, goats and donkeys make up the livestock component of the rural household economy, with the cultivation of drought resistant crops such as millet and sorghum characterising the cereal production of rural households. To the east in the Kavango and Caprivi regions where rainfall exceeds 500 mm per annum, maize is also grown by rural households for domestic use (Yaron, *et al.*, 1992).

Access to Key Services

Transportation

The regions are well connected with the remainder of the country by a network of hardtop arterial roads. With the imminent completion of the tarring of the Trans-Caprivi Highway which connects the urban centres of Rundu and Katima Mulilo in the extreme east, regional and international access to northern Namibia will be greatly improved.

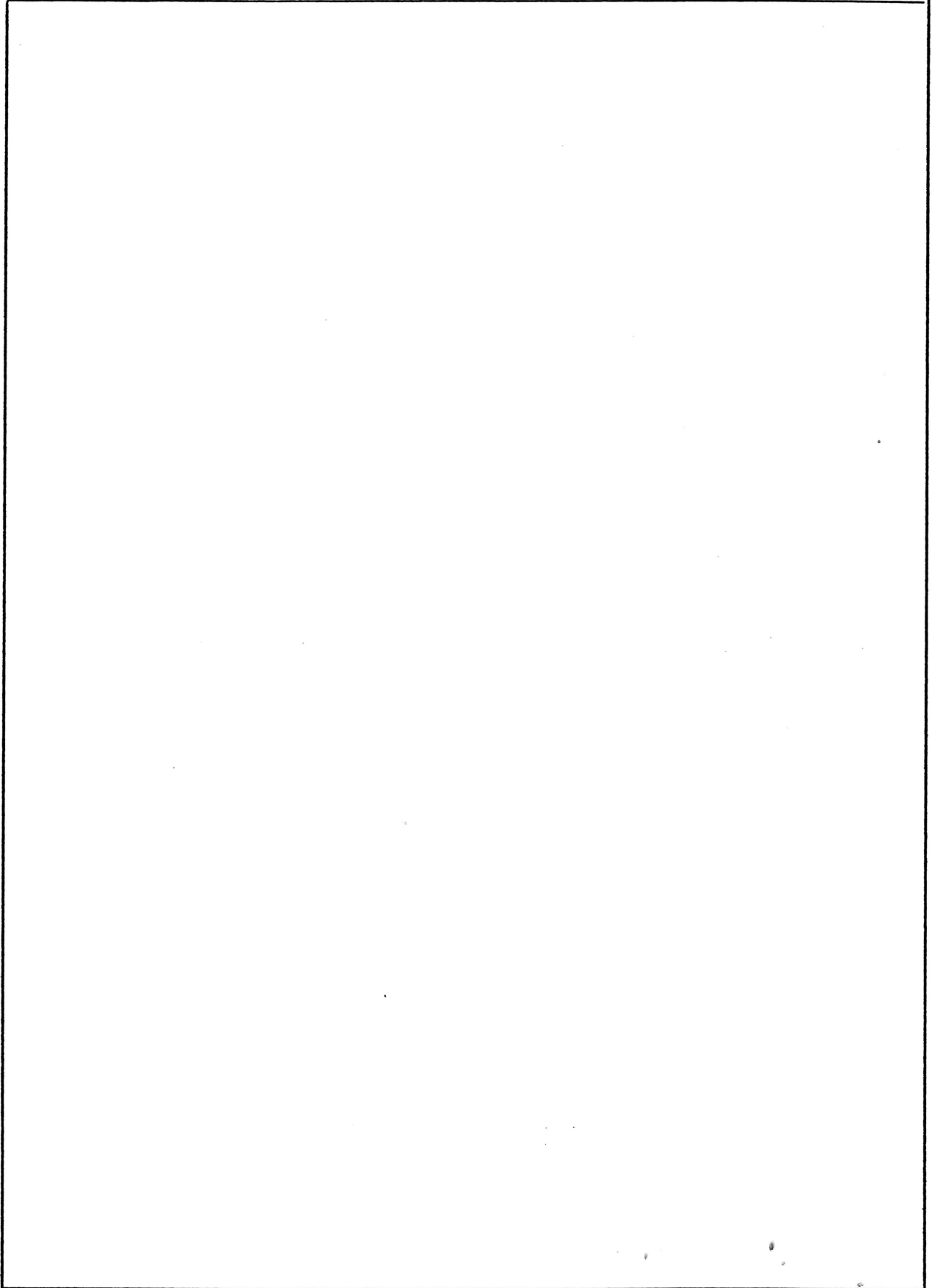
However, the secondary and tertiary rural roads are for the most part gravel and/or sand, and limit vehicular access in many cases to four wheel drive vehicles. Rural villages are therefore remote, and generally not served by public transport of any kind. In contrast, the main centres on the national roads have bus and taxi links to all other centres in the country. This lack of access within the rural areas is a hindrance to development programmes, including the collection of relevant drought data and the distribution of drought aid.

The region has three major airports situated at Ondangwa, Rundu and Katima Mulilo, with secondary aerodromes and a number of airstrips throughout the area. The major airports are capable of handling jet aircraft.

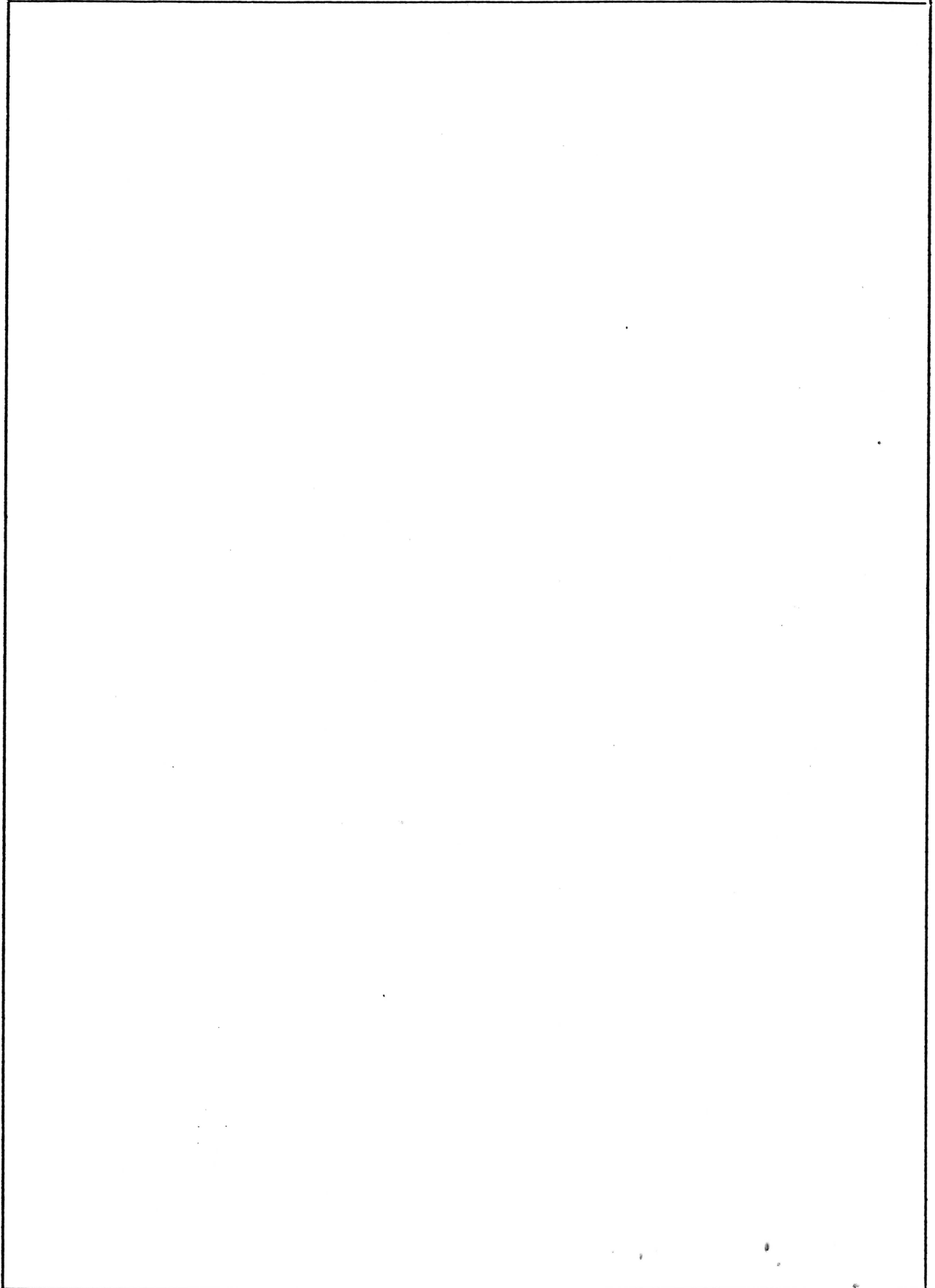
Telecommunications

With the ongoing upgrading of manual exchanges to automatic systems, and the introduction of optic fibres, the region is well served with primary telecommunications infrastructure. Phone calls, faxes, telexes and electronic mail are all possible within the region. However, it is again the more remote rural villages which do not have ready access to these services. The larger centres are generally well connected.

MAP 2 : POPLUATION DISTRIBUTION IN NAMIBIA



MAP 3 : CASE STUDY AREA ONE - NORTHERN AND EASTERN NAMIBIA



Health and Education

The region still faces significant shortages in both qualified personnel and physical infrastructure within the health and education sectors. This is primarily the result of the unequal *apartheid* policies of the previous government, although significant progress has been made since independence in 1990. In particular, the changing emphasis from tertiary to primary health care has greatly improved the access of the rural population to basic health care within the rural areas. In addition, there are tertiary hospitals situated at Oshakati, Rundu and Katima Mulilo which serve the region as a whole.

Infant mortality rates are high within the region, as are maternal mortality rates (UNICEF/NISER, 1991). There is evidence of children in some of the rural areas receiving inadequate nutrition. Malaria is endemic to the entire area, and has a significant impact on the health and productivity of the population. Less quantifiable is the impact of AIDS which appears to be an important health issue within the region, and in particular within the Caprivi Region where international flows of transient people are high.

Despite the substantial government spending on education, literacy levels remain low (World Bank, 1992). This has a direct impact on household productivity and opportunities of household members to participate in a range of economic activities which require education. Again, given the long term nature of education, the greatly improved system now in place in Namibia can only be expected to show dividends some years from now.

Water Infrastructure

The central northern regions are served by water pipelines which extract water from the Kunene River to along the northern Namibian border. This supply is complimented by approximately 300 boreholes, community wells and hand dug dams. Rainfall is highly variable and seldom exceeds 450mm per annum.

Communities to the north-east of the case study area enjoy higher average annual rainfall (>450mm) and proximity to both the Kavango and Zambesi rivers. Again, boreholes, wells and dams are important sources of water for communities living in the region, especially those which are not close to the larger perennial rivers.

Despite the variety of water storage and supply infrastructure within the region as a whole, the fluctuating rainfall patterns and unstable water table make access to water a critical issues for all but those communities living along the Kunene, Kavango and Zambesi rivers on the northern border of the country. Plans to extend the water pipeline exist, and the sinking of additional boreholes across the entire region is ongoing (Frayne, *et al.*, 1993).

Economic Overview

The economy of the region is dependent on household-based agriculture. Livestock and crop production are the mainstay activities. However, it is noteworthy that less than 50% of households have livestock, and that the majority of cropping areas are less than 2ha. It is estimated, however, that in order for an average rural household within this region to subsist approximately 750kg-1000kg of millet is required per annum during normal rainfall years (FAO/IFAD, 1992). This quantity of cereal production would require a minimum of 3 ha of arable land. In addition, more than 30% of rural households do not have access to draught power which is the basis for land preparation. Undertaking land preparation for planting by hand is arduous labour, and largely left to women and children, hence a low level of productivity in many cases, even where access to land exceeds 2 ha (Frayne, *et al.*, 1993). The implications of this situation are multifaceted, and result in high levels of marginal economic stability among rural households, with vulnerability ever-present, both in times of good rain and during drought.

A typical economic pattern is for rural households to have a member (or more) in an urban area. Remittances from urban to rural areas is a common form of economic support at the household level. Welfare supplements in the form of state pensions are also a key economic feature of rural households (Frayne, 1991, Næraa, *et al.*, 1993).

Infrastructure is not well developed for either the cereal or the livestock markets. While selling surplus grain is not easily done, there is evidence that surpluses are transferred to household members in urban areas where the products are sold for cash, part of which is remitted to the rural household as a form of income. Formal livestock marketing is restricted to the areas north of the Veterinary Cordon Fence (known as the Red Line) which effectively cuts off the communal farming areas of northern Namibia from the rest of the country. Northern areas cannot therefore participate in the national and international livestock markets, and are limited to sale for local consumption. The transportation of small stock to the urban centres south of the Veterinary Cordon Fence, and for sale to farmers, appears to happen, although research is required in this regard to quantify the extent of such trade. Besides the commercial abattoirs within the region, livestock is marketed through the informal system of 'bush butcheries'. These occur in the rural and urban areas (Tapscott, 1990).

Political and economic changes within Angola (and other SADC countries) provides a large economic opportunity for the northern regions of Namibia. Despite the war in Angola, trade has continued over the decades, and there is evidence that this is on the increase. In addition, the opening of larger retail outlets and banks in the north is evidence of the economic development of the area. The degree to which this impacts directly on economically marginal rural households is not documented, and is likely to remain low without greater rural and urban integration.

DESCRIPTION OF REGIONAL DROUGHT RISK

Focus on Hazard Pattern

Namibia is an arid country, and erratic rainfall patterns and recurring drought are endemic features of life. Recurrent drought has been well recorded over the past century. What is of particular interest is that not all droughts which Namibia faces are due to a lack of rainfall. Rather, the erratic nature of the rainfall is the cause of numerous economic shocks as a result of agricultural failure. In the region under consideration, the greatest variability occurs in the west where falls vary within a range of 30% to 250% of the average. In the east the variability is still high at 50% to 145% of the annual average (Marsh, 1992). Thus while the mean annual rainfall for a particular year may be within the usual variance parameters, if the timing is off, the agricultural crop for the year may be destroyed. This is what happened in the 1992/93 drought.

The 1991 rains fell as expected. However, in mid-January 1992 the rains stopped, with a devastating agricultural drought which followed. All crops within the northern regions collapsed, and hunger became a major issue for the majority of rural households. While household food security was under threat, national food security remained stable, and the drought did not result in a famine of any kind (Devereux, 1993).

Given the highly seasonal nature of rainfall in the region, together with the history of episodic drought, communities have had to adopt a range of agricultural practices and strategies which help to mitigate the effects of seasonal variations and drought. The most widely practised strategy is that of opportunistic rangeland management (transhumance). Herds are moved across large distances, even into southern Angola, in response to changing patterns of biomass availability. However, the fencing of rangelands, privatisation of communal lands, and cross-border controls have all served to weaken this traditional practice of herd

management. In addition, the unprecedented expansion of the regional cattle herd alone has meant greater pressure on grazing resources, and further degradation. The preliminary results of the 1994/95 Namibian Agricultural Census suggest that the number of cattle in the region has increased as much as tenfold in as little as 30 years (CSO, 1997).

The impact of both below average rainfall or poor timing of rainfall, and drought, is exacerbated by these pressures. The large-scale loss of livestock and crops during the 1992/93 drought can be largely attributed to the restricted transhumance opportunities and grazing pressures, and with the high population growth and numbers of people to feed, a sharp reduction in surpluses available, both for domestic consumption and next season planting.

Boreholes are part of a broader water supply strategy for the region. However, this, together with the sustained low rainfall since 1993, has resulted in a reduction of the regional water table. Communities have generally used a combination of wells and hand dug pits (small dams) to ensure a supply of water throughout the year. During the 1992/93 drought the domestic water supply remained relatively intact. However, water for livestock became scarce. Nonetheless it was the lack of grazing which was ultimately responsible for the majority of livestock deaths recorded.

It is important to note that the depth and quality of groundwater varies across the area (50m-100m). In the west it is saline and suitable only for livestock consumption. The shallow hand dug pits or wells are successful in the west and central area as they access a shallow lens of potable water which overlays the saline water. Boreholes go too deep, tapping water of such poor quality that it is dangerous to human health. In addition, it is too mineralised for irrigation. The quality improves towards the west, and can be used for human consumption.

Since 1993, Namibia has been in the grip of a drought which has meant lower than average rainfall, and boreholes, wells and hand dug pits have been effected. The regional water table has dropped and water supply for domestic and livestock use has been critical in many areas (excluding the areas in close proximity to the perennial rivers). However, 1996/97 has seen tremendous rainfall across the entire country, and the drought is now broken. Wells and dams are replenished.

Besides the perennial rivers mentioned above, the region does not have any significant naturally occurring surface water. The region has a very shallow gradient, making dam construction largely impractical. The significant surface water comes in the form of a two or three year flood of the Cuvelai Delta in the central northern area (Ohangwena, Omusati, Oshana and Oshikoto regions). Flood waters in southern Angola floods down into the 130km wide inland delta system which has as its apex the Etosha Pan (Marsh, 1992). The shallow gradient results in a slow flow rate of the flood waters of some 0.5 metres per second. Although episodic, these floods are important in that the water recharges the groundwater, wells, hand dug pits and open dams, while replenishing grazing, and providing water supply for domestic and livestock consumption (Plan Associates, 1985). These flood waters fill the flat, undulating landscape in a network of shallow dams or *oshana*, which fill with fish. Coming from Angola, the water from these floods exceed the region's annual rainfall. As pointed out though, this phenomenon does not occur each year, and with the increased livestock and population pressures in the region, is insufficient to meet the water requirements of both livestock (grazing) and people, particularly in drought years.

Environmental Vulnerability

The effects of human activity on the environment within the region is well documented (Marsh, 1992; Yaron, 1992; Næraa, *et al.*, 1993; Frayne, *et al.*, 1993). In addition, the high population growth rate of 3.1%, lack of non-agricultural income opportunities, and the low and

variable rainfall patterns result in an increasing pressure on a relatively fragile natural resource base.

Vegetation losses are evident in the form of denudation of ground cover, and deforestation. It is always surprising to observe the greening of a brown and sandy landscape after a dry season or a drought. However, this greening process is under threat with increasing pressure on grazing resources. New shoots are grazed before seeding has taken place, and roots are pulled out as animals scavenge for food. The biodiversity and quantity of the grasses and other surface foliage is under threat. Drought only exacerbates an already problematic situation.

Forests are cleared for fuelwood, fencing, homestead construction, and for increasing grazing lands. Deforestation has "transformed many densely wooded areas into virtually treeless plains since the mid-1970s" (Frayne, *et al.*, 1993). Although a much needed source of income, the curio and furniture industry is also making its mark on the deforestation of the region.

The 20 year guerrilla war in the region and the *apartheid* policies of the previous administration did little to effect positive development in this region. Extension services and environmental efforts seldom assisted local communities in meeting their own development needs. Examples of direct and meaningful community development are difficult to find since independence in 1990. This may have to do with programme objectives and methodology, although in many cases NGOs and donors involved in development have simply not had enough time to effect positive changes. Tangible development has come in the form of physical and social infrastructure from government (such as schools and clinics).

People are certainly aware of the issues and consequences of environmental over-exploitation, but are generally so poor that they cannot put conservation needs ahead of their own survival requirements. Poverty must be a central reason for the lack of community action with regard to environmental protection. That said, community education, and the provision of alternative opportunities by development agencies must be a second and equally important factor which explains the continued non-sustainable use of the natural resources in the region. A key component of such efforts must be the development of capacity at the community level, and the notion of ownership in and control over the products and consequences of development actions and programmes.

Community Capacities/Vulnerabilities

Capacity at community level to participate in development programmes and to effect change at a local level is generally poor in the region. Although capacity varies between communities, the history of development (or non-development) has not emphasised community capacity as an important component of development (Nghikembua, 1996). The result is not only a lack of local level capacity, but also poorly developed institutional structures. In a sense the development process within the region needs to begin not with a series of development projects, but a strategy aimed purely at developing appropriate institutional structures and capacity at community level.

Most communities have at least a few development oriented committees/structures of one kind or another, but the experience is that they are weak and non-integrated. The formal local and regional government structures are new and have had very little time to gain experience or mobilise resources. For most, the concept of community representation through elected officials and councillors is new, and not only do councillors suffer from a lack of capacity and expertise within the context of their positions of office, but communities are likewise ill-equipped to fight for their needs by using the system now in place. It is simply too soon to

evaluate the strengths, weaknesses, successes and failures of community organisations and local and regional government in the development process within the region.

Efforts to alleviate the negative impacts of the 1992/93 drought on communities within the region were limited to the targeting of vulnerable groups through a few government-based strategies. The vulnerable groups were defined as follows:

- children under 5 years of age
- pregnant and lactating mothers
- persons over 60 years of age
- mentally and physically handicapped persons
- persons certified as malnourished by hospital or clinic staff

However, research has indicated that the vulnerable groups not only differ between contexts, but may in fact not be those listed above. For example, young, single men with no employment were found to be a vulnerable group as they had few entitlement exchange opportunities in relation to pregnant and lactating mothers. Moreover, persons over 60 years of age qualify for a state pension in Namibia, resulting in a double subsidy to this group (Næraa, *et al.*, 1993; Adkisen, *et al.*, 1995). Based on this evidence, it is certain that many of the truly vulnerable groups in this region did not qualify for or receive aid during the 1992/93 drought.

The 1992/93 Drought Relief Programme was dominated by two mechanisms for transferring food:

- supplementary feeding to vulnerable groups (as defined above); and
- food-for-work for able-bodied adults

An assessment of the 1992/93 food-for-work programme undertaken in Namibia concludes that the programme was generally unsuccessful for the following reasons (Devereux and Solomon, 1994):

- The programme was too centralised, with decisions being taken in Windhoek;
- the programme lacked the necessary logistical support structure to provide transport and storage required;
- the programme was severely understaffed, and management and technical expertise were lacking;
- communities had difficulty in identifying suitable projects (lack of capacity);
- there was little monitoring and evaluation of projects once underway; and
- beneficiaries became dependent on food and refused to work unless they received food.

The report suggests that food-for-work is not the most efficient mechanism for distributing drought aid, although the benefits to infrastructure development could be a reason for continuing with such a programme. However, it is recommended that the above issues be addressed if the programme is maintained.

It is important to note that the food-for-work-programme was most successful in the more densely populated northern regions, with Caprivi Region accounting for about one third of the

overall activity. This may be due to greater population numbers, superior infrastructure and transport links than in other less accessible and sparsely populated regions.

While this might be the case, the statistics belie the fact that many households within the Caprivi Region suffered as a result of failed food for work programmes. Aimed at supplementing able-bodied persons, where programmes failed the supposed beneficiaries were left with no alternative means of getting food. They did not qualify as vulnerable in terms of the criteria applied, thus plunging young people (usually men) into a grave situation (Næraa, *et al.*, 1993).

Communities responded to the drought in the following ways (Næraa, *et al.*, 1993; Devereux and Næraa, 1995):

- Rationing food consumption;
- exploring and switching to alternative sources of food (wild foods);
- increasing transhumance activities (seeking out better grazing and water supplies further afield);
- migration and splitting households as an income diversifying strategy (and as a means of sharing the burden among other households, for example, sending children to live with a relative);
- selling livestock; and
- selling off household assets, including productive resources such as farm implements (last resort).

Differences were evident between the more fertile and wooded Caprivi Region and the drier and more deforested central northern regions. Opportunities for gathering forest foods were greater in the Kavango and Caprivi regions, whereas reliance on both food and water supplementation was greater in the central northern regions.

Aside from the more 'generic' coping strategies outlined above, what emerged from the literature is that communities themselves did little to deal directly with the 1992/93 drought crisis. Rather, they waited for assistance to be delivered from government, NGOs and donors, and took what was available. The structures and the capacity were not in place to provide the institutional base for aid agencies to work with communities in identifying and implementing mitigation strategies for the drought. Little appears to have changed in this regard since the 1992/93 drought.

Household Vulnerability and Capacity for Drought

Certainly not all households are equally vulnerable. Intra-regional comparisons within the northern areas show that those households situated in the more fertile and verdant Kavango and Caprivi regions have greater access to a range of alternative food sources than do households living in the central northern regions. In addition, the north-eastern areas are less prone to drought and rainfall fluctuations. The evidence suggests that the households which are more susceptible to drought are probably better able to cope with drought, and have developed better drought mitigation strategies (Devereux and Næraa, 1995).

Within homogeneous local areas, differences in vulnerability, from least vulnerable to most vulnerable, are attributed to at least the following criteria:

- Employment in the local formal sector of at least one household member reduced the impact of the drought on the household significantly;
- regular remittances from relatives in urban areas with formal jobs;
- members of households drawing a pension;
- members of the household involved in informal sector activities (piece-work, brewing beer, hawking); and
- no employment or cash income at all (reliant only on agricultural produce).

As discussed under the previous point, all communities within the region responded to the 1992/93 drought in the classic manner, commencing with rationing, switching to alternative local food sources, relying on food aid, migrating to other areas, usually urban, split households, selling households assets, and so forth. These are normal human responses to the severe economic stress of drought which impact all members of households, with the poorest suffering the most.

RELATIONSHIP BETWEEN AGENCY/ORGANISATION AND COMMUNITY

As discussed in the opening section of this report, the case study outline makes the assumption that change agencies and communities in Namibia have had an association sufficiently long to have evolved into a shared awareness that recurrent drought should be factored into community development planning. This has not yet happened, and community development as a strategy and process have much ground to cover before such a situation is achieved.

Given the circumstances described, the challenge for Namibia is to identify the potential opportunity within communities which could include drought mitigation as an overt development objective. The first step after identification would be to build capacity and ensure suitable institutional structures so that so-called change agents can begin to work together on drought mitigation (and other development issues).

COMMUNITY ASSESSMENT AND PLANNING PROCESS

The information used in this case study comes from a variety of sources. The most significant sources are research reports which used a variety of quantitative, qualitative and secondary data collection techniques to determine and assess the impact of the 1992/93 drought on household vulnerability.

No direct work with communities (aside from survey work) has been undertaken, either as a method of assessment, or as a means of planning a strategy together. Again, this is important work which remains to be done in Namibia.

IMPLEMENTATION, REFLECTION ON EFFECTIVENESS OF THIS INTERVENTION, AND CONCLUSIONS

Within the context of the above comments, no direct community drought mitigation projects are known to have as yet been implemented in Namibia. Conclusions based on both case study regions are drawn together at the end of the document.

BACKGROUND DESCRIPTION OF THE REGION

Regional Overview

In contrast with the first case study region, the western area of Namibia is remote, arid, and sparsely populated. Bordering the eastern fringe of the Namib Desert, communities rely on livestock for their survival. The 1992/93 had a devastating impact on the livelihood economies of these communities, with cases where all livestock were lost as a result of a combination of no grazing and no water. The population of the area is approximately 100 000 (CSO, 1991), or 0.07% of the country's total population (Map 2). The two large coastal towns of Walvis Bay and Swakopmund are situated in the desert with non-agricultural economic bases, and so the drought posed no real threat to survival. However, the picture in the hinterland was quite different. The regional capital is Khorixas, a small town which was significantly affected by the drought. Not only was in-migration of destitute rural people a factor, but Khorixas was used as the central administrative point for the drought aid programmes which were implemented in the region. Other small settlements include Okombahe, Uis, Omajette, Fransfontien, Bersig and De Riet (Map 4).

Regional rainfall is less than 30mm per annum in the desert, and increases moving west to reach a maximum mean of 50mm. Variability is high, and rainfall patterns unpredictable. It is clear from these figures that any significant departure from annual averages, or a large degree of season variability will impact severely on a very fragile economic system. Indeed, as the discussion below indicates, the 1992/93 drought produced devastating effects on livestock rearing rural households throughout the case study region.

Access to Key Services

Transportation

The area as a whole is poorly served by roads. The main regional roads are gravel, although regularly maintained. In contrast, the secondary and tertiary rural roads are in poor condition, and virtually all require a four wheel drive vehicle to negotiate them. Communities are sparsely scattered through the area, connected by poor quality roads, and with few suitable vehicles available, are consequently isolated from many important social services. This high degree of inaccessibility also had a direct impact on the ability of aid workers to reach communities in need during the 1992/93 drought.

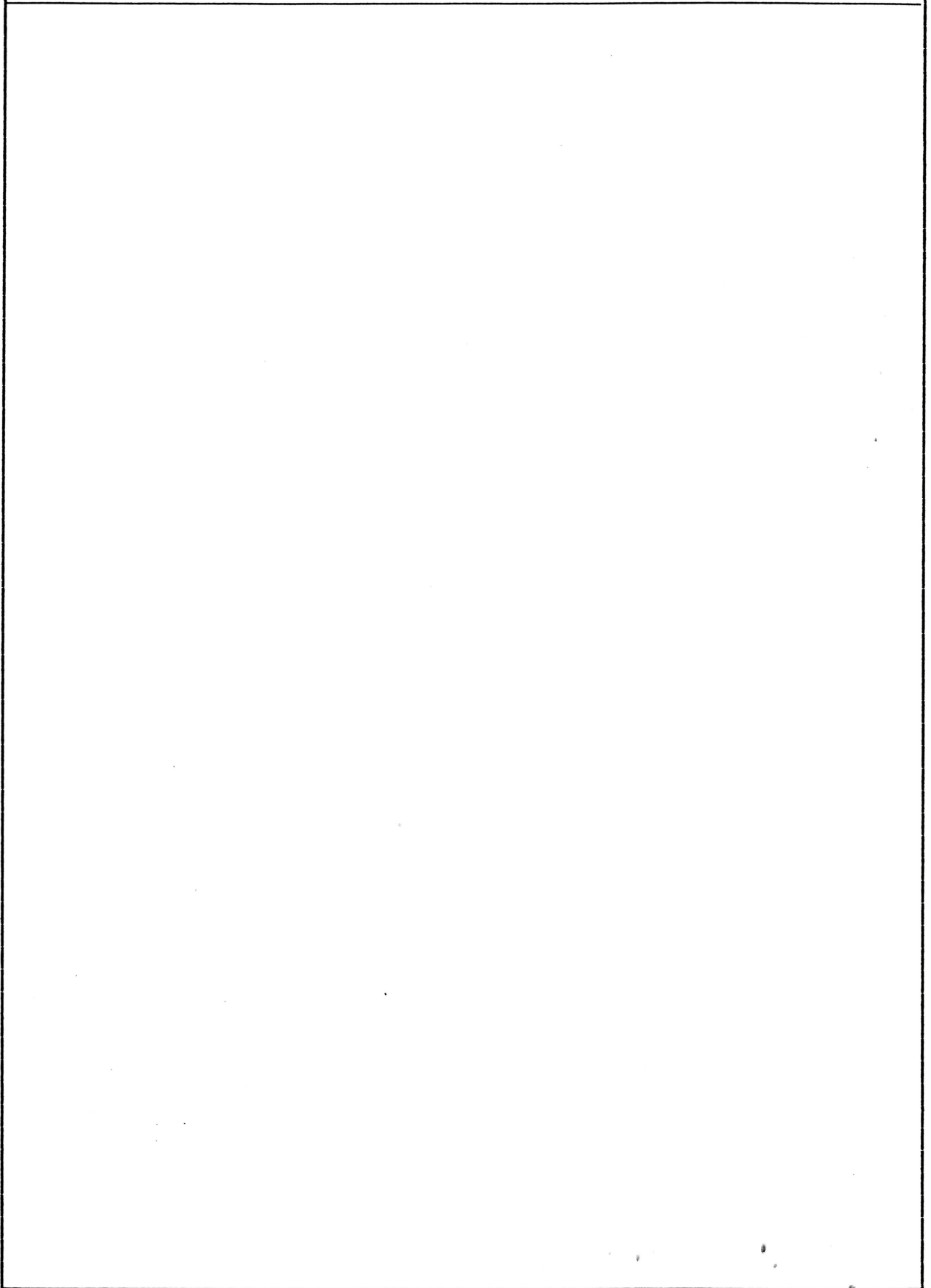
Telecommunications

The larger settlements have access to telephones, but in general most rural households are out of reach of any form of telecommunication facilities.

Health and Education

The region is poor and faces significant shortages in both qualified personnel and physical infrastructure within the health and education sectors. The distances between settlements and low population densities mitigate against the provision of adequate facilities in this regard. The regional centres have schools, and in most instances, rural households send their children to schools in urban areas outside of the region. Khorixas has a tertiary health facility, and the rural areas are served by a mobile clinic system. However, distances and poor road quality mean that many rural communities receive inadequate health care, and must travel to an urban centre should they require medical attention.

MAP 4 : CASE STUDY AREA TWO - WESTERN NAMIBIA



Water Infrastructure

Wind pumps are a central feature of the region's water infrastructure, with almost every community having access to one. The sub-terranean water is generally potable, although the depth of the water table and water quality vary from site to site. The 1992/93 drought not only impacted biomass regeneration throughout the region, but also reduced the water table to such an extent that water had to be trucked into many of the remote communities.

Economic Overview

The rural economy of the region is dependent on small scale (semi-) subsistent livestock farming. The Government of Namibia and Rössing Uranium are the two largest formal employers, with Swakopmund and the fishing industry in Walvis Bay providing alternative non-agricultural income sources. However, with the exception of the coastal towns, "the formal economy is small, and appears to hold little potential for significant growth" (Næraa, *et al.*, 1993). In addition, "the high level of utilisation of the brittle environment for livestock rearing inhibits any significant expansion of the agricultural sector within Erongo" (Næraa, *et al.*, 1993). Although the formal wage economy is important to the region, less than half of rural households have one or more members earning a regular salary. Reliance therefore on agricultural economy is widespread for almost all rural households.

The informal economy is small in the region. Mining tin and selling semi-precious stones to tourists are important activities, as is piecework. However, the sparsely distributed population and limited natural resources translates into few informal income generating opportunities within the region.

DESCRIPTION OF REGIONAL DROUGHT RISK

Focus on Hazard Pattern

The eastern regions of Namibia are drought prone and fragile. Economic stress follows closely and directly behind environmental shocks. The 1992/93 drought proved to be no exception. With rainfall averages below 50mm per annum across the region, drought and aridity are a way of life. Rainfall variability is between 50% and 80% of the average annual deviation for the country, and evaporation rates are between 2 600mm and 3 400mm per annum (Næraa, *et al.*, 1993). The region experiences drought patterns congruent with the rest of the country and sub-continent, although the highly marginal nature of the area makes the impact at the household level a very direct one.

The ecological and hydrological systems within the region are complex and highly sensitive to change. The Desert Research Foundation of Namibia (DRFN) has studied these systems extensively (1995/96). However, they are too complex to detail in this report. The important issue is that drought is common and recurring, and that with recent increases in human and livestock population numbers, the system is under threat. The consequences will be most directly felt amongst rural households, and with few formal economic opportunities in the region, poverty is likely to continue to increase under current land use patterns.

Environmental Vulnerability

The effects of human activity on the environment within the region is apparent in the desertification and deforestation evident. Population pressures and the inability of the formal sector to meet the income needs of a growing population, poor levels of education, illiteracy, and a lack of investment (historically and at present), all contribute to the ongoing over-

exploitation of the natural resource base of the region. The ability of the environment to recover each season is reduced through overgrazing and deforestation practices. This situation is made worse by the occurrence of drought when already burdened resources are stretched to the limit (and beyond). Part of any community-based drought mitigation study must therefore include the issue of environmental resource management.

Community Capacities/Vulnerabilities

Typical of most of Namibia, capacity at community level to participate in development programmes and to effect change at a local level is generally poor in the region. A long history of top-down planning and development strategies (or lack thereof) have contributed to this situation. The small communities and the distances between people and places also makes community mobilisation and participatory development difficult.

While drought directly increases poverty and suffering within all communities in the region, these communities are better able to cope with drought than the better resourced areas of the country. Entitlements decreased during the 1992/93 drought as a result of the loss of income from the loss of livestock (poorer quality and death), placing an increased economic pressure on most households. The generally marginal economy of the region as a whole resulted in few changes in the informal transfers at a household level (Næraa, *et al.*, 1993). However, the increase in formal transfers did assist households to survive the drought.

Given the vast distances associated with this region, and the overwhelming influence of the Namib Desert, transhumance opportunities are extremely limited as a coping mechanism for rural households. Clearly moving livestock to more favourable locations on a seasonal basis occurs and is important, but during a drought period, grazing disappears across the region.

Research carried out in the region indicates that those households which have some form of steady cash income are best off during drought times, and that the more reliant a household on livestock, the more rapid and influential the effect of drought on the household economy. It is important to note that although a cash income makes a household more resilient to drought shocks, that income is called upon by a greater number of people (informal transfers) during times of stress. The result is that few wage earning households within the region escape the negative impacts of drought (Næraa, *et al.*, 1993; Devereux, *et al.*, 1993).

Efforts to alleviate the negative impacts of the 1992/93 drought on communities within the region were limited to the targeting of vulnerable groups through a few government-based strategies. The vulnerable groups were defined as follows:

- children under 5 years of age
- pregnant and lactating mothers
- persons over 60 years of age
- mentally and physically handicapped persons
- persons certified as malnourished by hospital or clinic staff

However, research has indicated that the vulnerable groups not only differ between contexts, but may in fact not be those listed above. For example, young, single men with no employment were found to be a vulnerable group as they had few entitlement exchange opportunities in relation to pregnant and lactating mothers. Moreover, persons over 60 years of age qualify for a state pension in Namibia, resulting in a double subsidy to this group (Næraa, *et al.*, 1993; Adkisen, *et al.*, 1995). Based on this evidence, it is certain that many of

the truly vulnerable groups in this region did not qualify for or receive aid during the 1992/93 drought.

The 1992/93 Drought Relief Programme was dominated by two mechanisms for transferring food²:

- supplementary feeding to vulnerable groups (as defined above); and
- food-for-work for able-bodied adults

An assessment of the 1992/93 food-for-work programme undertaken in Namibia concludes that the programme was generally unsuccessful for the following reasons (Devereux and Solomon, 1994):

- The programme was too centralised, with decisions being taken in Windhoek;
- the programme lacked the necessary logistical support structure to provide transport and storage required;
- the programme was severely understaffed, and management and technical expertise were lacking;
- communities had difficulty in identifying suitable projects (lack of capacity);
- there was little monitoring and evaluation of projects once underway; and
- beneficiaries became dependent on food and refused to work unless they received food.

The report suggests that food-for-work is not the most efficient mechanism for distributing drought aid, although the benefits to infrastructure development could be a reason for continuing with such a programme. However, it is recommended that the above issues be addressed if the programme is maintained.

It is important to note that the food-for-work-programme was most successful in the more densely populated northern regions, with Caprivi Region accounting for about one third of the overall activity. This may be due to greater population numbers, superior infrastructure and transport links than in other less accessible and sparsely populated regions. In contrast, the drier areas in the south had only a three percent participation of the national total (Devereux and Solomon, 1994). This suggests that the arid and less densely populated west would probably have been less.

The western regions of Namibia not only received food (from government and the International Federation of the Red Cross-IFRC) through the programme, but livestock were targeted through fodder subsidies. These assisted farmers to save at least some of their animals. However, like the food distribution, it was erratic and many rural households and communities did not receive any aid at all (see Appendix 2, De Riet Community Case Study for greater detail).

Communities responded to the drought in the following ways (Næraa, *et al.*, 1993; Devereux and Næraa, 1995):

- Food rationing;
- extending credit at stores for food;
- relying on food aid, food-for-work programmes, and fodder aid for animals;

² Much of this text is repeated from the previous case study region, as the Drought Relief Programme was applied in much the same way across the country. Regional differences have been highlighted.

- increasing transhumance activities (seeking out better grazing and water supplies further afield);
- selling livestock (usually at low prices);
- migration and splitting households as an income diversifying strategy (and as a means of sharing the burden among other households, for example, sending children to live with a relative); and
- selling off household assets, including productive resources such as farm implements (last resort).

Aside from the more 'generic' coping strategies outlined above, what emerged from the literature is that communities themselves did little to deal directly with the 1992/93 drought crisis. Rather, they waited for assistance to be delivered from government, which in this case was minimal and erratic, and the IFRC which took the lead role in the region. The structures and the capacity were not in place to provide the institutional base for aid agencies to work with communities in identifying and implementing mitigation strategies for the drought. Little appears to have changed in this regard since the 1992/93 drought.

Household Vulnerability and Capacity for Drought

Within homogeneous local areas, differences in vulnerability, from least vulnerable to most vulnerable, are attributed to at least the following criteria:

- Employment in the local formal sector of at least one household member reduced the impact of the drought on the household significantly;
- regular remittances from relatives in urban areas with formal jobs;
- members of households drawing a pension;
- members of the household involved in informal sector activities (piece-work, brewing beer, hawking); and
- no employment or cash income at all (reliant only on agricultural produce).

Again, all communities within the region responded to the 1992/93 drought in the classic manner, commencing with food rationing, switching to alternative local food sources, relying on food aid, migrating to other areas, usually urban, split households, selling household assets, and so forth. The biggest issue in this region is that the drought resulted in substantial livestock losses (more than 50% for many households and communities), and this greatly reduced their ability to access cash required to purchase food.

RELATIONSHIP BETWEEN AGENCY/ORGANISATION AND COMMUNITY

As discussed in the opening section of this report, the case study outline makes the assumption that change agencies and communities in Namibia have had an association sufficiently long to evolve into a shared awareness that recurrent drought should be factored into community development planning. This has not yet happened, and community development as a strategy and process have much ground to cover before such a situation is achieved.

Given the circumstances described, the challenge for Namibia is to identify the potential within communities which could include drought mitigation as an overt development objective. The first step after identification will be to build capacity and ensure suitable institutional structures so that so-called change agents can begin to work together on drought mitigation (and other development issues).

COMMUNITY ASSESSMENT AND PLANNING PROCESS

The information used in this case study comes from a variety of sources. The most significant sources are research reports which used a variety of quantitative, qualitative and secondary data collection techniques to determine and assess the impact of the 1992/93 drought on household vulnerability. No direct work with communities (aside from survey work) has been undertaken, either as a method of assessment, or as a means of planning a strategy together. Again, this is important work which remains to be done in Namibia.

IMPLEMENTATION, REFLECTION ON EFFECTIVENESS OF THIS INTERVENTION, AND CONCLUSIONS

Within the context of the above comments, no direct community drought mitigation projects are known to have as yet been implemented in Namibia.

Conclusions based on both case study regions are drawn together in the following section.

CASE STUDY CONCLUSIONS

GENERAL CONCLUSIONS

Based on the case study material presented in this report, and in an attempt to address the questions posed under point 1. Introduction in Section III of the Project Strategy, the following is concluded:

1. Drought mitigation strategies are practised at household level, rather than community level;
2. Households and communities which live in areas with a high incidence of drought are more drought resistant than households and communities which live in better watered and resourced areas, despite the fewer drought mitigation and coping opportunities available to households living in more marginal areas;
3. demographic methods of determining vulnerability as currently employed are not as effective as methods could be if based on geographic criteria. Demographic criteria often neglect the most needy individuals and households, while targeting those with steady entitlements such as pensioners, and are not always appropriate to the needs of the area;
4. in light of Namibia's efficient marketing system, to be most effective drought aid should be based on cash supplements (pension supplements and possibly cash-for-work) and food voucher systems, rather than food distribution and food-for-work programmes;
5. it is as yet not possible to determine which approaches and/or skills would best support community efforts to reduce drought risk; and
6. it is premature to make recommendations on priorities for practitioner training as envisaged in the programme.

It is important to emphasise that the conclusions drawn are generalisations based on the case studies. However, it is recognised that in certain communities drought committees and/or development committees do exist, and are working with NGOs and other change agents as part of the development process. The impression is that these structures, where they exist, are weak and lack capacity and resources to be properly effective. Yet without further research on this aspect of community-based development it is not possible to say anything further.

IMPLICATIONS FOR THE PROJECT IN NAMIBIA

Of direct relevance to the objective of establishing a programme aimed at enhancing community drought mitigation strategies in Namibia are the three following conclusions drawn from the 1992/93 drought case study:

1. Rural communities in Namibia are drought-prone;
2. rural communities employ a range of drought mitigation strategies, some of which are indigenous and some of which are provided by donor and government agencies (such as food aid); and
3. rural communities do not have a history of cooperation with so-called change agents with regards to either development generally, or drought mitigation strategies in particular.

The implications of this situation for the programme under consideration are as follows:

1. Rural communities in Namibia could benefit from training and support in establishing pre-emptive drought mitigation strategies
2. Rural communities do not have well developed community structures with which change agents can cooperate in developing such a strategy
3. Any programme aimed at developing drought mitigation strategies at the community level will first require substantial investment in establishing and developing community level institutions and the capacity to allow those institutions to enter into true partnership programmes with the change agents.

RECOMMENDATIONS

Additional Research Required

As important as a programme aimed at improving community level drought mitigation strategies might be for a drought-prone country such as Namibia, based on the information available, it appears to be premature to be attempting to develop a training programme. The following issues need to be addressed *a priori* in the development of any such training programme in Namibia:

1. An assessment is required of the current situation regarding community structures and institutions, their objectives, strengths and weaknesses, and their relationship to change agents (bearing in mind that Namibian society and geography is highly varied, case studies from a range of typical areas would have to be done);
2. a strategy for strengthening existing institutions (capacity) and setting up institutions where needed at community level is required as a point of reference for any develop partnership programme; and
3. based on these outcomes a set of priorities for practitioner training could be considered and developed.

Pilot Programme

This conclusions suggests that not enough is yet known about community structures, institutions, capacity and active change agents in the development process in Namibia. In addition, not enough is known about drought mitigation strategies at the community level which have been planned as part of the development process (if any). Also, the findings suggest that coping strategies and development needs vary from community to community, reflecting the heterogeneity of the Namibian society.

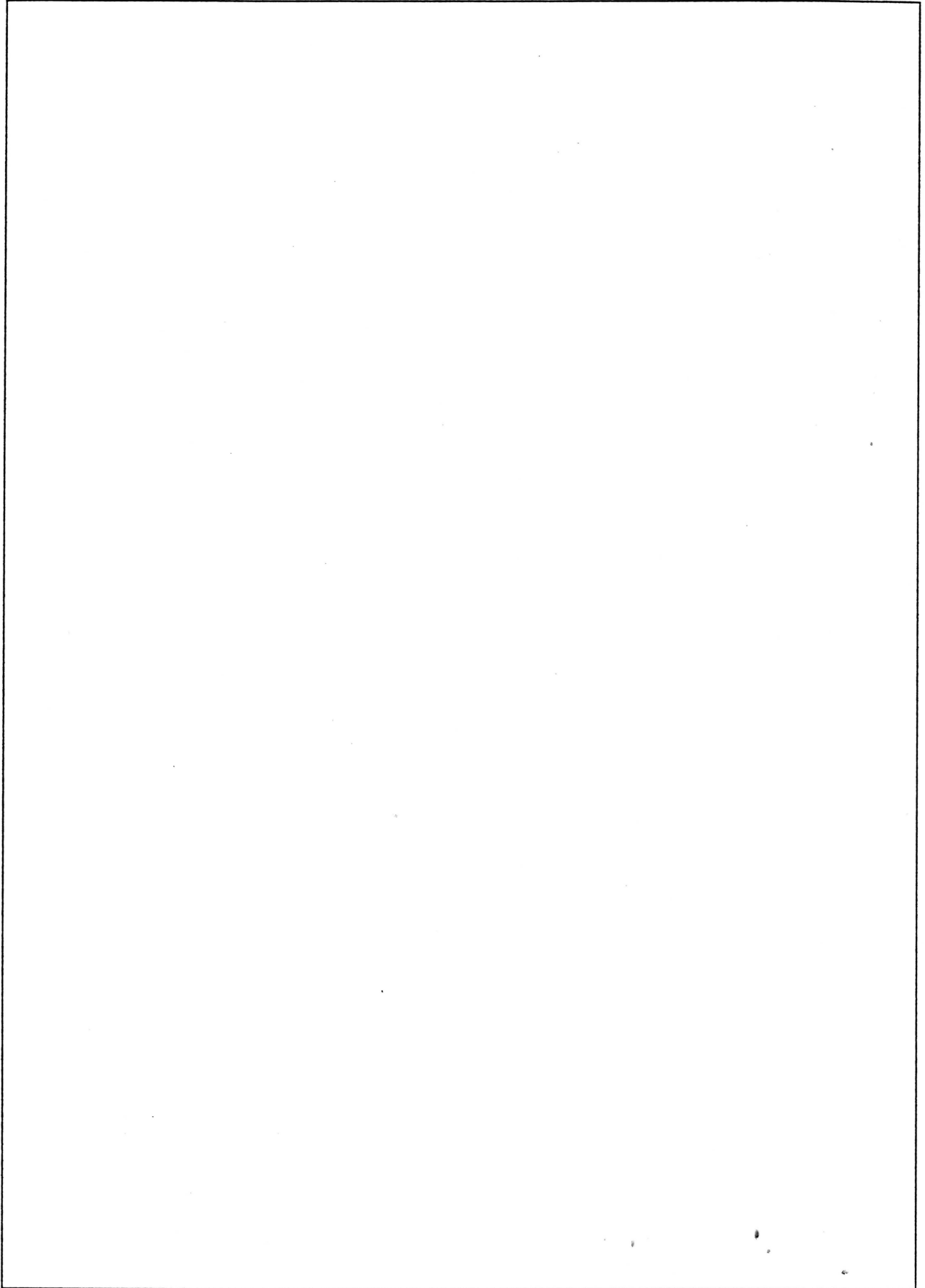
Given the findings outlined above, it appears that much work is required as a foundation for developing a training programme which is the aim of the project. However, just because Namibia does not have a history of community-agency partnerships, and in drought mitigation in particular, the project could still be used to contribute significantly to improving community drought mitigation practise. It is suggested that two communities be selected in Namibia as pilot case studies. They should be selected from two different areas of Namibia (for example one from a cereal and livestock producing area and one from an area where only livestock farming is possible) to allow a degree of extrapolation of the findings to other similar communities in other parts of the country. The research requirements identified above could

then be carried for those communities, identifying structures, institutions, capacity and training needs at the community level.

A process of monitoring and evaluating the pilot projects would have to be an integral part of the method. Based on the results of a monitoring and evaluative process, a training programme could be developed and implemented which has both an institutional development and capacity building component, and a drought mitigation component. This could be done in conjunction with local change agents and the community, providing the foundation required for the implementation of the training programme proposed in this project.

The experience of the pilot study could then form the basic method for extending such a programme to other communities in the country, on a community by community basis. This use of project funds would assist in establishing a sustainable approach to drought mitigation as part of the broader development of drought-prone communities in Namibia. This could help to avoid the pitfall of trying to devise and implement a project in a context which may not yet be ready to make good use of it.

APPENDIX 1 - COMMUNITY CASE STUDY: IBBU



APPENDIX 2 - COMMUNITY CASE STUDY - DE RIET

