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# **Drought in Botswana: Intervention as Fact and Paradigm**

*Gloria Jacques*

## **Abstract**

*This paper provides an account of the recent history of Botswana in relation to recurrent drought conditions and changing economic circumstances. The effects of drought in Botswana are examined with reference to vulnerable groups and the nature of their susceptibility to this form of natural disaster. An in-depth analysis of Botswana's Drought Relief and Recovery Programmes considers concepts such as income support and investment protection. A review of preventive and palliative measures, which have been introduced in Botswana attempts to identify effective patterns of response and residual areas of need. The concept of development related drought strategies is considered from the perspective of actual and possible modalities for implementation. Analytical focus is directed to the integration of drought relief and development planning. The paper's conclusion highlights the benefit of sustainable development for all as opposed to income support for vulnerable groups during typically extended periods of drought in Botswana.*

## Introduction

Natural disasters, among which drought is prominent, occur worldwide, but predominantly manifest themselves in underdeveloped countries where their impact is greatest and their outcomes more keenly felt. For a proper understanding of such occurrences we have to examine the processes of development and underdevelopment (Van Apeldoorn, 1981).

True development is an ecological process in which a society increases its capacity for dealing with the environment, including extreme environmental conditions that produce disaster. This coping capacity depends on three basic factors: the extent to which society understands the laws of nature, that is, science; the extent to which society puts that understanding into practice in the form of technology; and the manner in which society is organised (Baird et al, 1975). On all three levels underdeveloped nations are at risk and more likely to be devastated by the effects of severe and/or prolonged drought conditions within their borders.

It is important to view drought as an extreme situation that is implicit in the everyday condition of the population. The focus, therefore, must be on people rather than on climate, other natural conditions, or technology, and it should be addressed within the scope of the relevant physical, socio-political, and economic conditions of the society in which it occurs (Van Apeldoorn, 1981).

Drought, especially in the developing countries of the world, can turn the number of those who are vulnerable into the majority of the population in a relatively short space of time. It not only alters daily and seasonal earnings but destroys the future remunerative capacity of individuals and families. As the drought season advances many more people pass into the "most vulnerable" category through loss of employment or selling off of cattle and other assets in order to survive. Disease, malnutrition, and forced migration diminish the capacity to regain, in a short space of time, former levels of productivity (Thompson, 1993).

Drought has been defined as "..... a period in which moisture availability falls below the current requirements of some or all the living communities in an area and below their ability to sustain the deficit without damage, disruption, or excessive costs" (Hewitt and Burton, 1971).

Although droughts affect whole societies and regions the most vulnerable groups and areas should be identified in an effort to address the situation and render assistance. In the Southern African region in general, and Botswana in particular, the following groups are more likely to be vulnerable to drought.

A. Households:

- 1) which are female-headed -- with relatively low access to jobs, remittances or pensions;
- 2) with high economic dependency ratio -- consisting of few adults and many children, and having disabled and elderly members; and
- 3) with displaced families.

B. Age groups consisting of:

- 1) children from birth to five years of age;
- 2) children of primary school age;
- 3) street children; and
- 4) the elderly with insufficient land, family support, or state aid.

C. Employment groups:

- 1) the unemployed;
- 2) seasonal workers on farms; and
- 3) casual labourers in both urban and rural areas.

D. People who live in:

- 1) remote areas with inadequate transport networks;
- 2) water scarce areas;
- 3) infertile and/or land scarce areas -- type/amount of available land unable to support the population (Thompson 1993).

The numbers of people in Southern Africa who would fall into one or more of these categories is immense. The issue, therefore, poses a serious challenge to policy-makers with limited resources.

One of the concomitants of drought is the issue of food security or access to adequate amounts of food at both national and household levels. The Committee on World Food Security of the United Nations Food and Agricultural Organization (FAO) defined food security in terms of production, supply, and access:

"Food security should have three specific aims, namely ensuring production of adequate food supplies; maximising stability in the flow of supplies; and securing access to available supplies on the part of those who need them" (Council of Food and Agricultural Organization (FAO), 1983, p.6)

The drought of 1991/92 in Southern Africa has prompted the Southern African Development Community (SADC) to attend to production, supply, and access as well as to the monitoring of the demand aspect of food security in the region. This was because the early warning system established to forecast crop production and importation provided little information about the food insecure and the source of their insecurity. Thus, the focus on people and their needs is of paramount importance in addressing the issues of drought in general and food security in particular.

## **Background to Botswana**

At Independence (1966) Botswana was one of the poorest countries in Africa. The population was overwhelmingly rural and totally dependent for its existence on agriculture. Beef production was the mainstay of the economy but both livestock and arable agriculture had been severely affected by a prolonged and insidious drought which eventually lasted, almost unabated, from 1959 to 1973.

Later the severe drought of the 1980s affected the pattern of urban and rural settlement in Botswana. In urban areas water restrictions meant no development of serviced land. In rural areas, many Remote Area Dwellers (RADS) became less nomadic and there was a distinct increase in the rate of rural-urban migration in search of employment. Drought also encouraged people to congregate near more secure water supplies. Thus the major villages experienced an increase in population. Concurrently, expansion of boreholes into more remote areas allowed development of settlements in areas which had previously been exclusively farmland.

However, the bleak *economic* outlook of the 1960s was transformed after the establishment of the diamond mining industry in Botswana. Government revenue from diamond sales grew very rapidly between 1980 and 1992 (Midterm Review of National Development Plan 7 (NDP 7), 1994). Consequently, there was rapid development and, by 1989, 90% of school age children were enrolled in primary schools and 30% of secondary school age children were attending senior schools. Rural village water supplies which, in 1966, were largely in the form of reticulated boreholes, developed to the extent that, in 1990, 80% of villages had access to potable water. Building of rural roads improved access to, and communication with, rural areas. By 1990 primary health care strategies had ensured that about 85% of the rural population lived within 15 kms of a health facility (NDP7, 1991).

Also, from 1980 to 1990 real Gross Domestic Product (GDP) grew at an average rate of 10.1% per annum. For the period 1992 to 1997 the Ministry of Finance and Development Planning expects real GDP to grow at an average of 4.7% per annum and from 1998 to 2003 at a rate of only 3.5% (Midterm Review of NDP7, 1994).

According to the population census of 1991, the rate of population growth between 1981 and 1991 was 3.5% p.a. but this rate appears now to be falling. Although population density is low in Botswana, it is high relative to the country's fragile resource base. This rapid rate of population growth makes it difficult for the government to improve basic services at a sufficiently rapid rate. Population is growing fastest among the poor which exacerbates the development crisis and perpetuates poverty. Also, the larger the population the greater the damage to Botswana's fragile environment.

The country is already experiencing a growing shortage of food, agricultural and grazing land, firewood, and water. These factors are made worse by recurrent periods of drought. The higher the rate of population growth the harder it will be to conserve the natural resources and ensure that economic growth is sustainable. It is significant, in this context, that according to the United Nations Development Programme (UNDP) Human Development Report of 1993, 0.7 million of the total population of about 1.3 million in 1991 lived in absolute poverty, and that half of the rural population at that time were in a similar socio-economic condition. Whereas rural development is vital to bolster the living standards of populations in poverty, by the same token development is problematic because of the ongoing drought scenario and the fragility of the natural environmental resource base.

## Drought in Botswana

As drought is closely associated with rural factors related to population and development, this discussion focuses on the rural sector in Botswana. This is with the understanding that, within the parameters of systems analysis, processes that impact upon one sector of society must, of necessity, affect all other sectors to a certain extent.

Given the fragile resource base, multiple constraints to economic development, and the existence of disadvantaged groups within the rural population, drought is an additional problem in a development process already fraught with difficulties. It is a recurrent phenomenon in Botswana and its impact depends on the state of preparedness of the economy, institutions, groups, and individual households. The most direct effect of drought is on productive activities dependent upon rainfall, primarily arable crops (in the season during which the drought manifests itself) and then livestock, as water sources dry up and the range becomes exhausted *over several seasons*.

Two distinct outcomes of drought have been identified as:

Reduced household income leading to a *decline in food entitlements*. In other words, loss of incomes for the poorest households reduces their ability to obtain food. Rural households are particularly susceptible to the effects of drought as rainfed agricultural activities contribute to household incomes. The most vulnerable are members of resource-poor households as they depend most on arable agriculture, either by working as agricultural labourers or growing their own crops. Drought, then, can place these groups temporarily below the poverty line.



The second outcome is *capital losses* whereby survival strategies of drought-wracked households lead to the disposal of property, especially productive assets such as draught animals. This could culminate in a situation where their temporary poverty becomes permanent, as the sale of productive assets to supplement current income also reduces *future* earning potential. For resource-rich households loss of cattle reduces wealth but for the poor such disinvestment may become irreversible (Oxford Food Studies Group, Volume I, 1990).

Thus, the rural poor are the most vulnerable to drought and each incidence tends to worsen their poverty and increases their vulnerability to the phenomenon. However, drought is not the only cause of poverty in Botswana. Resource constraints, rapid population growth, the widely dispersed rural population, and the fragile connection between traditional methods of agriculture and the fast growing modern sectors of the economy have all contributed to ongoing rural structural under- and unemployment (Oxford Food Studies Group, Volume 2, 1990).

The evaluation of the Drought Relief and Recovery Programme (1982-90), conducted by the Food Studies Group of the University of Oxford, concluded that in 1990 rural incomes were lower in real terms than they had been ten years previously; that the distribution of rural incomes had not improved (a Gini coefficient of 0.48, including "in kind" for rural areas was established by the 1985/6 Government Household Income and Expenditure Survey); and that rural wealth had become concentrated in even fewer hands than before. The Survey established that 64% of rural households fell below the Poverty Datum Line. The Oxford Group contended that in 1990 it was very probable that the proportion of rural households facing poverty had increased. Because population levels have risen, more rural families are probably vulnerable to drought now

than in the early 1980s. It is possible that the prolonged and successful relief efforts have masked an underlying poverty problem, which was exacerbated, but not caused, by drought. (Central Statistics Office, Household Income and Expenditure Survey: 1985/86, 1988; Oxford Food Studies Group, Volume 1, 1990).

One of the groups most affected by poverty is female-headed households, which account for more than a third of households in rural areas and up to 60% when husbands are temporarily away (as is commonly the case) (Molutsi, 1992). Unemployment rates are higher for women who also own fewer cattle. One out of every two such households is without cattle as compared with one out of every four male-headed households, which affects their ability to engage successfully in arable agriculture (Cownie et al, 1989). Women are much more dependent on informal employment in the arable sector for which payments are traditionally very low. The Household Income and Expenditure Survey (1985/86) showed lower average incomes for female-headed households and higher dependency rates. Drought vulnerability for such people is, therefore, high.

The section of the population most vulnerable to drought because of their state of poverty is the Remote Area Dwellers (RADS). These people, consisting of the poorest of the poor as they are often described, exist on a fragile resource base which is further depleted during drought years. Remote areas are characterised by low and scattered population, great distances from social services and facilities, underdevelopment, and widespread relative poverty (Hitchcock, 1992).

Although many of the Remote Area Dwellers (RADs) are Basarwa, members of several other ethnic groups are also living in remote areas. Economic activity is somewhat lacking in these communities whose members live largely at subsistence levels as agro-pastoralists (mainly keeping goats) and hunter-gatherers. Regular incidence of drought contributes to the continued

marginalisation and peripheral position of this section of the population in Botswana's economic development (Toteng, 1991).

Many RADS have been found to be living below the Poverty Datum Line and the serious drought of the early to late nineteen eighties highlighted several of the problems facing these populations. In some cases they were unable to plough and were forced to find alternative means of obtaining food and income. Large numbers of livestock died, thereby reducing their capacity for gaining income through sales of cattle or small stock. Wild plant foods and game were also seriously depleted, therefore eliminating opportunities for people to use resources that previously served as "fallback" goods in stress periods (Hitchcock, 1992).

Access to social services such as schools, health facilities, water, roads, and extension services is limited, especially in conservation areas where there is little infrastructural and social development. These factors render the RADS especially vulnerable when drought hits (Toteng, 1991).

### **Botswana's Drought Relief and Recovery Programmes**

The government of Botswana has stated that the two main purposes in creating and extending the Drought Relief and Recovery Programme were:

The relief of human suffering, to avoid loss of life, increased malnutrition, and migration from rural areas; and the avoidance of disinvestment in the rural economy to assist with the return to production at the end of the drought period (Manamela, Ministry of Finance and Development Planning (MFDP), Interview, October 1994).

Activities intended to replace income lost as a result of drought may be defined as *income support* and those related to the preservation of capital assets (and future incomes) as *investment protection* (Oxford Food Studies Group, Volumes 2 and 3, 1990). Elements of both orientations are to be found in government drought relief programmes in Botswana although some measures are more geared to one than the other.

*Income support measures* transfer resources to needy people on a temporary basis either directly through cash, food, or commodities, or indirectly through subsidies or job creation. The focus of such projects is on consumers' current needs. *Investment protection measures*, on the other hand, are aimed primarily at the preservation or enhancement of capital assets to enable people to resume production after the drought or increase productive capacity both during and after the drought. These are done through the construction of buildings and facilities or the provision of land and water improvements (Oxford Food Studies Group, Volume 1, 1990).

### **Supplementary Feeding**

Botswana is exemplary in the region in its constant policy reviews of the vulnerable in the country. The government development policy defines those who need special attention for the longer-term goal of poverty reduction and, in a drought year, additional persons are assisted. Therefore, the development policy recognises that many of the most vulnerable need assistance even in so-called normal years (Thompson, 1993).

Those acknowledged as vulnerable during droughts are all children of five and under and children aged six to ten years not attending school. The vulnerable, according to the development policy, are children of Remote Area Dwellers, severely malnourished children, children of primary school age, medically

selected pregnant and lactating women, and officially termed Destitutes who have to register and qualify.

By mid-1992, during the recent, severe, regional drought, clinics were distributing food rations to mothers of all children of five and under. The younger children receive a weaning food of sorghum, soya, minerals, and vitamins and the older children maize, milk, oil, and pulses. Children of the ages of six to ten not attending primary school may receive food made available at schools. In this way also headmasters can monitor school non-attendance and thus relate drought response to development planning (Thompson, 1993). However, currently many Districts report that the programme is not operational because of communication problems, misunderstanding of objectives, and logistical difficulties in the schools (Manamela, MFDP, Interview, October 1994).

Children of Remote Area Dwellers attending school are supposed to receive, in addition, an evening meal at school, but take-home rations have been issued instead in almost all instances. Most Districts have not started implementing this programme yet but the Ministry of Local Government, Lands and Housing is taking new initiatives to facilitate its establishment. Medically selected seriously malnourished children receive direct therapeutic feeding at clinics and hospitals; children in primary school receive school lunches every day in rural, peri-urban and low-income sectors of urban areas; and medically selected pregnant and lactating women receive free supplementary high protein food on a regular basis (Thompson, 1993).

Destitutes, registered with District Councils, receive free vouchers to the value of P76.00 per month in order to purchase designated items for a basic food basket. In towns the amount is P57.00 but both are expected to be increased by 8 per cent in the near future. Those eligible for such assistance include individuals without resources and assets (such as livestock, land, or cash) and who cannot plough due to illhealth or who are not assisted in their plight by family members. In addition those who are physically or mentally handicapped

or elderly or who are minor children with no support may also qualify for this kind of assistance as well as those rendered helpless by natural disaster or temporary hardships (National Policy on Destitute: 1980). This final group is the drought-affected target population. It is interesting to note that, between 1992 and 1993 there was a national registered destitute increase of 77% while between 1993 and 1994 the increase was only 22.5%. This may be accounted for by the successful implementation of the Labour Based Relief Programme or Labour Based Rural Public Works Programme which absorbed most of the able-bodied destitute population (Molojwane et al, 1994).

### **Labour Based Relief Programme**

Prior to the drought of the 1980s various forms of rural job creation had been attempted in Botswana. These included the food - for - work project and labour intensive road construction. The Ministry of Local Government and Lands initiated the Labour Intensive Public Works Scheme together with the International Labour Office (ILO) and the Swedish International Development Agency (SIDA) in the early 1980s in order to empower the rural poor whose only asset was their unskilled labour. This was subsequently expanded into the Labour Based Relief Programme with the aim of employing people for six months during the agricultural off-season (NDP 7, 1991). In 1991 this became the Labour Based Rural Public Works Programme (LBRP). One of the initial activities of this programme was the handstamping of sorghum for the expanded school feeding programme. This provided a pragmatic solution to a technical problem (lack of appropriate machinery), and in the end proved to be a popular and appropriate job creation scheme for about 9000 women in almost all parts of the country, operating on a piece work basis. The remaining Labour Based Relief Programme projects were always organized on a daily wage basis. These projects included bush clearing in national parks and for roads, establishing fire controls, and earth moving. When project and participant selection become the preserve of Village Development Communities, the emphasis was placed on

work on buildings, fencing, wells, and other useful rural infrastructure (Oxford Food Studies Group, Volume 2, 1990).

Currently, the daily wage in the Labour Based Rural Public Works Programme is P4.50. This is well below the daily requirements of the average family or household but is deliberately set low so as to avoid displacing workers from regular employment such as cattle herding, working as shop assistants, or hawking. It also serves as a wage guideline for large landowners who often employ rural dwellers at low rates of pay. In the Central District, for instance, wages are in the vicinity of P70.00 per month plus rations (maize meal, tobacco, salt, and sugar). Wages in Kgatleng are somewhat better at between P100.00 and P150.00 plus rations (Thompson, 1993; Manamela, MFDP, Interview, October 1994). Participation in such programmes decreases when projects are located long distances from the homes of the participants, especially women who need to be close to home to care for children. It seems that the distance rather than the low wage discourages participation.

### **Livestock**

The basic idea of the Drought Relief Programme in this sphere is to retain the capital base and future incomes in the rural sector by avoiding reductions in stock numbers, mainly cattle. The main components are: free botulism vaccination of cattle; the purchase of worn-out cattle for school feeding through the cattle purchase scheme which was initially implemented but has now been discontinued; and funds for syndicates of farmers with small herds to develop water supplies by equipping and drilling of boreholes (Oxford Food Studies Group, Volume 2, 1990).

Temporary suspension of tax payments by abattoirs in some drought years has meant that the saving was passed on to the sellers and, hopefully, the herders as well, as abattoirs ran at full capacity because of the large number of cattle

delivered. Botswana was thus able to fulfil its Europe Union (EU) quota for beef and also pasturage was not totally degraded. Encouragement to sell relieved pressure on the fragile range (Thompson, 1993; Manamela, MFDP, Interview, October 1994.).

Another strategy, subsidised stockfeed, was not targeted to small herds because of difficulties in monitoring distribution. Stockfeed at heavily subsidised prices was made available to farmers during the 1980s drought but this proved to benefit the large stock-owners rather than the small farmers who lacked the transport and the labour to secure available supplies. The Ministry of Agriculture has now removed the input subsidy on stockfeed but has instituted mobile sales so that transport costs are totally subsidised. This has resulted in targeted assistance to small stockholders (Manamela, MFDP, Interview, November 1994). Under the Arable Lands Development Programme (ALDEP) the government provides fencing materials, technical experts, and water reticulation for cattle and crops in communal areas (Thompson 1993).

### **Arable Agriculture**

Free seed for up to a maximum of five hectares is provided by government to help small farmers stay on or return to the lands during and after drought periods. It is a means of rehabilitating the rural economy. Grants for destumping are also made available and this expedites the clearing of land for tractor cultivation. Draught power subsidies facilitate the hiring of animals or tractors to plough up to five hectares for those who lack these resources themselves. This has been strengthened by the deployment of agricultural demonstrators to ensure that the system is not abused (National Development Plan (NDP 7, 1991); Manamela, MFDP, Interview, October 1994).



Fencing, implements, water tanks, fertilizers, planting, weeding, and crop protection are subsidised in the drought relief programme. Special efforts were also made during the 1980's drought to reach the poorer farmers with no cattle. For example, because labour constraints were particularly serious for female-headed households, the government subsidised the hiring of people to cut poles and put up fences for those who required such assistance (Thompson, 1993; Oxford Food Studies Group, Volume 2, 1990).

### Credit

Once-off financial assistance measures were created to promote recovery in the rural sector after the extended drought of the 1980s whereby seasonal input loans made to citizens in affected areas during the drought years were written off. The National Development Bank was the main facilitator in this exercise.

### Water

Botswana's population is estimated at 1.48 million people of whom 24% live in designated urban areas and 23% in the so-called major villages which are almost all urban settlements. Of the 53% who live in rural areas, 22% live in rural villages (of more than 500 people), 21% live in small settlements of less than 500 people, and the remaining 10% live in scattered homesteads at cattle posts and arable lands areas.

Water supply in urban areas is provided by the parastatal Water Utilities Corporation while in the major villages the government's Department of Water Affairs is the responsible body. In the rural areas the District Councils operate and manage water supplies and nearly 300 villages and settlements have been provided with systems under the village water supply programme. These systems comprise boreholes, storage tanks, and public standpipes. The District

Councils also operate a further 120 projects which supply water to very small remote settlements or to livestock. These systems are generally efficiently run. Only 20% of the 300,000 people in small settlements benefit from such systems as people living in smaller settlements depend on privately-owned boreholes (to which most do not have secure right of access) or on open hand-dug wells. The 150,000 people living outside established settlements depend on a wide variety of sources for their supply. These include cattlepost boreholes primarily intended for livestock use and often excessively saline; hand-dug wells; natural surface waters and springs; and water stored in plant roots and tubers (White, 1994).

The Kalahari Conservation Society contends that there are three important and unresolved issues concerning rural water supplies in Botswana: first, significant numbers of small groups of people do not have access to a reliable and wholesome supply of water for household use; second, large numbers of rural people do not have access to a reliable supply of water for their livestock; and third, there is inadequate protection of ground water resources. Borehole drilling and other costs associated with developing water supplies are high and, as a result, government has found it difficult to provide individuals in small communities of less than 500 people with safe, reliable, and affordable water in line with its stated policy (White 1994).

For drought preparedness the strategy for rural villages is to increase supplies through interconnections of systems. An example of Moshupa (in the Southern District) indicates that the village's response to the drought of 1991/92 was to impose restrictions on consumption; keep the boreholes in repair; couple its system to a village 15 kms away which retained an adequate supply; and use several water bowsers for interim shortages. The Department of Water Affairs is also encouraging schools to retain pit latrines rather than to install flush toilets, even in larger villages (Thompson 1993).

## Drought and Development in Botswana

The Government of Botswana has, as one of its objectives, the *integration* of drought relief into development planning for the country as a whole. It aims to move away from blanket coverage in its programmes of assistance for those affected by drought to targeting the needy through an annual increase of no more than 3-4% on government expenditure when drought is manifest. The amount is felt by government to be substantial enough to protect the poorest families from the worst effects of drought while ensuring that projections for the country as a whole are not altered greatly in macroeconomic terms. Lessons from the past indicate that this might be more difficult to achieve than to plan. Expenditures for the 1980's drought were 16% higher than forecast in the national development plan for that period.

The level of development of a country determines its ability to address environmental issues relevant to natural disaster such as drought and thus strategies for sustainable development will have considerable impact on the outcomes of drought in a country such as Botswana (Cabham, 1993). The World Commission on Environment and Development in 1987 defined sustainable development as a process which "seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future" (Somolekae, 1992). It depends on factors such as reduction in the birth rate (Botswana's population growth rate is expected to drop from 3.3 to 2.9% per annum between August 1994 and 1997), prudent management of the economy, and diversification of economic activity in the event that physical or economic exhaustion of minerals occurs (NDP7, 1991).

Diversification denotes the creation of linkages between the various economic sectors in the country, thereby facilitating the utilisation of more productive technologies, widening the product base, expanding import and export markets (not an easy task in light of the new dispensation in South Africa and the

devaluations in Zambia and Zimbabwe), and extending the use of local inputs. An example of the latter is the processing of hides and skins into leather by the domestic industrial sector and the possible eventual manufacture of leather products such as shoes, coats, and handbags (NDP7, 1991; Midterm Review of NDP7, 1994).

Whatever form it takes, diversification is as relevant to individual, family, household, and community as to the nation as a whole, especially in relation to the creation of a drought-resistant socio-economic structure. The Economic Promotion Fund, established in 1992 for more substantial and easier financing of RADS projects, will hopefully facilitate drought-proofing measures in the remote areas. Several remote area communities have already embarked on development activities that utilise natural and human resources at levels that are sustainable in the long term. These include desalinization projects in the Kgalagadi District which purify water for local consumption and generate revenue through sale of the salt to other communities and basket manufacturing and conservation programmes in Ngamiland. Some remote communities are becoming involved in beekeeping, sewing, woodwork, poultry production, and in, association with government, honey production and marketing and wildlife based tourism.

Some government assisted RADS leather works projects have encountered difficulties because the participants cannot survive during the production phase before income is realised and the Ministry of Local Government, Lands and Housing is investigating the possibility of making living allowances available to assist the participants. A women's group in the Ghanzi District has a horticultural and forestry project, and wildlife related development efforts are taking place in the Southern District (Hitchcock, 1992). International donor agencies are also involved in several of these projects.

Diversification also introduces the concept of food security as opposed to national food self-sufficiency. This recognises that sufficient food availability

should stem from local production *and* importation, if necessary, and government measures to make prices of local foodstuffs competitive with those of imported stocks embraces the principle of promoting localised areas of comparative advantage. Because of ecological constraints in Botswana locally produced food has been more expensive than imported products from neighbouring countries. These new measures now open the market on both the domestic and foreign front to help ensure food security for all in the future (Manamela, MFDP, Interview, November 1994).

Efforts to promote rural industrial development are made, also, through the Brigades. These are private sector and community owned trusts that have been organised for the technical training of young school-leavers leading to certificates of apprenticeship. They utilise learning skills in on-the-job training for locally needed crafts and address the issues of appropriate technology and job creation, especially in the rural areas. Although a constructive concept, their financial viability is perhaps questionable as they rely heavily on external aid (Thompson, 1993; NDP7, 1991).

Implicit in the concept of sustainable development is the conservation of natural resources and the protection of the environment, in all its fragility, in Botswana, so that natural disasters will not be permitted, in future, to wreak the havoc that they have in the past. This is particularly relevant in light of the disclosures in the Midterm Review of NDP7 published by the Ministry of Finance and Development Planning in August, 1994. The Report states that diamond sector Gross Domestic Product (GDP), which has accounted for both government and private sector boom and development (unparalleled in the region) since 1980, is expected to grow at less than 3% per annum in real terms soon after 1997. It is predicted that Botswana will experience stagnation in the growth of government services and per capita income. New engines of growth will be needed which will probably emanate from manufacturing and services. The processing of agricultural raw materials from the cattle sector holds some

promise but will not, it is felt, be a major factor in the equation (Midterm Review of NDP7, 1994).

Tourism and financial services have been proposed as potential engines of growth but the exchange rate, high levels of wages (related to the diamond boom), the scarcity of physical and human capital, taxation, and restrictive regulations all put these sectors at a disadvantage at present. If these factors could be effectively modified the possibilities for the future might be positive (Midterm Review of NDP7, 1994).

The Report emphasises that private sector engines of growth should be the focus of the future with government playing a major role in their emergence. This is closely related to the stated objective of government that the rural economy, particularly, should be drought-proofed through constructive development projects thereby minimising the need for, and scope of, drought response programmes. The aim of household economic self-reliance (a term much used in Botswana government policy statements) is the emergence of a vigorous private sector in the rural areas. At the lowest level, the focus should be on activities rather than full-time jobs as the most effective programme of job specialization is through households embarking on micro-enterprises on a part-time basis.

Thus, government, as the major player in the rural economy, has to continually examine commercial activities carried out by its own agencies and avoid smothering private initiative; ensure that work done by, or on behalf of, government creates as many rural jobs as economically possible; and help the private sector to overcome initial difficulties related to capital and skills. In this regard, the Financial Assistance Policy (FAP), which provides financial support to entrepreneurs in the industrial, agricultural, and small mining sectors, can be utilised as a vehicle for promotion of private interests and the development of a more drought-proof economy (Oxford Food Study Group, Volume 1, 1990; NDP7, 1991).

Decentralisation within government is also essential to facilitate sustainable development. For the sake of greater efficiency in an increasingly complex political and economic structure, decision-making authority should, in a number of instances, according to the Ministry of Finance and Development Planning in its Midterm Review of NDP7, be decentralised from the Directorate of Public Service Management and the headquarters of the Ministry of Finance and Development Planning to line ministries and departments and Local Authorities. The Review states that government believes that more decentralization from Central Government to Local Authorities is essential to achieve greater efficiency and that most Local Authorities are now capable of dealing with such a dispensation (Midterm Review of NDP7, 1994).

The key constraint in Botswana is scarcity of water and so all future programmes for sustainable development and drought-preparedness must embrace investments in water conservation, appropriate land use, and improved resource management techniques. The private sector might be unwilling to become involved in large-scale projects of this nature because of land ownership problems or high costs, in which case it might be prudent for government to undertake a longterm, large-scale programme of land and water development from which individual owners would benefit directly and the productive base of the nation would be enhanced (Oxford Food Study Group, Volume 1, 1990).

Arable cropping has been promoted as a drought-proofing measure through the Arable Lands Development Programme (ALDEP). This means that the poorest households are helped to have an ongoing income from crops through extension support, research into adaptive measures, and access to credit, markets, and adequate producer prices. This is an investment in the future which, hopefully, will be translated into sustainable development in Botswana's rural sector.

It was decided, in 1991, that government would amalgamate the developmental and drought relief concepts of Labour Intensive Public Works and Labour Based Relief Programmes to form the Labour Based Rural Public Works Programme.

It was agreed that certain projects would be selected from the Labour Based Relief Programme which would generate benefits for the future through establishing infrastructure, other than just buildings, with a sustainable developmental impact. Soil erosion control is one such project which is of particular significance for future growth and development. Projects will be accelerated and advanced, timewise, during drought periods. A training centre in Molepolole and a Roads Training Centre in Gaborone provide courses for those who are selected for the projects.

The National Early Warning System was set up in 1984 and comprises a collection of timely, low cost, accessible data for each rainy season encompassing drought-predicting indicators such as rainfall, water satisfaction index, pasture conditions, area planted, likely yields, and wildlife condition. Also included is information on food supply (for humans and livestock), food storage, and food distribution. The latter embraces nutritional status, the Nutritional Surveillance System assisting in this regard through analysis of statistics on the incidence of malnutrition in children from six months to five years collected through monthly weighing at health facilities. This data provides a regular overall food security report to the Interministerial Drought Committee and is compiled by the Rural Development Unit in the Ministry of Finance and Development Planning. This system has recently been incorporated into the Southern African Development Community (SADC) initiative for the region (NDP7, 1991; Thompson 1993; Oxford Food Study Group, Volume 1, 1990).

The National Water Master Plan, approved by government in 1993, comprehensively evaluates water sources in Botswana and includes planning for the North/South Carrier project, which is already in the initial stages of implementation. This will eventually comprise two dams in the north-east to supply the eastern corridor and the southeast of Botswana which are the most densely populated areas of the country. Donors are being identified and tender applications selected and one dam and the pipeline should be operational by



1999. The Labour Based Rural Public Works Programme will be utilised to provide initial labour for the project at special remunerative rates. Apart from this short-term employment benefit the scheme should provide jobs for between 750 and 1000 people over the next five years (Sekwale, Ministry of Mineral Resources and Water Affairs, Interview, November 1994).

## Conclusion

The impact of drought in Botswana is considerable and has to be one of the major considerations in strategic and operational planning for the future. Sustainable development in urban and, especially, rural areas will go a long way towards improving the standard of living of those most vulnerable to drought and, therefore, of the country as a whole.

Dependency on government, which has become endemic in Botswana, has to be transformed into self-reliance with a modified focus on individual initiative and the private sector. More restructuring, changes of attitudes, and new methods of organization are required to empower people and enable them to take the future into their own hands, with the support of a government which understands the issues and facilitates the process.

There is a clear distinction between promoting the growth of a sustainable rural economy to the benefit of all rural dwellers, and providing for those households unable to support themselves at an acceptable standard of living. The greater the success of rural development policy towards equitable and sustainable growth, the greater the resistance of rural dwellers to the effects of drought and the lower the need for income support. Such a scenario will be of considerable benefit to all the regions and the peoples of Botswana.

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