

**Managing Food Security Action
Programs in Botswana**

by

Sisay Asefa

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Sisay Asefa*

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*Associate Professor of Economics, Western Michigan University.

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MANAGING FOOD SECURITY ACTION PROGRAMS IN BOTSWANA

I. INTRODUCTION

In its 1986 study of poverty and hunger, the World Bank defined food security as "access by all people at all times to enough food for active and healthy life" (World Bank 1986). Based on this definition, about a quarter of Africa's population or more than 100 million people are food insecure i.e. do not consume enough food to allow for an active and healthy working life. In seven countries, Ethiopia, Zaire, Uganda, Mozambique, Zambia and Somalia, about 40 percent of the population are food insecure, constituting more than half of the region's population (World Bank 1986, 1988).

Achieving food security requires meeting two related economic conditions. First, ensuring the availability of adequate supply of food through some combination of domestic production and/or imports, and second, ensuring the ability of households to acquire food through some mix of domestic production, purchase or both. In other words, food insecurity is both a production (supply) and income, or purchasing power (demand) problem, since ensuring all members of a given society to have access to enough food at all times involves both availability (supply) and food access (demand) considerations (Rukuni and Eicher 1987). The analysis of food insecurity has traditionally focused on food production until the publication of A.K. Sen's pioneering work on 'poverty and famines' which has popularized the income and 'entitlement failure' approach (Sen 1981). Sen's entitlement approach focuses on the determination of command over commodities which includes the view that famine is a result of entitlement failure of large groups, often belonging to some specific occupations (e.g. landless rural laborers, pastoralists, etc. (Sen 1981, 1987). Sen's empirical study showed that some of the worst famines in recent history such as the Bengal famine (1943), the Ethiopian famine (1973, 1974), the Bangladesh famine (1977) and the Sahelian famine (1977), were largely a result of lack of food access caused by poverty, loss of income or exchange entitlement (Ibid).

Over the last two decades, many African nations have been performing quite poorly on both sides of the food security equation (Rukuni and Eicher 1987). On the supply side, the region's potential to produce food deteriorated in many countries since independence, when the continent was a

net exporter of food commodities. Today, Africa is the only region of the third world where per capita food production has fallen over the last decade, and the region is importing about 8 million tons of food each year. On the demand or income side, Africa's GDP per capita has declined over the last decade. According to the United Nations, sixteen of the twenty poorest countries in the world are from Africa, making this region the poorest part of the world economy. The total GNP of the 45 countries of Africa was about 1/3 of the total GNP of the State of California in 1985 according to one estimate. (Eicher 1988). Furthermore, Africa's current estimated population of about 500 million people is expected to double and reach one billion in the next 20 to 25 years (Ibid).

It is therefore clear that Africa must face up to the challenge of fighting the war on poverty and food insecurity. The region has the potential to win this war if the domestic political and economic policy environment of each country allows for the necessary investment on agricultural development and appropriate technology generation and adoption. For instance, under a rather optimistic projection of a recent FAO study on African Agriculture over the next 25 years, some 23 countries of sub-saharan Africa could reverse their declining per capita food production through improved government policy performance and donor coordination (FAO 1986).

But in the long run, achieving food security can be best met through economic development that will raise the income of the majority of Africans, of whom some 70 percent live in rural areas. Such an agricultural/rural focused economic development strategy would attack the food insecurity-hunger-poverty problem at both the supply and demand sides, since such a strategy would directly increase food production and availability, and thereby generate the necessary income and employment that should increase effective demand and food entitlements (Mellor 1989). While an agricultural development led strategy will have long-term payoffs, the food crisis in many countries also demands immediate attention and action, especially for the growing number of the rural and urban poor.

This study will examine an experience of one African country, which has developed an institutional capability for famine and drought management and draw some lessons from its experience. The research is based on a village level case study of cash for work program of the Republic of Botswana.

II. THE ECONOMY AND FOOD SITUATION OF BOTSWANA

At Independence in 1966, Botswana was one of the poorest countries in Africa, with a large rural population that depended on agriculture and livestock production for their livelihood. It had a per capita income of \$50 per year and a large migrant labor that constituted as much as 50% of the male population aged 20-40 working in South African farms and mines (Quinn et al. 1988).

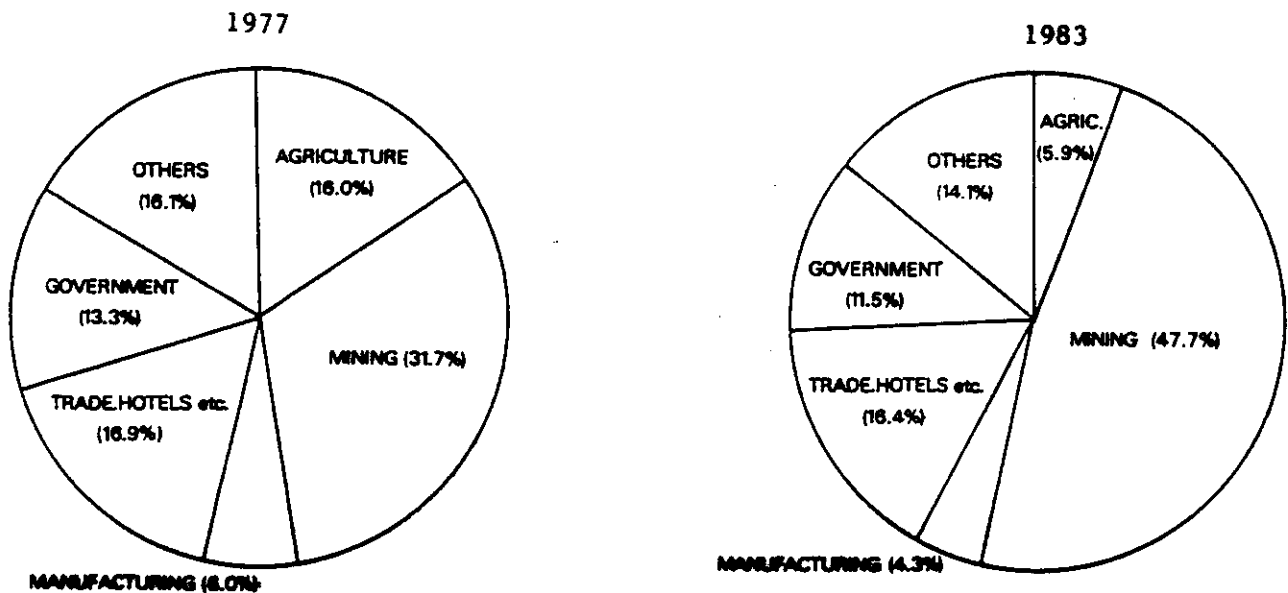
During the first few years of independence (1966-73), government policy focused on development activities that rehabilitated the neglected and exploited national economy by colonialists. The specific goals during this period were: (a) to achieve budgetary independence from Great Britain. (b) to construct social and physical infrastructure, such as roads, schools, and health facilities (c) to develop the agricultural sector and (d) to encourage the development of industry and mining, the latter which later became a dominant factor in the country's economy. These policies were successful in generating moderate economic growth, as GDP grew in real terms by 10.5% from 1974 to 1981 and per capita income increased to about \$900 by 1982 (Ibid).

In recent years, Botswana has undergone a more remarkable economic growth and transformation primarily due to the dynamic growth of the mining sector. Between 1981 and 1986, the overall GDP showed a real growth rate of 15.3% complemented by a sharp increase in foreign exchange reserves.

While the overall economic growth performance is impressive and unmatched by any non-petroleum producing country in Africa, a disaggregation of the country's economy shows some signs of stagnation in the major economic sectors upon which future employment growth must depend (USAID 1987). Outside the mining sector, which currently accounts for 1/3 of GDP and 2/3 of export earnings, and about 1/2 of government revenue; GDP growth was only 4% per annum. The manufacturing sector which is dominated by the Botswana Meat Corporation (BMC) and accounts for 1/2 of the value added in the sector, actually declined by .04% per annum in recent years. Of the country's estimated population of 1.13 million 1986, the majority (80 percent) are engaged in rural and agricultural economic activities. Yet agriculture accounted for only 8.5% of GDP in 1982/83 (Ibid).

The agricultural sector is dominated by the livestock sub-sector which makes up 80% of the GDP contribution of agriculture. Botswana is deficient in

overall food production under the current state of technology due to the drought, which it experiences about six out of ten years. Arable land is scarce and constitutes about 7% of land area, since most of the land area is in the Kalahari desert (Holm and Morgan 1985). The average household produces less than 1/2 of its subsistence requirement during non-drought years. Furthermore, the contribution of the agricultural sector to real output declined by 10% over 1977-83 period, while the mining sector contributions expanded by 16% as shown in Figure 1. The founding of three rich sources of diamonds led to the growth of the mining sector 1970's and early 1980's following the earlier development of copper/nickel mining and smelting that started in late 1960's.



Source: Central Statistics Office, MFDP, Gaborone.
Adopted from NDPG, 1985-91, p. 25.

Figure 1. Changes in the Relative Contributions of Agricultural and Mining Sectors to the Botswana Economy

In spite of the impressive national economic growth in recent years, Botswana faces some major economic problems which include: (a) growing income inequality, (b) heavy reliance on food imports on South Africa, (c) unemployment and (d) malnutrition.

Inequality in the Urban and Rural Sector

The growing urban-industrial inequality is primarily due to the economy's continued reliance on diamond mining which is capital intensive and has low employment linkages. In spite of the contribution of the mining sector to the GDP and export revenue, the sector employs less than 7500 workers or less than 1.5% of the national work force (Quinn et al. 1988).

The relatively high GDP figure also includes the portion of income that accrues to a large number of foreign nationals working in Botswana and therefore, overstates the welfare of Botswana nationals. Rural inequality is due to the economy's primary reliance on the cattle sub-sector which is land and capital intensive. Moreover, there is substantial inequality in the livestock sector. According to the national migration study, 45% of rural households did not own cattle, while almost half of the national herd was owned by the top 7 percent of cattle owners (NDP 1985-91, p. 20). Furthermore, about 90 percent of rural households produced insufficient food to feed themselves; the average household produces less than half of its daily caloric requirement (Ibid).

Most rural households in Botswana obtain income from multiple sources. Among the poorest 10 percent of households, it is estimated that 70 percent of income was in kind and only 30 percent was cash income obtained from several sources, including private transfers (25 percent), hunting and gathering (22 percent) and employment (18 percent). Only among higher income groups does agriculture, especially livestock production, make substantial contribution to household income (Quinn et al. 1988).

Food Production Deficiency and Economic Dependence

Botswana has an "open" economy which is vulnerable to fluctuations in its terms of trade and in exchange rate movements. Accordingly, the government attaches considerable importance to the stability of the national

currency, "the Pula" which is pegged to a basket of currencies composed of South African Rand and the IMF Special Drawing Rights (SDR's).

With the semi-arid climate, only 5% of the land area is suitable for arable production. Consequently, Botswana is deficient in the main food crops, maize and sorghum. The country imports about two-thirds of its national food requirement during normal years and 95 percent during drought years of severe drought, primarily from South Africa (Mokobi and Asefa 1987). Botswana's economy is also highly dependent on South Africa, especially for its imports, while the EEC provides the largest export market. This dependence on South Africa has both advantages and disadvantages. The advantage is that Botswana's rapid economic growth would not have been possible in the absence of trade links with South Africa and Botswana's membership in the Southern African Economic Customs Union (SECU). These regional trade links have enabled the country to engage in massive investment projects with a modest rate of inflation. For instance, in developing its mineral sectors, Botswana was able to expand its construction industry by drawing on resources available from within the customs union. On the negative side, the economic dependence on South Africa makes the country highly vulnerable to the potentially explosive political and economic events in South Africa (Quinn et al. 1988). Furthermore, the trade link between the two countries is quite unbalanced, since Botswana imports far more than it exports to South Africa and the rest of the world (see table 1). For example, between 1979 and 1984, about 78 to 87 percent of Botswana's imports came from South Africa, while only 6 to 19 percent of its exports were sold to South Africa. Moreover, political instability and disruption in South Africa has had a direct effect on Botswana, resulting in influx of refugees and occasional cross-border strikes by the South African military. The increased political tension in South Africa in recent years has forced Botswana to expand its expenditure on defense, internal security, refugee care, thereby reducing resources in production investments (Ibid).

Unemployment, Underemployment and Malnutrition

A critical national economic problem of Botswana is the rising level of unemployment and malnutrition. The unemployment problem stems largely from the economy's inability to diversify its production base and escape from the

domination of the diamond-mining and cattle sub-sectors which have low employment multipliers. For example, in spite of the mining sector's contribution to about 1/2 of country's GDP, the sector employs only 1.5% per cent of the total potential work force. The livestock sector is land intensive and generates little employment, apart from the hiring of herd boys at low wages. The employment policy unit in the Ministry of Finance and Development Planning has estimated that, of the total potential labor force of 460,000, about 21 percent were employed in the formal sector, 7.6% in informal sectors in domestic service engaged in periodic piece work and small informal business, and 9% were employed abroad, mostly in South Africa. Some 31% of labor force was estimated to be engaged in agriculture of which about 10% of this is assumed to be redundant. Some 142,000 (40 percent) were estimated to be unemployed or economically not active (NDP6). With an annual population growth of 3.5%, among the highest in Africa, and over half of the population under 15 years of age, some 25,000 Batswana are estimated to join the labour market each year, whereas employment creation is running at half this level at best. Furthermore, there has been a decline in the number of Batswana working abroad, particularly in South Africa.

Although the unemployment problem arises from the structure of the economy, the malnutrition problem is somewhat paradoxical in spite of the rapid economic growth of Botswana. Malnutrition is affected by inequality and poverty in rural and urban Botswana. According to the Nutritional Surveillance System introduced by the government in 1978, about 25 percent of Botswana's children are found to be underweight during non-drought years. Moreover, certain areas and groups in the country such as the Remote Area Dwellers (RADS), and people living in small distant villages have a higher degree of malnutrition (GOB 1985).

The government of Botswana however has not been passively watching the rising level of poverty, inequality and malnutrition. One of its responses to these problems is the creation of a National Food Strategy (NFS), which has brought the problem of malnutrition and food insecurity to the top of national economic agenda. The next section will focus on the NFS, which is a major policy instrument for addressing the problem of food insecurity and poverty in rural Botswana.

Table 1: Botswana's Trade Dependence (Composition of Imports and Exports, 1978 and 1983)

	Units of Account		(Percentage)	
	1978	1983	1978	1983
<u>Imports</u>				
Food, Beverages and Tobacco	56,0	163,4	18,2	19,8
Fuel	27,1	103,9	8,8	12,6
Chemicals and rubber products	22,4	68,2	7,3	8,3
Wood and paper products	9,3	28,5	3,0	3,5
Textiles and footwear	30,0	76,3	9,8	9,2
Metal and metal product	35,5	80,4	11,6	9,8
Machinery and electrical equipment	47,2	104,6	15,4	12,7
Vehicles and transport equipment	38,0	94,6	12,4	11,5
Other goods	41,5	103,6	13,5	12,6
Total	307,1	823,7	100,0	100,0
<u>Exports</u>				
Meat and products	28,6	76,4	14,8	10,8
Diamonds	79,3	471,0	41,1	66,6
Copper-nickel matte	52,6	66,8	27,3	9,5
Textiles	8,6	33,5	4,5	4,7
Other goods	23,6	59,7	12,2	8,7
Total	192,7	707,4	100,0	100,0

Source: Central Statistics Office, MFDP. Government of Botswana, NDPG, 1985-91, p. 27.

III. THE NATIONAL FOOD STRATEGY

Origin and Evolution

When Botswana's rural development strategy was launched in 1972, it was aimed at increasing production, improving marketing facilities in rural areas, and creating rural employment opportunities. These goals were then followed by a government development policy known as Accelerated Rural Development Program (ARDP) in 1973. This program focused expenditures on rural infrastructure, primary schools, basic health services, water supply facilities, roads and rural electrification in 27 major villages, and 195 smaller villages. Later, a program called the Tribal Grazing Land Policy (TGLP) was created in 1975 for the purpose of conserving land resources and increasing livestock productivity. TGLP's purpose was to maintain an optimal balance between land, people and livestock. The implementation of the program involved a lengthy process of land use planning where three broad categories of land were defined as: commercial, communal, and reserved (wild life and future grazing) areas (GOB 1972).

The concept of a National Food Strategy was initiated in 1975, nine years after independence, when the government made an initial move to develop a strategy for livestock sub-sector by hiring an international consultant. This initiative led to a National Conference held by the Botswana Society in 1978, which focused on the human aspect of the drought, and later placed the drought issue at the top of the National Economic Policy Agenda. Five years later, the Ministry of Finance and Development Planning (MFDP) established a high level committee of civil servants to design a National Food Strategy in order to identify ways and means of increasing local food production, strengthening nutrition services, and augmenting existing capacities to respond to drought (Holm and Morgan, p. 472). A working group was later established to formulate the National Food Strategy under the Rural Development Council, which was given the responsibility of coordinating the program under the Ministry of Finance and Development Planning. The detailed report on NFS adopted by the Rural Development Council then became, the basis of the November 1985 government 'white paper' which was adopted by the Botswana National Assembly.

The NFS is now regarded as a major policy instrument for providing a national framework for formulating and implementing a whole range of food

security related programs affecting various sectors of the national economy. The objectives of the National Food Strategy are:

- (a) to achieve a broad based recovery in arable production
- (b) to achieve national self-sufficiency in the main staple crops of maize and sorghum both for food and seed.
- (c) to ensure a minimum acceptable diet for all Botswana nationals, thus to progressively eliminate malnutrition.
- (d) to build and maintain the national capacity to deal with drought and other emergencies (Government of Botswana, NFS, 1985).

The NFS has both short term and long term objectives in addressing the food insecurity problem (see figure 2). The long term strategy is a continuation and strengthening of the government's rural development policy that began in 1972. In the area of arable production, the government has launched the Arable Lands Development Program (ALDEP) and the Accelerated Rainfed Arable Program (ARAP). ALDEP which began in 1977, focused on increasing the productivity of small farmers and herders, defined as those households who own less than 10 hectares or 40 heads of cattle. A major component of ALDEP provides subsidized farm implements, fencing, water tanks and draft animals. The program also contributes to rural non-farm employment generation relating to activities revolving around agricultural input supplies. Farm implements such as donkey carts, water catchment tanks and farm input implement repair and maintenance services have been established (Ministry of Agriculture 1987). ARAP is an assistance program targeting farmers engaged in rainfed arable production. It provides farmers with short run assistance to help them recover from drought. The program includes assistance for clearing of land, input procurement, fencing of fields, water development for crop farming and crop protection services. The ARAP's objective is to provide farmers with short run assistance for after drought recovery, while ALDEP enables them to build required long term investment to increase and sustain food production (Ibid).

The Financial Assistance Policy (FAP) was developed in 1982 to generate new activities or expand productive employment within the non-cattle sector of

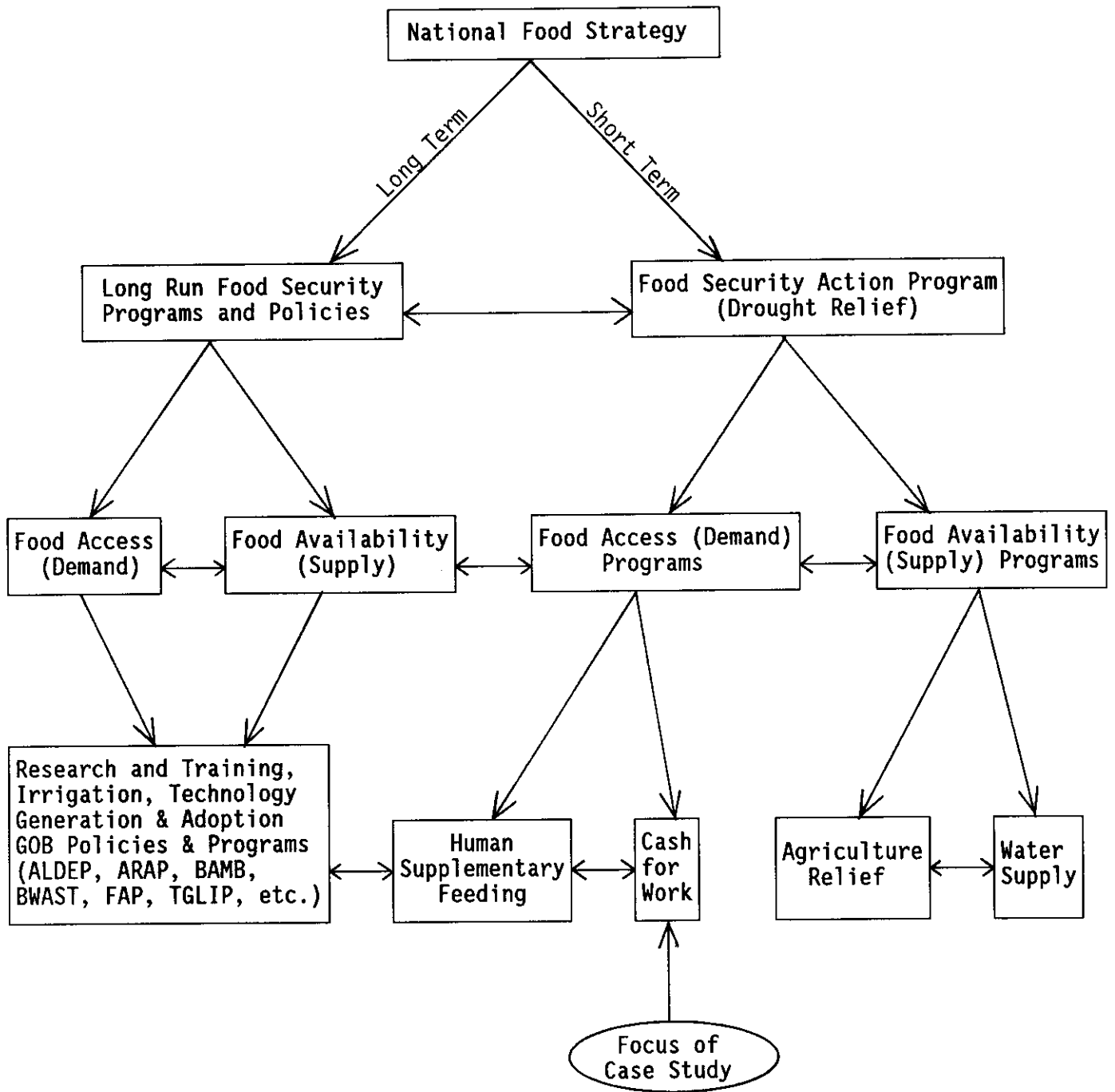


Figure 2. A Schematic Framework of National Food Strategy of Botswana.

agriculture. FAP provides incentives, by giving grants to projects that generate jobs and income in rural areas (USAID/Botswana 1987, p. 44).

Other long term agricultural development goals include the development of irrigation in the Okavango area in the Northwest as well as the Chobe and Tuli Block areas. These programs still await results of feasibility studies on irrigation. Also there are programs designed to encourage horticultural production, poultry, dairy, and fisheries production (MA 1987).

In the marketing area, the Botswana Agricultural Marketing Board (BAMB) serves as the residual buyer for farmers' produce. BAMB, was introduced in 1974 in order to ensure producers guaranteed prices, and to retain domestic produce in Botswana for future needs. To fulfill these functions, BAMB has established marketing facilities in 26 strategic locations with storage capacity of over 55,100 tons. Unlike many marketing boards in Africa, BAMB does not control crop prices. Farmers are free to sell at prices determined by supply and demand in the private market (NDP 1985-91).

In the critical area of technology development and promotion, the Ministry of Agriculture's research department is engaged in testing various sorghum and maize varieties that can be adopted to various agro-ecological zones of the country, as well as develop water conservation techniques. To improve livestock production, research on range production, animal breeding, and nutrition is being undertaken. The Farming Systems Research Program by the Agricultural Technology Improvement Program (ATIP) of USAID is generating knowledge on appropriate technology for both livestock and crop farming systems. There are also two regional research centers: SADCC/ICRISAT Center in Bulawayo, Zimbabwe, which collaborates with Botswana's Ministry of Agriculture to undertake sorghum trials, and SACCAR, which is SADCC's agricultural research organization based in Gaborone, which coordinates and facilitates exchange of new technology generated from the national agricultural systems in the SADCC region.

Finally, a major constraint on rural and agricultural development of Botswana is trained manpower. This human capital problem is just beginning to be addressed. For instance, after 22 years of independence, a new faculty of agriculture has just been launched at the University of Botswana. The faculty will need technical and financial assistance from donors before it becomes

self-sustaining. It also needs to cooperate with other Faculties of Agriculture in the SADCC region, such as the University of Zimbabwe.

Programs have also been launched in rural industrialization. These programs include: the Botswana Enterprise Development Unit (BEDU), in the ministry of Commerce and Industry, whose major purpose is to encourage the creation of citizen owned enterprises by serving as an outlet for local entrepreneurs. (b) The Brigades, which are self-sufficient technical training centers, (c) The Botswana Development Corporation (BDC), whose aim is to seek new opportunities for Botswana entrepreneurs in commercial, industrial, and agricultural areas (USAID Botswana 1987).

The Drought Relief Program

Botswana developed a major food security action program known as the Drought Relief Programme, with the following objectives:

- (a) to supplement food supplies in order to reduce or prevent malnutrition among the vulnerable and risky groups of the population.
- (b) to supplement rural income in order to compensate for agricultural production income lost due to drought.
- (c) to maintain water supplies for human consumption.
- (d) to alleviate the effects of drought on livestock.
- (e) to assist arable farmers to regain productivity in the season's following crop failure through a post-drought recovery program (NFS, 1985).

In order to pursue these multiple goals the overall program was classified into four major components as follows:

(1) The human relief (supplementary feeding) program, which focused on providing access to food by vulnerable groups, such as, destitutes, primary school children, remote area dwellers (RADS), and malnourished children.

(2) A Cash for Work (CFW) Program, known as the Labor Based Relief Program (LBRP), provides a short term public works jobs at below national daily wage rate. The CFW projects are selected at the local level by the Village Development Committees (VDCS) in order to provide cash-earning opportunities that create potentially useful village infrastructure. A related program involves hand stamping (pounding) of sorghum by women for school feeding.

(3) The Agricultural Relief Program, has several components including, vaccinations and feed assistance to livestock owners, cattle purchase scheme, seed for farm households, cash grants for land clearing for plowing, and assistance for farming with inadequate draft power.

(4) The Water Supply Program - provides funding and assistance for various water improvement programs, including transportation, borehole maintenance, rehabilitation of existing water systems and construction of new water systems to relieve water shortages imposed by drought (Ibid).

The overall Food Security Action Program is administered by an Inter-Ministerial Drought Committee (IMDC), which is comprised of representatives from six government ministries (Finance and Development Planning, Agriculture, Health, Education, Local Government and Lands, and Mineral Resources and Water Affairs). The activities of the ministries are overseen by the Rural Development Unit in the MFDP, that serves as a coordinating agency. The I.M.D.C. through its small early warning technical group also collects and makes monthly reports on rainfall, soil moisture - production and nutritional status of the population that form the data base for policy direction and implementation of the drought relief program (Holm and Morgan 1985, Mokobi and Asefa 1987).

Various government ministries cooperate in implementing the overall program; The Ministry of Local Government and Lands (MLGL), through its Department of Food Resources (DFR), implements the human relief programs (i.e. supplementary and cash for work programs) in cooperation with Ministries of Health and Education. The Ministry of Health cooperates with the Department of Food Resources in monitoring the national nutrition situation and in organizing on site feeding of malnourished and vulnerable children; while the Ministry of Education oversees the feeding of primary school children. The Ministry of Agriculture implements the Agricultural Relief and Recovery Programs, while the water supply program is under the Ministry of Mineral Resources and Water Affairs (Ibid).

The IMDC, which is coordinated by the Rural Development Unit (RDU) of the MFDP comprises of representatives from the previously cited government ministries as well as the vice-president of the country. The head of RDU serves as secretary of the IMDC. A similar institutional structure to the IMDC was also established at the district and local levels to ensure a

decentralized decision making approach to the implementation of the overall drought relief program. The District Drought Committees (DDC) and the Village Development Committees (VDC) take primary responsibilities in the administration and implementation of the programs at the district and local levels.

An Assessment of Botswana's Food Security Action Program

In spite of persistent drought in recent years, no one died in Botswana as a result of the 1981-86 famine. This in itself is a commendable achievement considering the heavy loss of human lives in many African countries caused by recent famines. Botswana is also one of the few countries that maintains up-to-date nutritional and demographic information on its rural population and publishes this information on a regular basis. In some countries in the region, such as Malawi, nutrition data cannot be released by law. A further achievement of Botswana's program is the successful identification and targeting of the vulnerable or the neediest groups.

Design and Implementation of Supplementary Feeding

The Human Supplementary Feeding Program is one of the two food consumption programs as shown in figure 2. It is coordinated nationally by the Department of Food Resources, which was created in 1982. The program has been effective in distributing food to the various vulnerable groups (see table 2). In 1984 about 60 percent of the population received supplementary feeding on a regular basis, providing 21 percent of their caloric needs (Mokobi and Asefa 1987).

The supplementary feeding program is implemented as follows: During non-drought years, food is provided five days a week in primary schools to all pupils, at health centers to medically selected pre-school children, as well as to pregnant and lactating women. During drought years, the criteria of medical selection in clinics is dropped and all school children continue to receive a mid-day meal. Registered destitutes and non-school children up to ten years of age are also fed during the drought period. The feeding program is complemented by nutritional education to encourage the use of local foods of high nutritional quality, whenever possible (Ibid).

The program appears to be well targeted to the vulnerable groups in rural areas. Since it is assumed that urban dwellers generally have better access to regular income, the program focuses on rural areas, including the "remote area dwellers" (RADS), (a popular term referring to people in distant settlements such as the Basarwa or the "bush men"). During drought periods, food transfers are integrated in the supplementary feeding program. Rural health facilities are turned into feeding points which receive a regular food supply and, all primary schools serve a midday meal to all their pupils. During drought years, school feeding continues even over weekends and school holidays. The DFR supplies 500-600 primary schools and feeding centers throughout the country. The Government has classified vulnerable group beneficiaries into groups that receive rations at health centers as: pregnant and lactating mothers, pre-school children, TB outpatients, children six to ten years old not in school, permanent destitutes (group A), temporary destitutes (group B), underweight children and severely underweight children (Mokobi and Asefa, p. 263). The number of the various categories vulnerable groups reached by the supplementary feeding program during 1983 to 1987 period is shown in table 2.

Persistent drought normally increases household and intra-household food insecurity, since the longer the drought persists, the less food households have to share with relatives. Underweight children are fed at Health Centers. Severely malnourished children are fed with a mixture of dried skimmed milk, vegetable oil, sugar - known as Disco Milk. The DFR in accordance with policy guidelines formulated by the IMDC is responsible for implementing the supplementary feeding program. The program is estimated to have provided 19% of available food in large villages, 32% in small villages and more for remote villages. Overall, 90 percent of rural households are estimated to have access to food rations of some kind (Hay 1988).

The implementation of the supplementary feeding program is fairly decentralized. The IMDC formulates its policy based on the needs and information provided by the District Drought Committee (DDC) at the district level, who in turn get their information from the Village Development Committee (VDC's) at the local level.

Table 2: The number of various vulnerable groups reached between 1983/84 and 1987/88 by the supplementary feeding program

Vulnerable Groups	1983/84	1984/85	1985/86	1987/88
Malnourished children	3,888	9,334	14,744	16,161
Lactating mothers	51,878	53,510	46,369	43,410
Pregnant mothers	21,274	22,174	24,275	18,935
T-B outpatients	2,490	13,368	9,999	4,679
Destitute A (permanent)	8,550	8,582	6,727	5,469
Destitute B (permanent)	27,236	27,956	36,390	34,272
Pre-school children	177,660	179,781	166,095	166,421
6-10 year old non-school children	58,766	85,259	76,367	75,325
Primary school children	208,291	222,980	237,111	140,180
TOTAL	573,549	622,842	618,717	613,056
Percent (%) of Total Population	57	62	61	60

Source: Compiled from Department of Food Resources, Annual Reports, 1983-87, Ministry of Local Government and Lands, GOB, Gaborone.

IV. THE CASH FOR WORK PROGRAM

Botswana's Cash For Work Program is the second major component of the food access portion of the national Food Security Action Program or the drought relief program as illustrated in figure 2. It is, however, budgetarily more significant as well as a potentially more sustainable instrument of providing food access compared to supplementary feeding. Of the total expenditures of about p 52,342,000 (U.S. \$31,405,200) on the overall drought relief program, about p 18 milion (U.S. \$11 million) was allocated to Cash for Work Program during 1987-88 period. (Asefa, Gyekye, Siphambe, 1987).

The objective of Botswana's CFW program is to replace lost income and employment due to drought and to create productive village social and physical infrastructure in rural areas (Hay, 1988). CFWs or more generally rural public works programs have been used in creating productive physical assets such as irrigation, land reclamation, reforestation, soil conservation

measures, and drainage; or economic structures such as roads and bridges that facilitate marketing and communication activities; and social infrastructure projects such as schools, clinics and water supply construction that create social capital (Clay 1980). However, there are some unresolved issues generated from past experiences with these programs. According to recent survey of literature of public works programs, these unresolved critical issues include:

(a) how to ensure effective participation by those in need,

(b) how to generate projects that combine employment potential for the unskilled at the right place for the right season with a socially useful end product.

(c) how to respond to the leakage of resources before they reach intended beneficiaries.

(d) how to ensure the projects produce assets of an adequate standard at reasonable cost and how to guarantee that benefits are distributed to those most in need (Ibid, p. 1237).

In spite of the long experience with CFW programs, controversies regarding the programs relating to their short term benefits, their long term impact on employment and incomes, their cost-effectiveness, as well as their broader political and macro-economic effects still remain.

Botswana's Cash For Work Program, in its current form, originated in 1982. The country, however, has a long experience in public works programs starting in the 1960's when Food for Work (FFW) was introduced. The program employed about 37,000 workers at its peak. The FFW program was introduced again 1973, but failed because of administrative and organization problems. Later, in 1978/79 Botswana engaged in CFW program where projects were identified by government officials. This strategy was revised again in 1982 following a consultancy recommendation to the Government that urged local people to be given the responsibility of project identification and implementation (Gooch and Macdonald, 1981). The government accepted this general recommendation and set up Village Development Committees to take primary responsibilities of drawing up projects with assistance of labor based technical officers to be passed for financing by the Food Resource Department. Comparative experiences and studies of Cash for Work and Food for Work

Programs suggest that CFW's have greater advantages than FFW Programs in the following aspects:

(a) Cash for Work Programs allow households greater flexibility in allocating money among foods or between food and non-food expenditures i.e. households are more able to spend according to their optimal choices and needs. CFW programs also allow the possibility of investment on human capital in the form of education and health expenditures.

(b) It is widely believed that the morale, dignity and integrity of households is better preserved or enhanced by Cash For Work Programs, since households perceive themselves as receiving cash income instead of food hand-outs.

(c) Cash for Work Programs are much easier and less costly to administer than Food for Work Programs (Hay, 1988).

Whether CFW programs will have a positive impact on food consumption, however, partially depends on the availability of food supply. In the case of Botswana, food can easily be imported from South Africa or Zimbabwe to make the program effective. In countries that lack domestic or imported food supply, cash for work programs have little effect on food access. However, food aid could be resold to support domestic food supply and proceeds can be used to finance CFW schemes (Ibid).

V. CASH FOR WORK: VILLAGE CASE STUDY

A random sample of 70 households was selected from Ramotswa Village in the South East District of Botswana, bordering the Republic of South Africa. The South East district was chosen as a case study because it has an unemployment rate of 45 percent, among the highest of all districts of the country. Ramotswa Village was chosen among the five villages in the district, since it has the greatest participation rate and largest diversity of Cash for Work projects. The sample of 70 households was stratified into 40 participants and 30 non-participants.

A questionnaire was administered over a period of one month in April, 1988 addressing the following issues:

- (a) Basic demographic characteristics including household size, age and gender.
- (b) Household non-CFW sources of income.

Table 3: Cash for Work (CFW) Program Expenditures and Jobs Created in Relation to Overall Drought Relief Expenditure, 1983-87 (all districts - millions of pula)

Year	Drought-Relief Expenditures	CFW Expend.	CFW Jobs Created	CFW Exp/Job	CFW Exp.
1982/83	-	1,361,687	23,000	107.07	
1983/84	10,095,837	6,821,006	62,500	109.2	67.7%
1984/85	22,127,506	5,822,686	41,040	144.59	26.8%
1985/86	16,339,376	7,173,494	42,099	172.77	44.5%
1986/87	23,620,341	8,448,210	45,207	186.88	35.8%

Note: In 1987/88 period an estimated pula 52,342,000 was requested from the Cabinet, of which pula 18 million is allocated to CFW programs.

Table 4: Per Capita Distribution of CFW Funds (all districts) 1982-85

District	1982/83	1983/84	1984/85
Kgalagadi	5.55	15.56	10.12
Kwaneng	5.03	5.56	7.18
Northeast	4.87	15.19	18.12
Chobe	4.38	12.58	9.55
Central	3.50	9.89	7.14
Ngamiland	3.03	11.32	-
Southeast	1.39	9.59	10.80
Gantsi	1.32	13.16	7.08
Southern	0.92	3.82	7.33
Kgatleng	<u>0.91</u>	<u>4.58</u>	<u>11.66</u>
Average	3.14	8.69	9.87

Source: Compiled from, Department of Food Resources, Annual Reports, 1983-87, Ministry of Local Government and Land, GOB, Gaborone.

- (c) Household CFW sources of income and participation in various CFW activities.
- (d) Household expenditure patterns on food, non-food, and investment such as education, and livestock assets.

The household survey was supplemented by an opinion poll survey of national district drought relief personnel. Questions for the district personnel survey revolved around issues of target efficiency, leakage, and their assessment of benefits and constraints of the program.

Summary of Survey Findings

A statistical analysis of data from the survey of seventy households, stratified into 40 participants (30 regular participants and 10 supervisors) and 30 non-participants was conducted. The following section summarizes the results by comparing participants and non-participants in the program.

Basic Demographic Characteristics

The results show that the proportion of women in the participating village (59% female, and 41% male) is more than the non-participating group (43% female, and 57% male). The mean household size for the participants at 9.4 persons is larger than the non-participants mean household size of 6.5 persons. A greater number of household members among the participants engage in other type of work in the capital city of Gaborone, elsewhere in Botswana, or in nearby South Africa as migrant workers. Of the participating households, 65% were engaged in agriculture, (62.5% in crop production and 2.5% in livestock) 10% were in domestic service, 20 percent were unemployed, and 5% were engaged in some other work prior to joining the Cash for Work Program. Both participants and non-participants express about the same degree of desire for future participation in the program. Sixty-two percent of the current participants desire to continue to participate, while 80% of the non-participants said they would like to participate in the program in the future).

**Private Sources of Non-CFW Income:
(Employment and Private Transfers)**

None of the participants indicated that they receive income from agricultural employment or other sources of formal employment. A few of the non-participants receive income from agricultural employment (10.3%) and other sources of rural employment (3.6%). On the other hand, more of the program participants (7.7%) indicated that they receive income from livestock sales compared to the non-participants (3.3%). There is no significant difference between the two groups in terms of the proportion of income received from sales of crops, vegetables and handicrafts. But more participants than non-participants receive private income transfers from relatives or friends living in Gaborone; elsewhere in Botswana, or nearby South Africa.

**Government Agricultural Subsidy
and Drought Relief Assistance**

Survey results show that greater proportions of participants indicated that they receive assistance from two of the government agricultural subsidy programs, namely ALDEP (Arable Lands Development Program) and ARAP (accelerated rainfall arable program). None of the non-participating households indicated they receive assistance from ALDEP or ARAP. More of the households in the participating groups, compared to the non-participants receive assistance from the other Government drought relief program such as supplementary feeding, seed provision, draft power, and de-stumping.

Ownership of Assets

Greater number of households in the participating group compared to the non-participants indicated that they own such assets as cattle, small-stocks, house, and other assets. The only exception is land ownership, where 63.3% of non-participants compared to 60% of participants reported they own land.

Participation in Various Cash for Work Activities

The greatest participation rate is in dam construction (56.7%) The ranking of the six project activities in the village by participation rates is as follows: (1) Dam construction (56.7%), (2) rural road construction

(26.7%), (3) road maintenance (16.7%) and sorghum hand stamping (16.7%) (4) village road construction (13.3%) and (5) brick molding (6.7%).

Expenditures on Various Types of Foods and Non-Food Items

A greater proportion of participants than non-participants purchased such basic foods as bread or 'meali meal,' oils and fats, fruits and vegetables, potatoes and root crops, coffee or tea. On the other hand, more of the participants compared to non-participants buy eggs, dairy products, tobacco, alcoholic and non-alcoholic beverages. The latter difference, however, is quite minor. More of the participants also indicated they purchase non-food items such as clothing, footwear and gifts to friends and relatives. For other non-food items covered in the survey, namely durable household goods, transportation, and recreation; slightly greater number of non-participants said they spend income on these items compared to participants.

Household Saving and Investment Patterns

A greater proportion of participants than non-participants indicated they engage in five of the categories of savings and investment activities included in the survey: operating cost of livestock and crop production, operating cost of handicraft activity, capital good purchases, school expenses, and other assets. While no one in both groups indicated they invest in land or livestock, slightly more of the non-participants compared to participants have savings accounts or give loans to others.

Expenditures Reduced if CFW Income is Not Available

When confronted with a general question of which items they would reduce in their purchases if they had no cash for work income, 35% answered they would reduce expenditures on food and/or clothing, 15% answered capital goods, and the rest (50%) did not know or would not respond to this hypothetical survey question.

Summary of National and District Personnel Survey

In order to supplement the village level survey, a national survey of program officials from 15 districts and sub-districts of Botswana was conducted. The following four categories of personnel, participated in the survey:

- (a) Drought Relief Technical Officers (DRTO'S)
- (b) Drought Relief Coordinators (DRC'S)
- (c) District Development Officers (DDO'S)
- (d) Council Planning Officers (CPO'S)

Of the above categories, DRTO's are the most directly engaged in the management and implementation of the Cash for Work Programs at the district and sub-district level. The survey was conducted during the period of March 2-4, 1988, at the CFW personnel annual workshop in Gaborone. Eighteen questions (13 closed and 5 open-ended) were devised. The main findings of the survey are as follows:

1. Sixty percent of the workshop participants completed the questionnaire. The respondents comprise nine (DRTO's), thirteen DRC's, two DDO's, five CPO's, and three others.
2. Fifteen individuals answered 60% of participants are reached by the program, five said 80%, seven said 40%, and five answered 20% or below.
3. The proportion of participants meeting program criteria was as follows: twelve respondents answered 60%, ten answered 80%, five said 40% and five indicated 20% or below.
4. The majority of eighteen (56.3%) indicated that the VDC (Village Development Council) and district administration jointly set the criteria of participation, seven (22%) answered only the VDC, and the rest answered the district administration, CFW supervisors, or others.
5. Thirteen (41%) respondents answered the VDC is responsible for implementing the participation criteria, seven (22%) answered the district administration, eight (25%) answered the District Administration and the VDC and four (12%) answered others.
6. Twelve (38%) respondents said political party affiliation is of minor importance but a factor as a participation criterion, twelve

- (38%) answered it is not a factor, and seven (22%) said it is an important or a very important factor.
7. The majority of seventeen (53%) said the Cash for Work program has a positive effect on food consumption and nutrition, and seven (22%), said it has a very significant positive effect, while five (15%) said it has a minor effect.
 8. Fifteen (47%) individuals said that CFW has no impact on investment because participants are too poor to invest. Five respondents (16%) thought participants invest in education, and eight (25%) reported that participants invested in agricultural assets, livestock or some other form of investment.
 9. The majority of twenty five respondents (78%) said that projects have a moderate to substantial impact on village or community welfare, while seven respondents (22%) said the projects have no impact on Village Social Welfare.
 10. Twenty six individuals (81%) thought that the CFW program is moderately useful to very useful, and six (19%) indicated it is somewhat useful or not useful.
 11. The majority of nineteen respondents (59%) answered that CFW projects are selected by the VDC, while eight (25%) answered projects are selected by the VDC's and DRTO's in cooperation. Five (16%) said projects are selected by some other party.
 12. Seventeen respondents (53%) answered that criteria should not be changed, and fourteen (44%) answered that it should be changed.
 13. A significant majority of twenty eight individuals (88%) said the CFW program should be converted into a long term program and three said it should be modified and continued in its current form.
 14. A large majority of respondents, twenty eight individuals (88%), thought the CFW program creates dependency on government.

Factors Affecting Participation

In order to find out the factors that affect participation in the program, a multiple linear regression model was fitted that relates participation to several variables including household size, gender, asset ownership, government transfers, and drought relief. The results of the model

are summarized in appendix A (table 1). The risk level at which the individual independent variables are significant ranges from 2.6% to 31%. The results show that more landownership encourages participation and is the most significant variable. But, large household size also encourages participation, while more cattle ownership, and greater draft power assistance, discourage participation in the program at risk level of less than 15%. Other variables that discourage participation, in descending order of significance, are more small stock ownership, more ALDEP income, and greater supplementary feeding. About 65% of the total variation in participation is explained by these variables combined. The overall regression equation is significant at 4% risk level or (96% confidence level). The estimated results showed no evidence of multi-collinearity.

The Effect of Participation in Program on Food, Non-Food and Investment Expenditures

The results summarized in the appendix A (table 2) show the estimated results of some simple linear regression equations relating; participation to food expenditure, non-food expenditure and investment. Here, only the 'food expenditure regression model' is significant at an acceptable level of confidence (over 95%), while the non-food expenditure and 'investment' regression equations are not significant. In other words, food expenditure is significantly related to participation (at less than 5% risk level) implying that participation has an important positive effect on increasing food access of households participating in the Cash for Work Program.

VI. SUMMARY AND POLICY IMPLICATIONS

Botswana has, in recent years, engaged in one of the most ambitious and successful famine prevention and management programs in Africa (Holm and Morgan 1985, Quinn et al. 1988, Hay 1988). Botswana's relative success in preventing drought from turning into famine is partially due to its ability to finance a large drought relief program financed by a rapidly growing diamond based economy.

A critical policy question for Botswana's economic development, however, is how long it can continue to finance its famine prevention program? A related question is how it can create a self-reliant, employment and income

generating rural economy, that does not rely on continued government subsidies? Survey results from a village case study of the Cash for Work Program (more formally known as the labor based relief program (LBRP)), show that the majority of the participants in the study sample are female-headed households with larger average family size compared to non-participants. Both participants and non-participants showed the same degree of desire for future participation in the program. Non-participants are poorer or just as poor as participants (i.e. more of the participants received income from diverse sources). One implication of this is that there is a potential 'target inefficiency' or 'leakage' problem in the program, (i.e. there are households who should be participating but are not participating for various reasons.) The presence of the possible 'leakage' problem is also supported by the survey of district level LBRP personnel, where the majority (70%) indicated that only 40% to 60% of the potential beneficiaries are reached by the program. It is conceivable that the problem of 'target inefficiency' can be overcome through better project management, and more strict enforcement of participation criteria. More important, the program can be more sustainable if it is converted and/or integrated into a long term rural employment and income generating rural development programs directly focused on the rural poor.

The findings on the factors that affect program participation showed that increased landownership, and greater household size encourage participation; while increased cattle ownership, more draft power assistance, and greater ALDEP (arable lands development program), and increased supplementary feeding, decrease participation in the program. Cattle rearing, and programs such as draft power assistance and ALDEP are components of the government's long-run agricultural development program that compete for labor with the Cash for Work Program. Botswana needs to link the currently short-run focused Cash for Work Program into other long-run agricultural support programs such as ALDEP in order to create a coherent and sustainable agricultural development and rural employment program. This linkage to long-run rural development is needed to reduce and eventually eliminate the dependency problem created by the Cash for Work Program.

The case study findings also show that participation in the Cash for Work Program is a potential tool for increasing food access for participants.

And the income earned from the program is too meager to have any significant effect on non-food expenditure and investment.

Finally, as a short-run mechanism for providing food security during the drought period, Botswana's Cash for Work Program is quite effective. However, the critical policy issues and problems of employment and income generation necessary for achieving long-run food security, poverty reduction, and economic self-reliance for all Botswana Nationals still needs to be tackled by further policy oriented research.

What Can Africa Learn from Botswana's Experience?

The results of a village case study from a single country cannot, of course, be generalized for the 45 countries of Sub-Saharan Africa. Further, it has been said that Botswana is unique in Africa since it has a relatively healthy economy, an independent press, and a decentralized multi-party Democracy (Holm and Morgan 1985). The Country's independent national media and multi-party democracy are important factors in making the government responsive to the basic needs and demands of its people by serving as instruments of political empowerment by the majority of the population; the effect of which is greater 'entitlement' of the majority rural population with basic needs and resources via decentralized Government institutions.

Perhaps, an important lesson that other African countries can learn from Botswana, in the process of restructuring and liberalizing their economies and policies, is how to design village-level democratic and decentralized political and administrative institutions that empower the majority of their population. This is one important lesson Botswana can teach Africa. The development of decentralized village-level democratic institutions is a challenging and difficult task for other African countries. It would involve building functional democratic institutions that are responsive to the needs of the majority rural population. Another useful lesson that can be learned from Botswana's experience with Cash for Work Program is the treatment of food insecurity as income and employment problems, rather than a mere deficiency in national aggregate food production.

In sum, Botswana's unique institutional innovation and decentralized democratic decision making approach allows information to flow from the bottom up; giving villagers a sense of participation in economic activities that

affect their lives. This unique village-level institutional building and decentralized decision making approach is a lesson worthy of serious consideration and emulation by other African countries.

APPENDIX: TABLES OF RESULTS

Table 1. National Survey Results of District Level Program Personnel

Role in Drought Relief Administration	DRT0's 30%	DRC's 43.3%	DOD's 6.7%	CPO's 15.6%	Other 3.3%
Prop. of Beneficiaries Reached	80 percent 16.1%	60 percent 48.4%	40 percent 22.6%	20 percent 6.5%	10 percent & below 6.4%
Prop. of Part. Meeting Criteria	80 percent 32.3%	60 percent 38.7%	40 percent 16.1%	20 percent 6.5%	10 percent & below 6.5%
Who Set Criteria of Participation?	Distr. Adm. 6.3%	VDC 21.9%	LBRP-Supr. 3.1%	VDC & Dist. Admin. 12.4%	Other 12.5%
Who Implements Criteria of Participation?	Dist. Adm. 21.9%	VDC 40.6%	VDC & Dist. 25%	Others 12.4%	
Importance of Pol. Party Membership in Select.	Not a Factor 37.5%	Minor Impt. but Factor 37.5%	Important Factor 12.5%	Very Impt. Factor 9.4%	Other 3.1%
Opinion of LBRP on Food Cons. & Nutrition	Minor Effect 16.1%	Some Effect 54.8%	Very Sign. Effect 27.6%	Other 6.5%	
Opinion of LBRP on Investment	Agr. Assets 3.2%	Small Stock 6.5%	Education 16.1%	Other Inv. 16.1%	No Invest. Costs 48.4%
Effect on Village or Community (i.e. Projects)	Very Little Effect 19.4%	Moderate Impact 58.1%	Substant. Impact 22.5%		
Usefulness of Infrastructure Created	Not Useful 6.3%	Somewhat Useful 12.5%	Moderately Useful 31.3%	Very Useful 50%	
Who Selects LBRP Projects at Village Level?	VDC 59.4%	VDC & DRT0 25%	Other 15.6%		
Should Selection Criteria Be Changed?	Yes = 43.8%	No = 53.1%	No Opinion 2.1%		
Recommendation on Future Status of LBRP?	Modify & Continue 9.4%	Convert into Long-Term Program 85.5%		Other 3.2%	
Do LBRP's Create Dependency on Government?	Yes = 88%	No = 12%			

RESULTS OF ESTIMATED REGRESSION EQUATION

Table 2. Factors Affecting Participation in Programs

VARIABLE NAME	B	SEB	T	SIG T.	
Land Ownership	.388055	.169290	2.292	.0264	R ² = .6460
Cattle Ownership	-.383964	.2234	-1.719	.0922	
Household Size	.025473	.015763	1.616	.1128	F = 1.87610
Draft Power Asst.	-.251599	.171644	-1.466	.1494	S _e = .44706
Small Stock Ownership	-.243259	.182593	-1.332	.1892	Sig. F = .0439
ALDEP Income	-.329315	.255810	-1.287	.2043	
Part. Sex	.165988	.148138	1.126	.2682	
Suppl. Feeding	-.200895	.195759	-1.026	.3100	
Constant	2.455867	.438935	5.595	.000	
Participation	- <u>Dependent Variable</u>				

Table 3. The Effect of Participating in Program on Food Expenditure, Non-Food Expenditure and Investment

Equation	Variable	(Reg. Coeff.) B	(Std. Error) SEB	(T-ratio) T	Sig. T	
FEXP (#1)	CFW Worker	0.200	.064169	3.117	.0027	R ² = .125 S _e = .26569
	Constant	1.60	.105719	15.134	0.006	
NFEXP (#2)	CFW Worker	.091667	.099934	.917	.3622	R ² = .01222 S _e = .41376
	Constant	1.641667	.164641	9.971		
		R ² = .01222		S _e = .41376		
INVST EXP (#3)	CFW Worker	.05000	.118249	.423	.6737	R ² = .00262 S _e = .48960
	Constant	1.55	.194816	7.956	.0000	

LIST OF ACRONYMS

ALDEP	Arable Lands Development Program
ARAP	Accelerated Rain-fed Arable Program
ARDP	Accelerated Rural Development Program
ATIP	Agricultural Technology Improvement Project
BAMB	Botswana Agricultural Marketing Board
BDC	Botswana Development Corporation
BDP	Botswana Democratic Party
BEDU	Botswana Enterprise Development Unit
BMC	Botswana Meat Commission
BNF	Botswana National Front
CFW	Cash for Work which is the same as Labour Based Relief Program
CPO	Council Planning Officer
DDC	District Drought Committee
DDO	District Development Officer
DFR	Department of Food Resources
DRC	Drought Relief Coordinator
DRT0	Drought Relief Technical Officer
FAO	Food and Agriculture Organization
FAP	Financial Assistance Policy
FFW	Food for Work
GDP	Gross Domestic Product
GOB	Government of Botswana
GNP	Gross National Product
ICRISAT	International Crops Research Institute for Semi-Arid Tropics
IMDC	Interministerial Drought Committee
IMF	International Monetary Fund
LBRP	Labor Based Relief Program which is the Same as Cash for Work in the Study
MA	Ministry of Agriculture
MFDP	Ministry of Finance and Development Planning
MLGL	Ministry of Local Government and Lands
NDP VI	National Development Plan No. 6 (1985-91)

List of Acronyms (Continued)

NFS	National Food Strategy
RADS	Remote Area Dwellers
RDU	Rural Development Unit
SADCC	Southern African Development Coordination Conference
SAECU	Southern African Economic and Customs Union
TGLP	Tribal Grazing Land Policy
UNDP	United National Development Program
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
VDC	Village Development Committee
WHO	World Health Organization
UZ/MSU	University of Zimbabwe/Michigan State University

Exchange rate: 1 Pula is approximately US \$0.60

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