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**BOTSWANA'S APPROACH TO DROUGHT:  
HOW DISASTER RELIEF CAN BE DEVELOPMENTAL**

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A Plan B Paper

Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
for the degree of  
**Master of Science**

Department of Agricultural Economics  
1990

### Acknowledgements

I would like to thank Dr. James Bonnen for his open-minded and thoughtful review of this paper as well as for his patient and timely editing. I also appreciate the expert feedback and thought given by the other members of my committee -- Dr. Carl Eicher and Dr. David Campbell who were influential in shaping the structure and content of this work. I am very grateful to Chadwa Rochai for his review and comments on the accuracy of the paper's representation of Botswana. Jeff Wilson was very generous in the time and effort he offered with technical support and especially appreciated were the many pertinent leads to potential sources provided by Valentina Mazzucato.

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## I. INTRODUCTION

Integrating disaster relief and development is not a new concept. Addressing underlying problems that have made a society susceptible to disaster have their origins dating back to the Indian Famine Relief Codes of the 1860's. Today, this is a popular notion among many people involved with emergency response. Still, there are relatively few instances where disaster relief has emphasized both long and short term needs - cases from which other countries and international organizations can learn. The problem of not having a successful example from which to model relief responses has often been cited as creating a serious barrier to implementing successful relief-development responses during recent famines (Cutler and Stephenson, RDI, Garvelink). The need for an African success story during drought to be used as a model is particularly acute given the vast human and material losses caused by famine on that continent up to the present time. This paper will attempt to address this need by examining the developmental gains achieved by Botswana in the course of meeting the emergency needs caused by the 1981-1986 drought. This paper, therefore, represents a case study of a successful drought relief program, focusing on Botswana, supplemented with historical information and some assessments on how disaster relief can be better linked to development.

While this paper will concentrate on famine, many of the same principles making an emergency intervention developmental apply as well to disasters in general. For this reason, the first section of this paper will explore the interrelationship between disasters and development, including a critique of the approach countries have conventionally taken to respond to disaster. Next, the conceptual logic for linking disaster relief to development will be reviewed. This section concludes with factors that can be used to measure the effectiveness of an emergency program. With this background in place, the case of Botswana will be examined. The evolution and present institutional structure of Botswana's Drought Relief Programme will be described, followed by an evaluation, using the factors outlined earlier, measuring the extent to which the 1981-1986 drought relief effort was developmental. The paper ends with a brief review of the key elements of the Botswana model.

#### A. DROUGHT AND FAMINE

The distinction between drought and famine should be made clear from the start. Drought is a climatological condition of sharply lower than normal levels of rainfall in a region over a significant period of time often resulting in losses of agricultural crops, livestock, and increased pressure on human institutions. Famine occurs when a large

number of people starve or die from illnesses brought on from undernourishment. Famine can result from drought but drought is not the only cause of famine. Inadequate supplies of food resulting from pests, flooding, civil strife, insufficient household or national storage capacities, or inefficient production and marketing systems can also lead to famine, even in years of good rainfall. Adequate supplies of food in a country however do not automatically prevent the occurrence of famine. Poor peoples' lack of assets, inadequate savings, or inability to secure a sufficient income can block them from creating the effective demand needed to attract the necessary amounts of food into their regions. Thus, the observation, "People don't starve with money in their pockets", remains true for today's famine victims (Mariam, p.138). Consequently, when large numbers of people suddenly lose their food entitlement<sup>1</sup> due to a sharp rise in food prices or a disruption in employment or income, the conditions are ripe for famine. The West Bengal famine of 1943, the Ethiopian famines of 1974 and 1984, The Bangladesh famine of 1974, and the Sudan famine of 1984-85 were all cases where there were

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<sup>1</sup>. Food exchange entitlements of famine victims, are the food consumption possibilities attainable by all legal means from the individual's available resources. Production using the individual's own means of production is one such means. Trade is another. If the conditions of trade change sufficiently to make it impossible for an individual to attain sufficient food for continued survival then 'trade entitlement failure' is said to occur (Sen 1981).



adequate supplies of food within the country (Sen 1983, Seaman and Holt). In some instances grain was being exported while people within the country were starving (Sen 1983). Thus there is no automatic linkage between a country's national balance of food stocks, and the number of starving people. In India and Thailand, net exporters of food, a greater percentage of the population is undernourished than in some net importers of food (USAID 1986, p. 28). Conversely, drought does not necessarily lead to famine as evidenced by the experience of countries in Europe, Australia, Canada, and the United States, where people have the ability to acquire food even in the event of such a natural catastrophe.

Famine, then, occurs as the result of a breakdown in institutions affecting the supply or demand of food. Only under certain conditions does drought become one of the factors of famine (Mariam, p.125). The effectiveness and responsiveness of these institutions, directly or indirectly influenced by governments, determines the vulnerability of a country to famine. In this way, governments assume a principal responsibility for ensuring the welfare of its vulnerable citizens in times of famine. In a few cases, a government's inability to accept this responsibility and adequately foster and support these institutions in a timely manner has contributed to its own downfall (Cuny, p. 54).

## II. INTERRELATIONSHIP BETWEEN DISASTERS AND DEVELOPMENT

### A. THE CORRELATION OF DISASTER AND POOR COUNTRIES

Disasters are about vulnerability. More than any other human event, they expose all the basic problems of a society (Cuny, p. 11). When a disaster strikes, therefore, its effects are most debilitating for those countries least able to mount an effective response. The demands of the disaster exceed the society's capacities to cope. Economically poor countries are especially susceptible. Less able to mobilize and move sufficient resources to a disaster area in a timely manner, they incur greater disaster related consequences. It has been shown that relative per capita damages in developing countries are perhaps 10 times greater than among rich nations (Kates, p. 135). Developing countries have only two-thirds of the world's population but 95% of disaster related deaths (Ibid, p.140). Many poor countries are harder hit since the economy revolves around one or two commodities which when affected cause repercussions throughout all sectors of the population (Cuny, p. 13). Because area planted decreases after a poor crop year, food shortages become a self-perpetuating process (Mellor, p. 543). Likewise, poor people suffer more from disasters than others, because they are more vulnerable. They have little savings, few income or production options, and limited resources. When a disaster occurs, disrupting

the already delicate pattern of existence, poor people have few capacities with which to overcome the new threats. Moreover, disasters, notably famines, redistribute incomes away from the poor through higher food prices (accounting for a large percentage of a poor household's budget), reduced employment opportunities within and outside of agriculture, and a decline in the value of assets commonly owned by the poor such as livestock, tools, and land (Mellor, p.541). In some regions of Ethiopia in 1974, the exchange rate between animals and grain deteriorated by as much as 73% (Sen 1981). Assets sold by the poor during a crisis are usually re-acquired after the famine at 50-300% more than the sales price (Mellor, p.541). This higher vulnerability for the poor is demonstrated in the annual probability of the death of an individual as a result of natural disaster being 1 in 1 million in developed countries, 1 in 100,000 in most developing countries, and 1 in 10,000 in Bangladesh (Kates, p. 135).

National resources that are available are directed towards the disaster relief efforts while on-going longer term development programs are neglected or disbanded. This resource shortage is exacerbated today by the debt crisis many poor countries face. In recent disasters in Madagascar, Fiji, and Mexico - these governments could not finance reconstruction efforts afterward because of a lack of funds (Cuny 1987, p. 9). In Mexico, the President was

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compelled to spend half of his time immediately after the earthquake disaster trying to negotiate debt relief rather than concentrating his full energy on the disaster effort itself (Ibid). Consequently, emergency efforts are oftentimes of a temporary nature, which once the emergency phase has passed, become permanent. This leaves people in an even more vulnerable position than before the disaster. For example, people having lost their housing -- move into structurally damaged and therefore more earthquake vulnerable shelters, or having no other option, rebuild on hurricane prone peninsulas, or people left assetless after a famine are driven to live at the expense of natural resources, oftentimes exceeding carrying capacity and thereby undermining future production (Curtis, p. 13). This, as in the case of deforestation, has the effect of further increasing vulnerability to drought.

Emergency relief measures are very costly both in financial and institutional terms. These costs are borne almost entirely within a country. Contrary to popular belief, international aid in even the more severe disasters only accounts for 30-40% of relief costs (Cuny, p.3). This is an amazing figure considering donors spent \$5 billion in emergency programs in Africa during 1984/85 (Torry p.274). However, costs to an economy go far beyond the expenditures made on emergency relief. The economic costs resulting from death, malnutrition, disabilities, and the disruption to the

economy and development plans can be truly staggering and difficult to recoup. In famine, the economic costs are particularly acute given the long-lasting nature of the condition not to mention the additional recovery difficulties of a population displaced by migration, as so often occurs.

The outcome oftentimes is that a country's developmental efforts are set back several years. "Disasters more than cancel out real economic growth in disaster prone developing countries" (Brown, p. 13). In Botswana, the National Development Plan of 1976-1981, provided figures for growth with and without drought during the planning period. With drought, growth in GDP decreases by 45% (Kgathi, p. 34). The Economic Commission of Latin America (ECLA) has estimated that the damage caused by natural disasters in the 5 countries of the Central American Common Market reduced the average annual growth rate of GDP approximately 2-3% over the 15 year period between 1969-1974 (UNDRO, p. 9). This estimate doesn't include secondary effects which could be 1.5 - 2 times greater than the value of direct effects (Ibid). There is increasing awareness that adequate disaster preparedness is a key missing variable in national development plans. "Many development specialists see disaster as one of the major barriers to the successful implementation of economic development programs, which usually depend on the agricultural sector to provide food,

manpower, and capital for industrial expansion - leading to increased dependency on international aid" (Ball 1977, p.24).

The limitations of poor countries with regards to disaster extends beyond the response effort. Debilitated by the disaster losses - attracting all available resources - these countries are not in a position to plan for future events. Not completely able to recover from the previous disaster and unprepared for the next, poor countries are prone to suffer even greater impacts in the future. Considering this, it is not surprising that of the 30 countries in the world which suffer the highest frequency of disaster - 27 are considered among the 30 poorest in the world as well (Stephens and Green).

It is misleading, however, to present vulnerability only as a factor of a country's national income. Vulnerabilities refer to the long term factors that affect the ability of a community to respond to events or that make it susceptible to calamities (Anderson and Woodrow, p. 10). Lack of wealth is only one part of vulnerability. There are also social, organizational, and institutional considerations that affect a country's vulnerability. A well-organized, socially cohesive people can better withstand the effects of disaster than one that is relatively better off, but not organized (Ibid, p.11). Mary Anderson and Peter Woodrow identify three types of

vulnerabilities that determine the extent to which a society is susceptible to disaster. These are:

1. Physical/material - land, climate, and environment, people's health, their skills and labor, infrastructure, food, housing, capital, and physical technologies.
2. Social/organizational - formal political structures and informal systems through which people get things done such as making decisions, establishing leadership or organizing various social and economic activities. This type of vulnerability is characterized by the level of social cohesiveness present in a community.
3. Attitudinal/motivational - extent to which people feel they can control their lives or, if you will, their "fighting spirit". A community is more motivationally vulnerable when people feel victimized, fatalistic, or dependent.

This broader definition will be instructive when discussing vulnerability throughout the remainder of this paper.

In sum, disasters have a significant detrimental impact on the process of national development and this impact is greatest on those countries that are least able to respond to and prepare for these disasters. The root causes of low levels of development and disaster vulnerability are the same, namely poverty and dysfunctional institutions. Awareness of this relationship is fundamental to preparedness and mitigation (Anderson and Woodrow, p. 8).

Making a distinction between the two concepts is counterproductive. Accordingly, development is the ultimate long term solution to enhance a country's disaster response capacity. Nations which have relatively abundant financial, human, and institutional resources are able to alleviate disaster impacts. Likewise, as household incomes increase, people have more means with which to obtain food in the event of a disaster. Weaknesses in infrastructure such as lack of access roads, limited transport, poorly maintained bridges and roads, insufficient national and household storage facilities and organizational weaknesses such as poor management, communications, logistics, and coordination capacities are key impediments to an effective emergency response. These are precisely the capacities that are targeted by the development process. As Senegal's President Adou Diouf said in a report in the Washington Post, "... the fact remains that the true solutions to the serious problems the countries afflicted by drought and desertification are facing are medium and long term development solutions" (USAID Vol. II, p. 88).

#### B. CONVENTIONAL APPROACH TO DISASTER RELIEF

While disaster relief and development are clearly interrelated, emergency interventions have historically and continue to separate the two processes. Disaster assistance has been viewed primarily from the point of view of the



intervenor leading to approaches that facilitate relief assistance delivery (Cuny, p. 104). The conventional disaster relief approach follows distinct sequential stages, (1) emergency relief - actions that are necessary to save lives, (2) rehabilitation - actions necessary to help the community return to normal as quickly as possible, and (3) reconstruction - the physical re-ordering of the community and the physical environment involving repair and reconstruction of housing and infrastructure (Cuny, p.40). Once the reconstruction stage has been addressed, development can resume. This approach exemplifies a perception of disasters as primarily a relief problem to be met with material aid. There is little awareness that actions taken during a disaster and the reconstruction period have a bearing on the development process. Rather disasters are seen as an event apart from development and one that serves only as a break in the development process (Ibid, p. 142). An intervention that pursues a 'stages' perspective, often with predetermined time limits, results in the ineffective use of resources and prevents the coordination of short, medium, and long range goals. Relief and development are viewed as two separate and competing efforts. Any resources committed to emergency relief are seen as subtractions in the development resources of a country. From this viewpoint, relief is considered a necessary evil to be endured. Efforts are therefore

directed towards the most glaring symptoms (starvation, mass migration, shelters), with the intention that they will be kept short so that attention can be returned to development as soon as possible. In the process, even reconstruction activities are neglected.

Short term responses, especially those by outside donors, are not usually accountable and provide excellent opportunities for corruption and foreign manipulation (Holm and Morgan, p. 469). Since these responses are of a limited time duration, efforts are not made to address longer term needs. The relief organization is not responsible to the local community but only to its mandate of distributing a certain amount of food or supplies in a specified time period. Some organizations deliberately keep their disaster and development operations separate, even if they have an on-going development presence in the field (Borton et al, p.5). These responses are prone to addressing the outcomes of a disaster stricken country's vulnerabilities rather than the real problems themselves (ie. poverty and weak institutions). In a famine, a response is aimed at starvation but not also at the accessibility and long term availability issues. It is this sort of response that leaves a country, such as Ethiopia, no less vulnerable in 1990 to famine than it was before the 1984/85 famine.

Another common belief encompassed in this conventional view is the assumption that the material, skills,

leadership, and institutions needed for an effective response are not locally available. As a result, these components of a relief operation are often imported - adding little to the local community in terms of assets that can be used and built upon for the long term. Operations such as these miss the opportunity to work with and empower local institutions and coping mechanisms (Cuny). Such institutions may prove to be effective vehicles for future community organization and development and a means to ensure that lessons from the relief effort are remembered. At the least, a more participatory approach requires knowledge of local organizations and customs. Obtaining this understanding is often precluded with a short run strategy. More than simply lengthening the time period of an operation, however, a commitment to working with local communities on the part of relief organizations is required.

Limiting the types of assistance available to standardized time periods also often reduces opportunities to make an impact. Peoples' labor demands fluctuate depending on the season of the year (eg. rainy, harvest). Thus, people are able to commit more of their energies towards reconstruction during certain seasons of the year. If the disaster occurs during a peak work period, the majority of financial assistance may go unused, but not for lack of need. If this assistance were to be available six months later when people were not as occupied, the

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assistance would be of greater value. Most operations however are not flexible enough to coordinate their energies into the local cycle of labor use and availability.

If relief efforts simply addressed short term needs but disregarded longer term problems this would be unfortunate but not counterproductive. However, inappropriate short term interventions can be detrimental as well. The classic example of this occurred after the 1976 Guatemalan earthquake. While the quake caused much physical damage and loss of life, local food supplies were mostly unaffected. However, based on erroneous assumptions of what was needed, several major donor agencies flooded the area with food aid. This aid effectively undercut the local market depriving local farmers of much needed income, which they could have used to invest in their own recovery. Unable to sell their grain nor find work due to the disruptions in the economy, farmers were forced to join other recipients of relief assistance on which they would be required to rely to rebuild. The distortion of the food marketing and production system that resulted from this inappropriate intervention lasted several years and created a 'second disaster'. This ill-suited response increased the cost of the relief effort, retarded rehabilitation, and took the power of initiative out of the hands of the local community, forcing them into dependence. Relief efforts of this type serve to increase vulnerability and impare the local

attitudinal/motivational capability rather than improve it. It has been noted that in cases where massive food aid has been provided after disasters, agricultural production, adjusted for disaster induced losses, has still shown a decline (Cuny p.99). In the future, the expectation of massive aid may lead to a disincentive to initiate coping strategies even if people are capable to do so for themselves (Ibid, p. 100).

### III. LINKING DISASTER RELIEF TO DEVELOPMENT

#### A. GENERAL PRINCIPLES

Disasters are in good part the outcomes of development shortcomings. They result from economic and natural stresses overflowing the bounds of an institutional system already stretched to the limit in vulnerabilities. Poverty, unstable incomes and employment possibilities, environmental pressures, production shortages, weak coping institutions, and marketing and distribution problems are simultaneously the cause of disasters and the target of development efforts. Famines are particularly intimately linked with overall development policies. Agricultural policies, price and exchange-rate policies, distribution policies, etc. are often of crucial importance in shaping the origin and magnitude of famines (USAID Vol I, 1986, p. 25). Responding to the acute symptoms of a disaster with a developmental approach, therefore, is logical. Treating only the emergency needs encourages the maintenance of the status-quo vulnerabilities. This is precisely what has been done in the past in most parts of Africa and has contributed to the circumstance that as per capita incomes decline, rural peoples on that continent are becoming more vulnerable to famine (Hay 1986, p. 277). This makes developmental challenges only more daunting. In short, the goals of

disaster relief and development are mutually reinforcing. To be successful in one process, it is necessary simultaneously to consider the other.

Long term problems can be addressed while meeting short term needs. In fact, disasters present unique opportunities for change in a society. During a disaster, there is a greater willingness on the part of individuals, institutions, and communities to try alternatives and innovations in light of the fact that vulnerabilities have been exposed. Disasters often create a sense of urgency in a community leading to a societal cohesion not normally found (Cuny, p. 12). By taking advantage of this attitude, disasters can be used as the spark needed to serve as a catalyst for change. The fact that famines are often slow-onsetting disasters rather than cataclysmic events in time may act as a barrier to this rallying attitude - until the situation is far advanced. Also, famine affects the population more unevenly than other disasters, where misery is often more uniformly distributed, blunting the cohesive effect in a society. A similar period of heightened awareness and commitment can be seen in governments. Often brought on by internal and external pressures, a government is more inclined to act quickly, cut red-tape and be seen as effective during a disaster. This combination of community cohesiveness and willingness to change, political will, and the availability of resources often extended by local and

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foreign sources provides a rare opportunity to effect change. If this opportunity can be structured into addressing long term problems while meeting emergency needs rather than simply focusing on the short term situation, vulnerabilities can be reduced and development enhanced. Linking relief to development is not however the ultimate long term solution. Development, it is realized, is a decades long process. A relief-development approach therefore, can only alter the direction and speed of that process. It alone cannot substitute for development.

A relief-development strategy attempts to meet this challenge. However a 'stages' approach will miss this opportunity to orient efforts from the start towards development. By the time attention shifts to reconstruction, this positive inertia will no longer be present. Communities and government institutions will have re-established a semblance of 'normalcy' with the very strong possibility of having increased their dependence on external institutions for financial, institutional, and food relief. A relief-development strategy dismisses the aim of returning to normalcy since this 'normal' environment exhibited the vulnerabilities that produced or exacerbated the disaster and thus is not considered a desirable goal. Instead an objective of a society more capable of meeting emergency threats is set. It is also a common scenario that with the heavy front loading of resources on relief there



are insufficient funds to implement reconstruction and development programs adequately once this stage has arrived (Cuny; Hay 1986, p.1124) This occurred in Sudan in 1984-85. Since there were few linkages with the original emergency food assistance program design, the reconstruction response was very late (BFPVA, p. 43).

## B. HISTORY

Historically, disasters have resulted in societal and institutional changes. New housing materials, new settlements, new ownership rights, changed cropping patterns, and reforestation have been traced back to disasters (Cuny, p. 12). Community and national leadership structures have been forced to change out of the need to deal with disaster as well (Ibid, p. 13).

The conceptual origin of an integrated relief-development approach derives from the Indian Famine Relief Codes. First identified in 1868, the codes recognized that, "Our famines are rather famines of work than food" (Curtis, p. 122). The government in India is required by law to implement stand-by public works schemes in areas threatened by famine. People who are endangered by the famine threat are paid a minimal wage for their labor on a village level project. These programs are to be initiated in a timely manner not only to avoid starvation but prevent migration. The relief works are continued until there is a decline in

demand for employment on them or until the environmental situation improves at which point they are wound down (or the wage rate reduced) so people can go back to the fields (Ibid, p. 127). While in the past these codes were not always appropriately applied (Sen 1989, p. 775), they provided India with the administrative system with which the government has been able to avoid famine since Independence even though the availability of food in India has often fallen greatly below that in Ethiopia and the Sahel at times of their famines (Ibid). The difference is that the Indian administrative system compensates the loss of food entitlements by providing employment - often at cash wages - giving the affected population renewed ability to command food in the market (Ibid, p. 774).

### C. MEANS OF LINKING DISASTER RELIEF AND DEVELOPMENT

Linking relief to development can be achieved in process and physical forms. The way in which relief is approached can be more influential in affecting the longer term mechanisms for change than the actual aid itself. If during the initial phase, relief efforts support local communities and authorities, their sense of ability to control their futures (ie. attitudinal capacity) is enhanced and will act as the engine for development in the long run. When external (governmental and foreign) relief efforts bypass local communities, not only is a valuable source of

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information and expertise lost but this also serves to increase the attitudinal/motivational vulnerability of a community, hindering longer term initiatives. There is a common misperception of victims as being helpless, skilless, and in need of direction. Instead, victims of disaster are almost universally very active and effective during the emergency phase of a disaster (Cuny, p. 84). Tapping into these local resources with required financial and technical assistance can augment local coping mechanisms for this and future disasters. This is why Cuny states that the most important question affecting the successfulness of an operation is how a relief organization views the victims (Ibid). Likewise, relief efforts do not want to compete with functioning economic (marketing and distribution) processes. Rather these institutions are to be complemented to further enhance local stability. In short, to be a development enhancing influence in an emergency response, a relief organization must be aware of, understand, and accept its role as a supporter of local communities within their overall efforts at self-improvement.

Reservations about the strength of local capacity in implementing organizational objectives are sometimes voiced as reasons nothing more than emergency measures can be undertaken. Yet Hay counters that given the numerous small-scale local projects that are required over an entire country for an effective relief-development effort, local

skills and institutions are very appropriate for the task (Hay 1986, p.284). Moreover, governments in developing countries are often unable to mount the sort of decentralized organizational network required to implement these local public works projects. Central government capabilities are commonly better suited to a coordinating, advisory, and monitoring role in this type of operation. This role also provides the means to check for the misuse of resources and possible inequities in the implementation of the projects. By supporting local institutions with appropriate technical assistance and training, governments have the best opportunity to improve effectiveness and augment local capacities. The skills gained on the local and national level in this type of operation (such as planning, accounting, bookkeeping, administering programs, management, logistics, construction, materials handling, vehicle maintenance, etc.) will enhance the stability and ability of the community to promote its own development. This approach will also improve the employment opportunities for those individuals involved and enhances national human capital. In the long run these gains will strengthen the institutional capacity of the society and thereby decrease vulnerability to disaster. In Guatemala following the 1976 earthquake there was a great need for new houses and housing materials. While most relief efforts provided the housing supplies at low-cost and at large administrative expense, one program,

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Project Kuchuba'l stressed earthquake-sound housing construction, training, and local involvement in the planning and management of the reconstruction program. The program worked through local builders' associations to train experienced and novice builders. It also subsidized sales of the housing materials and organized a public works program whereby people could work in return for receipt of the needed materials. This helped prevent the creation of a dependent attitude towards reconstruction among the local community. Meanwhile, many rural roads were upgraded -- improving accessibility (and marketing possibilities). In the end, Project Kuchuba'l helped in the reconstruction of local homes and buildings while reducing the vulnerability of people to future earthquake disasters by improving the housing stock and developing the capacity of local builders to construct safer housing (Cuny, p.164-193). By concentrating on process, not only the product, this project enabled people to provide themselves with housing at that time and into the future. The skills that were learned would be useful long-term income earning assets as well.

Some common goals in development are to increase self-reliance, foster participatory decision-making, and avoid dependency relationships with outside facilitating organizations. These principles are commonly by-passed in the name of the emergency, yet these are precisely the principles that must be upheld, if an intervention is to

leave positive long term effects.

On the technical side, in a famine situation, the most appropriate response is dictated by the type of famine. First, it must be recognized whether the famine is a short term aberration or a result of long run factors. If short run, then emergency relief measures such as imports or food aid will be sufficient to meet food needs until the situation normalizes. If long run, the cause of the famine must be identified. An underlying cause is to be expected since history shows that famines are periodic events as long as levels of development remain low (Hay 1986, p. 277). Understanding what part of the system broke down, allows not only for a more targeted response but better possibilities for linking the response to longer term processes and thus enhancing capacity. If it is a supply shortage, food aid can be integrated into programs and policies that attempt to enhance the food production network such as feeder roads, inputs, irrigation, environmental stabilization, reforestation, marketing institutions, prices offered to farmers, import policy, etc. In supply-failure famines, food aid must be used cautiously to avoid discouraging local production. If food aid creates a situation where supply exceeds demand, prices will become depressed and hurt local producers. If the famine is a result of demand failure, food aid is not helpful at all and will in fact result in oversupply and unnecessary storage costs (Ibid, p.280).

Demand failures have been witnessed in Ethiopia, West Bengal, and Sudan in recent years and in fact play at least some part in every famine. In this event, famine is more of an income problem than a food problem. The policy strategy in this case should be to create opportunities for the vulnerable (ie. agricultural laborers, subsistence farmers whose real income has been reduced) to work in productive ways which result in the types of household and community investment required to enhance household food security. Specifically, this refers to investment,

a) at the household level so that the most vulnerable families can sustain a more stable food consumption pattern within and between years. Examples of investments in household economic assets are: land improvement, new storage facilities, agricultural inputs, start up capital for new enterprises and income transfers.

b) in skills so that there will be more opportunities for people to diversify their sources of incomes.

c) in economic and social assets at the community level which will generate flows of benefits to the most vulnerable families. In terms of economic assets, this involves new roads, new markets, new storage facilities, and new water sources; in terms of community social assets, new health facilities, new schools, etc might be emphasized (Hay 1986, p. 279).

Supporting measures that increase rural household

incomes and reduce household income instability enhance rural effective demand. Therefore this employment based strategy achieves more than one objective. It activates a country's most abundant resource -- labor, reducing unemployment and increasing incomes thereby augmenting effective demand and preventing undernutrition.

A relief-development strategy emphasizing employment must consider whether there exists permanent employment possibilities for a large proportion of the population in agriculture or whether a limited land resource base will prevent the bulk of rural people from making a living from agriculture. If so, land improvement works are prime means of stabilizing agricultural incomes. An emergency labor based relief program would encourage affected rural people to use their available labor effectively in programs such as land clearing, terracing, drainage, construction of small-scale irrigation systems, new storage facilities, etc. (Hay 1986, p. 278). People would earn an income for these works while improving the conditions for future successful agricultural production. Labor based emergency response schemes can involve many different sorts of projects depending on the needs of the local communities. Key considerations are (1) that the projects are labor intensive not requiring extensive capital inputs which would greatly increase the projects' costs and logistics, (2) be based in the local area so laborers wouldn't have to use their earned



incomes for travel to and lodging at the work site, and (3) require minimal supervision. If livelihoods in agriculture are not viable for the majority of the population, then employment schemes can be redirected into skills enhancement programs that prepare people to take up other forms of employment which may be more viable in the long run (eg.'s carpentry, masonry, literacy and numeracy programs). This addresses a root cause of famine - structural unemployment resulting in unstable household incomes. In either case, employment schemes can serve as effective income transfers that help people accumulate assets while achieving socially useful public works. Studies from Ethiopia show that people even in dire conditions will use such cash transfers to invest in physical and human capital aimed at long term considerations and not just use these for immediate food requirements. Investments in agricultural tools and equipment, tools for repairing implements, new animal stock and even spinning and weaving equipment have been observed (Hay 1986, p. 280). Income transfers of this type by keeping capital in rural areas fuel local economies, which might otherwise deteriorate. This circulation of capital prevents local shop keepers and traders from going out of business and disrupting the local economic structure. Mass migrations are averted as intact food networks can be relied upon to acquire and distribute food and other needed goods. Maintaining rural incomes and economies therefore is

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a key goal for effective relief and development. Achieving developmental objectives is far more possible in an intact village environment than from refugee centers -- which result from mass migrations.

Once a relief center has been established however, resource transfers (ie. mostly food aid) should be used as an investment as much as possible. The formation of a relief center often indicates the existence of permanent unemployment (Hay 1986, p. 283). Therefore, investment possibilities should involve creating skills aimed at diversifying household economic activities and employment prospects. These centers could be transformed into schools, improving peoples' human capital while they are unable to be economically active (Ibid).

A labor based response is more easily implemented in sparsely populated rural areas where the impact of such a program is quickly felt. People in rural areas have been commonly targeted by such programs as they are normally the most severely affected by drought. For a labor based response to make an impact in a more densely populated area, the program would need to be much larger in financial and human terms. Still the characteristics of being labor intensive, local -- geographically and in terms of participation, and requiring minimal supervision would hold. Projects instituted might focus on infrastructure enhancement -- road repair, building construction and

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maintenance, sanitation, as well as direct skills enhancement schemes rather than increasing agricultural production.

Programs offering floor prices or fair grain exchanges for livestock are another means of stabilizing rural household incomes during drought. Not only does this help preserve the value of the animal to the farmer but also reduces pressure on the land, and provides a source of protein for feeding programs (Ibid, p. 281). Grain is often a valuable medium of exchange during a drought, since food grain prices normally rise sharply while livestock prices commonly fall - resulting in an unfavorable shift in the terms of trade between grain and livestock for those people who have most of their assets invested in livestock.

Activities aimed at underlying processes made up less than 10% of total emergency resources that flowed into Africa in the 4 year period of 1982-1986 (Ibid. p. 282). Thus, there is much potential for emergency assistance to be used more effectively. "The traditional 'relief-rehabilitation-development' sequence is not an appropriate framework within which to construct and implement a strategy of this kind" (Ibid. p. 276). Meanwhile, the 'crisis' (of high famine vulnerability) will continue until households at risk find secure sources of employment and income (Ibid).

Because they are able to protect their food consumption, employment, and productive assets, the more

prosperous members of a community do not starve and rebound more quickly after famine (Mellor, p.541). Simply put, the theory behind a relief-development strategy is to secure some similar level of resiliency for the poor. In this way, a country not only assists these individuals but bolsters the overall developmental capacity of the nation as well.

Broadly speaking, a country enhances its developmental potential through the four broad prime movers of societal capacity: improving 1) human skills, 2) society's physical and biological capital or infrastructure, 3) institutions, and 4) new technology (Johnson 1984, Eicher 1987). As these factors are strengthened, so is a country's developmental standing. These elements are interrelated - all four must be targeted to create an effect on the productive capacity of a country. None are individually sufficient. This framework is useful to bear in mind when examining how disaster relief can be linked to development. In general, the more a relief strategy augments these prime movers, the greater will be the longer term impacts on a country's development. Relief efforts striving to link to long term developmental objectives should aim to support these four areas through the particular directives of a country's development plan and in this way lay the foundations that can lead to a quicker recovery, improved future developmental possibilities, and a reduced vulnerability to disasters. To be successful in linking relief to

development, a relief organization must first identify the developmental priorities of a country and then try and support these through the specific relief programs to be initiated.

#### D. THE ECONOMIC REASONING OF LINKING DISASTER RELIEF TO DEVELOPMENT

By placing disaster relief in a benefit-cost framework, it is possible to conceptually examine the effect of a disaster relief program on a country's growth path. This procedure compares growth of GDP over time with and without a relief effort. In this context, it can be visualized how theoretically a disaster relief intervention is intended to mitigate the impacts of a disaster and potentially improve the overall economic condition of a country.

Instituting a disaster relief program does incur opportunity costs for an economy in terms of potential alternative uses of these expenditures. Given the financially strapped condition of most developing country governments, these costs are probably quite high. However, benefits accrue during a disaster from losses avoided as a result of the program's existence and in addition from increased productive capacity created from the program's implementation. Specifically, opportunity costs with and without the program are being compared. A large part of a disaster relief effort involves domestic resource transfers

(for income support, temporary employment, feeding programs, capital, etc.) which, being internal, are not considered a net benefit or cost to the national economy. Instead, the real value of a program is the lives, personal and productive assets, crops, livestock, land resources, and local economic systems saved as well as the health and nutrition levels of the population maintained as a result of these resource transfers. These benefits are augmented by the gains in productive capacity (ie. developmental gains) a society may have realized through the program by upgrading the physical infrastructure, improving and diversifying skills, education, the introduction of small-scale enterprises and other possibilities for permanent employment, increasing the capacity of local and national institutions, retained agricultural potential, and the productive advantages of having people in functioning social and economic systems rather than refugee centers. These benefit streams influence how closely a country can remain to its pre-disaster growth trajectory and thereby help evaluate how developmental was an intervention. From this perspective, it can be seen that by its very nature of contributing to the long term national objective or GDP, disaster relief is developmental. However, the net costs and benefits determining the developmental impact of an intervention can not be adequately measured in the disaster period alone. Instead, to evaluate effectively the

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importance of a disaster relief program, the several year period following the disaster (including the consequences resulting from the respective vulnerabilities to future disasters) must be considered as well. A response that is able to mitigate effects and augment productive forces can much more easily rejoin the original developmental course in the years following the disaster. Conversely, an economy that suffers the full impact of a disaster will require a longer recovery period and must overcome greater barriers to reattain its pre-disaster growth path. This is made more difficult if productive forces have been damaged during the course of the disaster.

In a discussion on the benefits and costs of disaster relief, Curtis states:

The costs of famine prevention are far lower than the costs of famine relief - even leaving aside the intolerable human and social costs of allowing famine to begin instead of preventing it. Preventing prices for food from sky-rocketing, livestock prices from collapsing, supporting in good time the incomes of the able-bodied and of those not able to work - these involve less financial, administrative, and import costs than relief with its emergency feeding programs, food distribution to households, vast medical costs in preventing epidemics and saving the lives of starving children, organizing camps for migrants who have abandoned their homes, rehabilitation, and restocking. It is probably fair to say that the cost of full relief and rehabilitation are so great as to make its achievement ... unlikely in the extreme. Full restocking alone, at the hugely increased prices of livestock prevailing after the drought, is prohibitively expensive. As for other forms of wealth lost by the poor - for example jewelry - plans for rehabilitation are not even contemplated. Famines, if relieved rather than prevented, are times of great 'shaking out' in the social structure, with many of the poor becoming assetless and some of the rich increasing

their fortunes quickly (Curtis, p.25).

#### E. EXAMPLE OF A RELIEF-DEVELOPMENT STRATEGY

A successful community level project in Ethiopia provides an insightful example of a relief-development strategy. In Wollo during the 1984-85 famine, the Ethiopian Red Cross Society (ERCS) integrated relief, rehabilitation, reconstruction, and disaster prevention projects which met food needs, achieved physical developmental gains, as well as increased ERCS' institutional capacity thereby reducing the society's vulnerability to future famines (Anderson and Woodrow, p. 111-130). Realizing that the problems presented by the famine were not simply short term in nature, the ERCS directed its aims to longer term needs. It established a Disaster Prevention Program (DPP) with the goals of: "the structural transformation of the community (into one) which can withstand the shocks of drought", "a return of confidence... to produce", and "an awareness of how the last disaster came about". The organization identified four major problem areas: (1) inadequate marketing and cash savings system (2) low agricultural production (3) lack of water storage and (4) human disease.

The community demonstrated a willingness to change with the realization that old practices were not good enough to meet the drought threat. This led to the responsiveness of the community to a proposed irrigation scheme whereas

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previously, irrigation plans were ignored. The DPP used food for work to terrace 2-3000 ha, construct 130 ha of gravity flow irrigation (2000 meters of canal work), build 55 km of roads, establish 10 village nurseries, and dig 10,000 holes for reforestation during the first year (1985/86). Provision of seeds, tools, oxen, fertilizers, and pesticides helped strengthen the immediate physical capacity. Seed banks were set up to ensure their long term availability. Several training programs were completed in agriculture, accounting, budgeting, and in home economics (food preparation, fuel conservation, income generation, and hygiene). By early 1987, the farmers were producing at a level 80% of normal, an improvement over the previous 5 years. The ERCS membership in the district increased from 8-10,000 before the famine to 67,000 in 1987. By setting goals beyond the re-establishment of the status quo, this integrated approach enhanced the physical, attitudinal, and institutional capacities of the community.

#### F. FACTORS MEASURING A FAMINE RESPONSE

As it has been noted, an effective disaster relief response is more complicated than simply distributing a given quantity of food in an allotted time frame. Measuring the extent to which an intervention is developmental is not straightforward. This section will outline some key factors that can be used to evaluate the effectiveness and

developmental emphasis of a relief operation. These factors were formulated from common lessons learned in famine relief operations across various political, economic, and environmental conditions in Ethiopia, Sudan, Mali, Burkina Faso, Kenya, Senegal, Chad, India, and Botswana during the 1970's and 1980's as well as from many disaster response case studies from developing countries worldwide. These will serve as a guide when specifically examining the Botswana case later in the paper.

Evaluating the effectiveness of a disaster response can be defined by 'survival' factors and by 'developmental' factors. Survival factors would include the vital principle objectives of a relief effort:

- (1) Prevention of lives lost
- (2) Maintaining the nutritional status of the population
- (3) Identifying the most vulnerable groups and directing assistance to them. Oftentimes this includes children under five, pregnant and lactating women, and destitutes.
- (4) Support of a health delivery system to combat rising levels of morbidity which often result with a decline in food consumption during crises.
- (5) Maintaining assets of rural peoples so that food entitlements are not eroded due to sudden losses of employment, drops in agricultural income, declines in livestock value, or rises in food prices.
- (6) Avoid migration. Timely financial support can keep

intact local economies. "Once people move in large numbers in order to avoid starvation, massive numbers of deaths and a prolongation of the famine is almost inevitable" (RDI, p. 51). Thus the development of relief centers is a clear sign of failure for the survival aim of a relief operation.

For a relief effort to be developmental however it must effect change to a point more than ensuring that people survive but without the means to support themselves. This is not to minimize the developmental impacts of short run food access programs. Access to adequate food and nutrition, by increasing the vigor and productivity of the rural population, has a long run inter-generational effect on the socio-economic development of a country (Mokobi & Asefa, p. 23). However this does not target the root causes of the problem. The central question that must be asked when evaluating whether developmental impacts have occurred is, In the end, are people less vulnerable than they were before the crisis? If so, then a developmental impact can be said to have resulted from the effort.

In this context, reduced vulnerability can be measured in answers to the following questions:

1. Assets. Have people maintained their productive assets so that they have the means to produce and earn a livelihood? (eg.'s - tools, inputs, livestock).
2. Migration. Has migration been averted? With local social and economic institutions intact, potential for growth and

sustainability is much greater than if productive employment possibilities must be created from refugee centers.

3. Infrastructure. Were useful public goals and infrastructure created through the labor intensive public works projects? Some possibilities include: expanding village water supply systems - dams, wells, trenches, etc; road maintenance and clearing; airstrip clearing and maintenance; fencing village buildings; establishing small scale animal husbandry units; establishment of community and health posts, vegetable gardens, fruit nurseries, fish ponds, etc.; construction of new buildings and maintenance of existing buildings - stores, community houses, housing for extension staff, etc.; storage facilities for crops and seeds, drift fencing; sanitation, latrines, rubbish pits; and soil conservation (Gooch, p. 130).

4. Permanent employment. To what extent has the response helped solve the low income problems of those affected by the drought? Have people learned skills to improve their employment potential? Was capital made available for local investment supporting rural small-scale enterprises? This measure has the potential to strengthen the local economic system by providing employment, stabilizing incomes, encouraging the re-investment of profits in the local economy, increasing diversity, and bolstering effective demand for agricultural and non-agricultural products.

5. Improving Agricultural Production. Have measures

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(physical technology, policies, techniques) been introduced to improve agricultural yields and production? Improvements in agriculture not only boost local food production but strongly affect the state of the rural economy through employment, income, and investment linkages. This is especially important for those countries where a large percentage of the population is rural.

6. Environment. Were environmental enhancement measures taken? Specifically were attempts made to address some of the potential underlying environmental causes and impacts of the drought? For example were terracing, reforestation, and wind breaks created or soil stabilization, small-scale irrigation, new cropping techniques, or land use laws instituted?

7. Local Participation. Were household, village, and district level institutions and coping mechanisms enhanced? Specifically, have measures supported local economies and worked with local organizations in selecting and managing the public works projects? Has the emergency response softened local initiative? Are people more dependent on the government or outside donors than before the disaster?

8. Institutional Capacity for Responding to Drought. Has the institutional capacity of the society for responding to emergencies been enhanced? Specifically, were planning and management skills learned at the local and national level? Did the national government play the central coordinating

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role? Has the organizational capacity by which future famine threats will be countered been improved? Were lessons learned and adopted into the system? Has the system itself been institutionalized? Will there be an on-going emergency response readiness within an existing organization or will a body of key individuals meet on a regular basis? Has effective famine prevention been made a national priority? Were individuals who gained valuable experience identified and placed on a skills roster to be called upon during the next famine crisis?

9. Plan. An essential component of most successful relief operations results from a comprehensive famine prevention plan. Even in a basic form, a drought relief plan shows government commitment to try and address the threat of famine. Its formation ensures that the various stages and requirements needed to attain stated goals in an emergency situation have been considered. Oftentimes this plan has been constructed from the experiences of previous responses. Several essential components must be addressed in the plan if it is to be of practical use:

- (a) Objectives of the response must be clearly outlined for each targeted sector.

- (b) Strategies to accomplish these objectives should be identified, including a means to identify and address gaps in the response effort. Special efforts to incorporate flexibility into the plan should be emphasized. "Even the

most carefully devised emergency plan is unlikely to anticipate all of the requirements for action in any given disaster. Repeatedly, decision makers have acknowledged the shortcomings of their prepared plans, if they have them, in actual emergencies" (Comfort, p. 345).

(c) Required actions must be presented in a sequential and logical manner.

(d) Responsibilities must be clearly understood. Oftentimes the lack of a clear leader or organization that is coordinating the process - both at the national and local levels - hinders bold action. This can lead to aimless efforts, duplication, and waste. In Ethiopia, in 1984, there were four different departments handling relief (Cutler and Stephenson, p.7). There are instances where the lack of a clear ordering of responsibilities leads to no action. Given that organizational capacity is tightly stretched in many economically poor countries during normal times, uncertainty of responsibilities in famine can lead to 'business as usual' attitudes in governmental bureaucracies (Ibid p. 30). Roles and authorities therefore must be clearly outlined so that responsible agencies can more easily re-focus their efforts to the crisis.

(e) Related to clearly defined responsibilities is the authority to implement these responsibilities. Political, financial, administrative, and technical support must reside in those who are responsible so as they might succeed. For

example, to successfully carry out the wide-ranging duties of an emergency response, the director of a National Relief Committee must have full executive authority (Gooch, p.145) rather than be relegated to an 'undersecretary' level. Obviously some agencies are better suited for some tasks than others. For example, "Negotiations with donors for external foods and resources will be more effective if the ministry conducting them is directly responsible for the relief program" (Ibid).

(f) Some type of Early Warning System (EWS) must be in place to monitor conditions in a country and alert the responsible agencies and political authorities of an impending crisis in a timely manner. This is a subject that has received much attention but has yet to yield an effective system, particularly in an African context. EWS's have commonly monitored nutritional status, precipitation, crop yields, government and commercial reserve stocks, satellite images, and farmgate and consumer prices. However each of these measures has weaknesses in terms of timeliness, reliability, specificity, cost, or understanding which limit its exclusive use. This is particularly true in regards to price and agro-meteorological data since, as has been noted, famine often arises without the harvest being worse than normal. As a result of the inadequacies in existing EWS's, relief operations are usually not implemented until a famine has firmly beset a country.



A less well known technique is that of monitoring local coping mechanisms. Coping mechanisms are the social, economic, environmental, and political means societies use to reduce the impact of food deficits on the population (Campbell 1990). Specific coping mechanisms employed vary from society to society but are adapted sequentially given the seriousness of a famine threat. For example, households which shift their food preference or off farm employment activities in times of moderate stress may feel compelled to migrate, beg or steal at a more severe stage of the stress. Monitoring these indicators may generate the most reliable information of impending famine available, since they are based on changes in behavior of those people most likely to be affected by famine. In this way, these indicators are not prone to miscalculating a famine threat as can happen with rainfall or price data. In addition, they can provide a warning signal at an early stage of growing famine stress. This allows for a greater lead time to initiate famine relief measures. Conversely, relying solely on output indicators such as nutritional status provides information at a stage too late to prevent the situation from deteriorating to a point an effective program is intended to avoid. Thus some combination of these techniques is needed to ensure a reliable but timely warning.

Given the wide variation in environmental, economic, cultural, and institutional conditions affecting famines

within each African country, some type of 'in the field' EWS network is required, if the monitoring system is to be effective, no matter the variables being observed. A decentralized famine monitoring network can detect an emerging famine in specific regions of a country that a national level system may miss. Monitored information must be easily assimilated, interpreted and relayed to the appropriate people in a timely manner. This quality has special significance in a developing country context. Trying to collect too much data will bog down the reporting process and no output will result. It is important to concentrate on a few key variables (even if having more would be optimal) and collect these on a regular basis. For example, who are the vulnerable populations and what is their condition? What are the projections for food crop production? Such a system has the greatest probability for success with an on-going monitoring process that produces forecasts at pre-determined intervals of the year. An indication of the potential for a famine threat, with a corresponding requirement for action, approximately four months before the usual harvest time should trigger the plan into effect in time to make arrangements to meet needs.

A key benefit of an EWS is that it can help identify vulnerable peoples or regions which can greatly improve implementation. This is integral for an effective response. "Disaster preparedness has to do with identifying

potentially vulnerable groups and developing viable investment strategies which will increase and stabilize their incomes. Ultimately, this, not the capacity of a central government agency to predict the next misfortune will make them drought proof" (Hay 1986, p. 286).

Accurate and regular information collected for famine monitoring can serve the longer term interests of a country as well, considering the limitations of baseline data in many African countries.

(g) To insure a timely response once a famine threat has been identified, a strategic grain reserve is often needed to meet the emergency food grain needs of the country for at least the four month lead period that is needed to arrange for imports and/or food aid.

(h) Information sharing. Clear lines of communication are required both within a national relief organization and between the national organization and donors in order to enact an effective response. Organizational directives must be received, if the coordinating agency is to avoid duplication of efforts and logistical nightmares. Likewise information trickling up from the field must reach the appropriate authorities, if the field operations are to be adaptable and effectively monitored. A key weakness in many responses is a failure to plan appropriate assessment measures (Cuny, p. 223). Similarly, donors will require information such as types of assistance needed and

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condition of vulnerable groups, to make their response commitments more quickly. To improve accuracy and timeliness of information, only one organization should issue instructions for a particular sector of the relief effort. Poor communication was given as one of the main problems of the Ethiopian famine of 1984/85 (RDI, p. 40). This slowed responses and bred mistrust between the various organizations and individuals involved (Cutler and Stephenson, p. 35).

(i) During and after the period principle strategies are selected, potential bottlenecks that may arise in implementing these strategies should be considered (for example communication networks, transport capabilities, storage and port facilities, organizational capacity, etc). Developmental efforts directed towards these potential bottlenecks will not only improve the response effectiveness but also address central developmental problems in the society.

In sum, political commitment to disaster relief is the most important step towards an effective institutional response. With this in place, a plan can be developed, delegating responsibilities for each sector of the relief effort. Once a priority is placed on a plan, requiring anticipating agency responses, the integration of relief and development objectives can be more easily bridged.

#### IV. THE CASE OF BOTSWANA

##### A. BACKGROUND

Climate. Botswana is a land-locked country lying in the center of the Southern African plateau sharing borders with South Africa, Namibia, Zimbabwe, and Zambia. It encompasses an area of 582,000 km<sup>2</sup>, slightly smaller than Texas, larger than France, of which 69% is covered by the Kalahari sand. The climate is described as sub-tropical with a progressive reduction in precipitation from the Northeast to the Southwest of the country. Average annual rainfall is 475 mm with 90% of the rain falling in the summer months between November and April. Rainfall however is very erratic resulting in the probability of 6 years out of 10 experiencing drought in at least some region of the country (Asefa, p. 4). In the Eastern border area and the Limpopo valley, rainfall is sufficient to encourage arable cropping. That rain is immersed in every facet of Botswana life is demonstrated by the national motto - the pula. Pula, the name of the national currency, means 'let it rain', is also emblazoned on the country's coat of arms, and is a rallying cry at political assemblies (Botswana Society, p. 8). Given the fragile ecology, land use patterns are particularly prone to causing environmental damage.

Population. With a population of 1.31 in 1986, Botswana



is one of the most sparsely populated countries in the world. However, the hostile environmental conditions prohibit inhabitation over much of the country, resulting in the establishment of the majority of settlements in the east of the country. The Batswana, as a people, are relatively homogeneous with a national language of Setswana, though English is commonly used. Sixty percent of the population is engaged in farming with 80% reliant on agricultural products for their livelihood. Eighty percent of the population is considered rural. Nevertheless, most Batswana, even those in urban areas retain some portion of land in tribal areas (Barclay's Bank of Botswana, p.23). This creates strong links between rural and urban areas. The majority of rural households earn income from a variety of sources including agriculture, non-agricultural products, hunting and gathering, income in-kind, hired labor, and remittances - mostly from men working in South African mines. Fifty percent of rural household expenditures are spent on food (Bank of Botswana, p. 36). The poorest 10% of the population earns 1/4 of their income from gathering (Holm and Morgan, p. 465). The average life expectancy at birth is 59 years, relatively high compared to other countries in the region. This reflects, in part, the strong investment in rural health facilities made by the country.

Given the heavy reliance of the population on agriculture and the erratic pattern of rainfall, rural

household incomes are prone to much instability. As in most African countries, moderate droughts affect crop production far more dramatically than livestock production (Kgathi, p. 54). The families made most vulnerable are those involved in the informal rural service sector. While not directly engaged in agriculture, they are dependent on the demand for goods and services created by the agricultural activities of other families (Vierich and Sheppard). In times of low income and especially during drought, losses of cattle are proportionately higher among smaller herds as small farmers do not have as many other assets on which they can rely to support themselves as do the more wealthy (Morgan 1988, p.114). As a result, poorer households are more seriously affected by drought in the short term as well as over the long term with the loss of draught power (Ibid).

Economy. With a per capita income of P 1250/year (1 Pula = \$.60 U.S.), Botswana is one of the wealthier countries in Africa. This is largely due to successes in diamond exploration and cattle export since independence in 1966. These two sectors dominate the economy accounting for 60% of an estimated G.D.P. of P2 billion in 1990. The capable management of these sectors earned Botswana the fastest rate of economic growth (between 10-15%/yr) of any non-oil exporting country in the 1970's and early 1980's (Quinn et al, P. 8). This success has also resulted in a favorable budgetary position and high levels of foreign exchange



reserves. Botswana's main trading partners are South Africa, Lesotho, and Swaziland (forming the Common Customs Area) and the U.K. and U.S. Imports include petroleum products, capital equipment, and recently more consumer goods. Exports are mainly minerals - diamonds, copper, nickel, cattle and meat products (Barclay's Bank of Botswana, p. 50). Botswana also has a highly developed and competitive commercial distribution system in all but the most remote areas resulting in a high uniformity of prices (Project Africa, P. 3).

However, the economic picture is not all positive. While bearers of one of the highest per capita incomes in Africa, Botswana also possesses an increasingly skewed distribution of incomes with a Gini coefficient of .7287 (Bank of Botswana, p. 33). The top 20% of the population controls 70% of the wealth (Ibid, p. 32). Outside of mining, the GDP has grown at a rate of only 4%/year (Asefa, p. 3) and the average rural per capita income is only P 375/year. In rural areas where cattle is the measure of wealth, the top 5% of the population controls half of the national herd while 45% have none at all (Barclay's Bank of Botswana, p. 10). Only a small minority of cattle owners therefore benefit from the export possibilities afforded the Botswana cattle sector by the European Community.

Employment opportunities are limited in the mining and cattle sectors given the capital intensive (for mining) and

low labor requirement (for cattle) natures of these sectors. Forty percent of the population is unemployed or economically inactive, 10% of agricultural employment is assumed to be redundant while only 21% of the total population is formally employed (Asefa, p. 7). Other constraints on job and income creation are imposed by the small size of the internal market and a lack of comparative advantage in most products in major export markets (Morgan 1988, p. 120). With an annual growth in population of 3.3%, the low rate of growth of formal sector employment and the lack of diversification in the rural economy -- the reliance on small-scale farming as a primary source of food and income cannot at present be avoided (Ibid).

Agriculture. Non-cattle agriculture, while the principle employment sector, accounts for only about 5% of GDP. Most of the grain production is rainfed consisting of sorghum, millet, and maize. The growing season is December to March during which time sufficient rainfall is required for a successful crop. These crops are almost entirely produced at a subsistence level by small-holders. However, 90% of rural households produce insufficient amounts of food to feed themselves even during normal years, reflecting the fact that most are net food buyers (Asefa, p.5). Nationally, 40-50% of food needs are produced in-country during non-drought years while this figure drops to 5% during drought years (Ibid. p. 4-6). Pests, lack of convenient water

resources, and limited internal transport (village-village) are also constraints on improved crop production (Barclay's Bank of Botswana, p. 8).

Recurrent drought in Botswana has brought into sharp focus the short and long term food security implications of low agricultural production and unemployment. To address these concerns, the government established a National Food Strategy (NFS) in 1985 with the objectives of:

1. Achieving a broad based recovery in arable production
2. Achieving national self-sufficiency in the main staple crops of maize and sorghum for food and seed.
3. Ensuring a minimum acceptable diet for all Botswana -- thus progressively to eliminate malnutrition.
4. Building and maintaining the national capacity to deal with drought and other emergencies.

The NFS provides a national framework for formulating and implementing both short term and long term objectives in addressing the food insecurity problem. The strategy for periods of short-run food insecurity is the development and institutionalization of the Drought Relief Programme, explained in more detail in part C of this section. The long-run strategy is a continuation and strengthening of the government's rural development policy that began in 1972 (Asefa, p.10). This includes the Arable Lands Development Program (ALDEP), the Accelerated Rainfed Arable Program (ARAP), the Tribal Grazing Lands Program (TGLP), and the

Financial Assistance Program (FAP).

ALDEP, started in 1977, is aimed at small farmers and herders (less than 10 ha or 40 head of cattle). It provides subsidized farm implements, fencing, water tanks and draft animals to help them make the required long term investment to increase and sustain food production. By so doing, the program attempts to raise arable incomes and generate rural non-farm employment revolving around input suppliers (Asefa, p. 10). ARAP targets farmers in rainfed arable production. It provides farmers with short run assistance to help them recover from drought. The program provides assistance for land clearing, inputs, fencing, and water development for crop farming (Ibid). TGLP was created in 1975 for the purpose of conserving land resources and increasing livestock productivity (Ibid, p. 9). FAP was developed in 1982 to help diversify and expand employment within the non-cattle sector of agriculture. It provides incentives by giving grants to projects that generate jobs and income in rural areas (Ibid, p. 9).

The Botswana Enterprise Development Unit (BEDU) offers services in feasibility studies and analysis, financing and management, and technical assistance during the start-up and operation of a new business.

To encourage agricultural production, the Botswana Agricultural Marketing Board (BAMB) provides a guaranteed market at a fixed price announced in advance for foodgrains

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and other crops. By acting as a residual buyer, the BAMB takes some of the risk out of farming in such a volatile environment. Only the BAMB can export crops but it has no monopoly over the domestic market (Barclay's Bank of Botswana, p. 10). This provides farmers the option of earning an income through producing food crops.

The government also sponsors research on early-maturing sorghum and maize varieties, new drought-adaptive agricultural methods, and appropriate technology. The Emergency Strategic Grain Reserve provides safeguards against food shortages in times of emergency. With a capacity of 6000 tons located at 16 stations throughout the country, the reserve is targeted to meet the emergency food demands of the country for up to 3 months in times of severe food shortages.

Political System. Botswana achieved independence from Britain in 1966. The country maintains a representative democracy form of government with free elections, a number of opposition parties, an established judicial system, and a free press. Fifty percent of the P800 million government revenue is generated by mineral exports while Customs Union receipts and non-mining income taxes account for most of the balance (Barclay's Bank of Botswana, p. 48). The government is widely regarded as being well-managed, relatively non-corrupt, and instilled with a sense of 'duty to serve' (Holm and Morgan, Holm and Cohen). The nation is inspired by the

philosophy of 'Kagisano' or social harmony - community recognition of common problems and collective commitment to deal with them (Curry, p. 310). This philosophy has been maintained as a point of unity and national self-reliance bonding the differing political factions in the society.

The government has used its budgetary reserves in a development effort emphasizing the provision of social services and physical infrastructure including schools, health facilities, village water supplies to rural communities, and improvements of roads and other communications between main settlements (Morgan 1988, p. 113).

The most recent National Development Plan, (NDP VI-1985-1991), outlines the nation's priorities in the six objectives:

1. Rapid economic growth
2. Social justice
3. Economic independence
4. Sustained development
5. Employment creation
6. Rural Development

There is an active local government responsible for primary education, rural public health clinics, and rural roads. Their revenue is derived from a local government tax levied on all residents and from central government aid

(Barclay's Bank of Botswana, p. 24).

#### B. THE HISTORY OF DROUGHT IN BOTSWANA

The people of Botswana have long been faced with the devastating effects of drought. The food shortages, death, and loss of crops and livestock that commonly accompany drought have been an accepted part of life for many years. There have been serious droughts recorded in Botswana during -- the mid 1870's, mid 1890's, 1912-1916, early 1920's and 30's, 1947, mid 1960's, 1968-1970, 1973-1974, 1979-1980, and 1981-1986.

Traditional coping mechanisms employed by rural Botswana have been many and varied. People would cultivate the more drought resistant bulrush millet instead of finger millet or plant a second crop in the hope that it would be more successful (Botswana Society, p. 87). Villages would cultivate communal fields, the grain or proceeds from which were used during drought to help feed the poor (Kgathi, p. 42). On an individual household level, common coping measures are to eat less, share, borrow from relatives, sell livestock, seek wage employment, resort to other non-agricultural activities such as beer brewing, basket making chair making, etc. (but with limited success given the difficulties in selling the products locally), migrate, and beg (Kgathi, p. 32-40). During the height of the drought in the mid 1960's, 25% of the population was dependent on begging and internationally organized relief (Botswana

Society, p. 89).

Relying solely on traditional coping mechanisms was the principal method of combatting drought through the mid 1960's until significantly in 1968 the government started to mount ad-hoc relief efforts during crises in an attempt to alleviate some of the suffering brought on by famine (Ibid, p. 107). These efforts however were largely ineffective and did not prevent large losses of life or widespread malnutrition. No permanent institutional capacity existed during this time and as a result, any lessons learned during one effort were not carried over to future responses. However this period was an important step in the acceptance of governmental responsibility for mitigating drought effects and in providing an opportunity to learn which administrative responses were most appropriate.

In 1977, accepting drought as a permanent fixture and threat requiring a long term concerted governmental effort, a symposium on drought was held in Gaborone, the capital. From this conference, the modern form of Botswana's Drought Relief Programme was born. The main conclusions produced from this symposium and on which the drought program would be based were:

1. The need for relief. Due to recurrent drought, the path of gradual accumulation and investment which leads to self-sufficiency is almost impossible for rural households to follow (Vierich and Sheppard, p. 2).



2. As a result of the economic nature of drought, both demand and supply sides of the problem must be addressed in a relief program.

3. Food for work should be replaced by cash for work.

4. A committee structure for coping with drought was recommended. The Ministry of Local Governments and Lands, Ministry of Agriculture, and Ministry of Health were to be coordinated by a non-executive Interministerial Drought Committee (IMDC).

Approximately only one year later however, in 1979, Botswana suffered another drought, which lead to famine with an unknown but significant number of people dying despite the efforts of the newly formed relief program. Due to the serious shortcomings, a consultancy report was commissioned to evaluate the 1979-1980 drought relief effort and offer recommendations. After a comprehensive evaluation of the program the following shortcomings were identified and recommendations made to improve Botswana's Drought Relief Programme:

#### Shortcomings

1. A weak food distribution system led to much waste of food, supplies, time, and expenses.

2. The inability to refocus government bureaucracy towards drought and away from everyday duties caused a disjointed and slow initial response. "The government's statement that one of the objectives of the drought relief programme was to

keep to a minimum the disruption to its on-going development program provided an excellent excuse to some officers for not involving themselves wholeheartedly in the relief programme" (Gooch, p. 95).

3. Lack of a clear plan resulted in crossed lines of authority and insufficient understanding of responsibilities at the central and district level.

4. Ineffective management of the drought relief effort.

5. Relying excessively on nutritional surveillance data led to a slow governmental response to the needs of people living in remote areas.

6. Insufficient district level autonomy and authority over local decisions reduced greatly the response's effectiveness.

7. Food procurement procedures were too slow.

8. Inadequate storage capacity at all levels required excellent coordination between transport and distribution sectors.

9. Lack of program monitoring capacity prevented timely identification of bottlenecks.

10. Logistical problems.

11. Poor communication hindered information exchange between various levels of the effort.

12. Large numbers of people were forced to migrate forming refugee settlements.

13. Rural households lost most of their assets.

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### Recommendations

1. The Interministerial Drought Committee (IMDC), the coordinating mechanism of the Drought Relief Programme, should be established in the Ministry of Finance and Development Planning (MFDP) as an executive committee. This would provide the IMDC with easy access to domestic budgetary reserves when required and improves coordination with international donor agencies whose primary contact is the MFDP.
  2. There should be established one department, the Food Resources Department (FRD), to handle food monitoring, planning, and procuring as well as delivery to the district level rather than having each function under a separate organization. This should greatly facilitate coordination of the food distribution system and hasten the identification of bottlenecks.
  3. The program should rely exclusively on schools and clinics as distribution channels for the institutional feeding programs aimed at vulnerable groups in the population.
  4. There should be increased emphasis on temporary employment creation relying on cash for work and reduced use of free food.
  5. District Commissions should be assigned greater authority for local implementation of the program.
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6. Supplying free seed is an important factor helping farmers recover and should be continued.

7. A cattle purchase scheme is a great help to farmers in retaining their assets and is a desirable component in the relief program.

8. There should be greater assistance for remote areas.

9. More attention should be given to the provision of emergency domestic water supplies.

The recommendations were accepted and incorporated into the Drought Relief Programme yielding a more comprehensive institutional capacity. The priority of drought relief was further enhanced by the inclusion of drought prevention as a major goal in the National Development Plan V (1979-1985) prepared during this time period.

Alleviation of the effects of drought has been a concern of the national government in Botswana since shortly after independence. Reasons given for this commitment are:

- links between government officials and rural areas through families and cattle holdings
- reliance on rural votes for a parliamentary majority for the ruling party (in place since 1965)
- importance of drought in Tswana traditional culture
- national experience in dealing with the consequences of drought provides a context for the conservative financial policies pursued (ie. savings and investment in social infrastructure, cattle holdings, or financial reserves

rather than spending on current consumption)

- government leaders are mostly large cattle owners who therefore do not rely on the political system to earn income. This reduces incentives for corruption and patronage. (Morgan, 1988, p.114; Holm and Cohen, p.22).

### C. BOTSWANA'S DROUGHT RELIEF PROGRAMME

The National Drought Relief Programme also known as the Food Security Action Programme is administered by an Interministerial 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 IMDC is coordinated by the Rural Development Unit (RDU) - in the MFDP. The head of RDU serves as Secretary of the IMDC (Asefa, p. 14). The IMDC reports directly to the Rural Development Council which is chaired by the Vice-President and oversees all rural development activities (Quinn et al, p. 14). An institutional structure similar to the IMDC is also established at the district level to ensure a decentralized decision-making approach to the implementation of the overall drought relief program. The District Drought Committees (DDC) take primary responsibilities for the administration and implementation of the program at the district and local levels (Asefa, p. 15).

The Drought Relief Programme is operated under six objectives (Quinn, Asefa, Moremi):

1. Supplementation of food supplies as a preventative measure to reduce the incidence of malnutrition among those groups considered at high risk.
2. Rehabilitation of severely malnourished children.
3. Creation of rural employment possibilities to compensate in some part for the agricultural income lost due to drought.
4. Maintain water supplies for human consumption.
5. Assistance to arable farmers to help them regain their productivity.
6. Alleviate drought effects on livestock

In order to meet these multiple objectives, the Drought Relief Programme addressed four program areas.

1) Human Relief - Supplementary food distribution for vulnerable groups (children under five, pregnant and lactating mothers, children 6-10 not in school, tuberculosis patients, and destitutes) on a monthly basis through health facilities; On-site feeding for malnourished persons at health clinics to effect rapid weight gains; An expanded primary school feeding program; Special logistical relief to bring food supplies to remote areas without shops or social services.

2) Labor Based Relief Programme - People are employed during the agricultural slack season at a minimal daily wage on

projects selected by their Village Development Committee and approved by the District Drought Council. This provides temporary income-earning opportunities for large numbers of people while creating socially useful infrastructure. The aim of the Labor Based Relief Programme is to replace 50% of income lost due to crop failure (Quinn et al, p. 18).

3) Water Relief - Special funds are made available to District Water Units to increase their capacity to make repairs to existing water systems and to transport water to settlements whose normal supplies have been affected. A certain number of new systems are also constructed in hard-hit areas on an emergency basis if required. Facilities are made available for farmer groups wishing to improve their water sources for livestock watering or small-scale irrigation.

4) Agricultural Relief - Seed packages are made available to all farmers free of charge; Cash grants are given to farmers to clear and prepare arable land; Stock feed is sold at highly subsidized prices; Free vaccines and subsidized feed for livestock are provided for cattle farmers; Draught power is heavily subsidized for households who have none; Older cattle are purchased at a floor price in order to reduce grazing pressure during and after drought and as a means to support rural incomes (Moremi, Holm and Morgan, Asefa).

The key implementing body for the Human Relief

Programme is the Food Resources Department (FRD), within the Ministry of Local Government and Lands, which is in charge of the acquisition, processing, and distribution of food relief to the districts. The FRD has the responsibility for obtaining and distributing food supplies even during non-drought years for school feeding programs, health facilities, and other vulnerable groups (Moremi, p. 448). Having this on-going capacity, the FRD is in a good position to assume the responsibilities for the expanded feeding program. FRD also coordinates the Labor Based Relief Programme which supplies supplementary income to able-bodied members of rural communities. As such, it is the single largest component of the Drought Relief Programme.

A working group of the IMDC, the Early Warning Technical Committee (EWTC) is the body responsible for monitoring drought threats within the country. It meets on a monthly basis to review,

(a) rainfall and agro-meteorological data - weekly rainfall records, analysis of maximum achievable agricultural yields as a function of soil moisture

(b) agricultural data - area ploughed, area planted by crop, estimated yields

(c) nutritional status - percentage of children under 5 undernourished at a level less than 80% of expected weight

(d) food supply - stock levels in the National Strategic Grain Reserve plus donor commitments for feeding programs



for the next 12 months

These data form the basis for policy direction and implementation of the Drought Relief Programme (Morgan 1985, p. 44). It is possible to know relatively accurately by February whether there will be a drought. At that time, the IMDC makes a presentation to the cabinet and parliament including a list of recommendations of what actions should be taken, where, and at what scale. In this way, actions can be implemented in time for the June-July period when the effects of production shortages begin to be felt (Ibid, p. 45).

Once a recommendation has been made, these indicators can be used to guide the relief effort toward groups and regions that are most at risk (Morgan, p. 49). Food in store at the household level and price data for crops and consumer goods are felt not to be reliable for famine prediction and therefore not recorded (Ibid).

In sum, the nature of the rural economy has dictated the emphases of Botswana's Drought Relief Programme. Food consumption is dependent on income (remittances and casual employment) as much as on crop production. Therefore by instituting a public works program in addition to the supplementary feeding and agricultural relief programs, the aim is to prevent the collapse of rural incomes and purchasing power and likewise prevent many rural traders from going out of business (Morgan 1988, p.118).

**V. EVALUATING THE EFFECTIVENESS OF BOTSWANA'S PROGRAMME  
DURING THE 1981-1986 DROUGHT**

One month after the reforms from the 1979/1980 drought were accepted, it was apparent that the 1981/1982 rains were failing and the upcoming harvest would experience a serious shortfall. A relief program would be needed by mid 1982 to avoid widespread suffering (RDI, p. 79). This was to be the start of the most severe drought in Botswana history, spanning six years 1981-1986.

In the Eastern region where most crop production and cattle raising occur, rainfall was from 25-60% below normal in 1983 and early 1984 (OFDA, p.10). In the year before the drought, Botswana had produced 40% of its cereal needs (approximately 45,000 MT). By 1984, the country was almost totally dependent on imports, producing only 5% of its grain needs (Holm and Morgan, p. 466). Area planted dropped one third and that harvested reached only 15% of the 1981 level (Ibid). The decline in annual food production per farming household between 1981 - 1984 was from 715 - 100 Kg (Morgan, p. 44). In 1983, 86% of traditional household farms produced no crops while 10% harvested less than 250 kg in total, only 1% harvested 1,500 kg or more which equals the amount required to meet typical household needs (Quinn et al, p. 11). The cattle population fell from a peak of 3 million in 1982 to 2.4 million in 1985 (Morgan 1988, p. 114). Losses

were concentrated among the smaller herds whose owners rely on communal watering holes around which overgrazing is intense during drought (Ibid.).

The value of lost crop production was P 6.2 million in 1982, P7.9 million in 1983, and P 11.9 million in 1984 (Hay 1988, p.1114). In 1983 the loss from drought for livestock and crops alone was almost P 34 million, or one third of the total income generated by agriculture and the situation deteriorated even further in 1984 (Holm and Morgan, p. 466). Estimated typical household income from farming was 29 pula per year which equalled the income earned on a Labor Based Relief Project after 14 1/2 days.

Along with the decline in production, labor opportunities dropped substantially. Hiring decreased by 36% from 1981-1982 (Quinn et al). Income earning opportunities for the poor as laborers were halved due to the drought (Holm and Cohen, p. 21). As a result, poorer households that relied on casual and informal employment were particularly hard hit.

Due to the drought, water shortages were experienced in the urban areas. In order to conserve water in Gaborone, new construction was halted, leading to overcrowding, inflation in real-estate, and increased unemployment (Holm and Morgan, p. 468).

Despite the severity of the drought on both the supply of food and on the income earning capacity of the rural

population, Botswana's Drought Relief Programme averted a famine. This section evaluates the effectiveness of Botswana's approach to this threat in light of the survivability and developmental criteria outlined earlier.

### Survival factors

1. Lives Lost. No one died as a result of the drought despite its persistence (Asefa, Holm & Cohen). This stands out in contrast to the significant but unspecified loss of life resulting from the 1979-1980 drought.
2. Maintaining Nutritional Status. Undernutrition rose slightly during the first few years of the drought then improved to a point where the percentage of children underweight fell to below 25% (ie. normal level in most regions of the country) (Morgan 1988, p.116). The nutritional status of the population as a whole was maintained by supplying private local traders with imported sorghum and millet. These 'fair-price shops' were monitored to ensure that shop owners were not charging more than the government allowed price. In 1984, about 60% of the population received supplementary feeding on a regular basis, providing 21% of their caloric needs (Asefa, p. 15). Overall, 90% of rural households had access to food rations of some kind (Ibid, p.16). As a result of this food distribution, the amount of food per capita in the rural areas was greater than in non-drought years. Moreover, the

availability was probably more equitably distributed because it was channeled through government programs (Holm and Morgan, p.21). Household participation in the cash for work programs was also found to have an important positive effect on increasing food access (Asefa, p. 26). Severe malnutrition was limited to under 2% of the children and was stable throughout the drought (Morgan 1988, p. 116). Likewise, the incidence of public begging was not seen to have increased in contrast to the situation in 1979/1980 (Holm and Cohen, p. 21). The success of the Drought Relief Programme in this area was noted in a report prepared by the FAO stating that Botswana had less malnutrition than any other drought affected economy in Southern Africa (Mason et al).

3. Directing assistance to vulnerable groups. The program was effective in this factor by successfully targeting vulnerable groups and ensuring that food was both available and accessible to these people. This was achieved by the continuous EWTC monitoring system, upgraded supplementary feeding to schools and health clinics, and special logistics and delivery efforts to reach Remote Area Dwellers (RADs) - people living far away from any village and having no access to the normal distribution methods. Also, by acting to help bolster rural assets, the Relief Programme prevented the drought burden from falling more heavily on the poor than on the rest of the population as is usually the case (Holm and

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Morgan, p. 469).

4. Support of the Health Delivery System. Attendance of vulnerable groups at health clinics, due to free food distribution, increased dramatically (quadrupled) leading to an improvement of immunization coverage and nutritional assessment. Also that more mothers were instructed in health education activities is likely to create long run benefits (Quinn et al, p.16).

5. Maintain Rural Assets. The labor-based public works program instituted throughout the countryside ensured that people had adequate incomes with which to purchase the supplied food.

6. Avoid Migration. By supporting rural incomes endangered by the drought with the timely implementation of the Labor Based Relief Programme, rural people were able to remain in their villages. People were not required to migrate in large numbers in search of incomes and food in order to sustain themselves. Thus, the dangers to public health created with refugee centers were avoided.

#### Developmental factors

1. Assets. The government's public works scheme using cash for work was instrumental in generating employment opportunities and thereby injecting capital into hard hit rural areas. The program employed between 45-75,000 people with 2,500 supervisors at its peak. It was estimated that

the program replaced 35% of income lost by rural households as a result of the drought (Hay 1988, p.1117). Families which had suffered heavy losses due to the drought, were therefore not forced to sell off most of their productive and personal assets to survive. Retaining these, left people in a stronger position to find work and earn income. Total numbers of households engaged in farming declined by less than 5% during the drought period (Holm and Cohen, p.21).

The program's cattle cropping scheme was another important measure aimed at the deterioration of rural assets. By offering a floor price for cattle seriously weakened by the drought, cattle owners were able to salvage some value for their assets, which would otherwise have been completely lost or sold at a minimal price. The culled meat was then dried and used as part of the on-going feeding programs.

2. Migration. The timely initiation and decentralized emphasis of the program was critical in preventing large scale rural-urban migration leading to the creation of refugees. Focusing the distribution effort in the existing communities provided a much more viable base from which sustainable growth could occur. Maintaining rural income levels allowed local traders and shop owners to stay in business. These private businesses are the main suppliers of consumer goods and productive inputs and thus form the

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backbone of a rural economy. If these institutions were to have been lost, replacing them once the famine threat had passed would have been much more difficult, costly, and time consuming - retarding the development process.

3. Infrastructure. Many socially useful and desirable outputs were created to add to the rural infrastructure. Some examples include - 220 dams, 15,000 km of roads built or improved, 850 km of fencing to separate livestock from crops, 12 airstrips, bridges, schools, health facilities, government buildings, irrigation, water supply land reclamation, reforestation, soil conservation, drainage, and fire breaks (Asefa, p. 17). These add to the economic potential of the country and are features that have lasted beyond the drought period.

4. Permanent Employment. The contributions made to permanent employment by the Drought Relief Programme have come in the form of improving the human capacity of the population rather than from actual investment in small-scale enterprises that could spur local hiring. Much management skill was gained in all phases of the program. Storage supply management, technical skills learned during the construction of public works, and community organization for the public works projects at the local level, along with logistics, organizing, and coordinating at the national level and the participation of the private sector in transportation, milling, and ploughing were all skills

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gained by Batswana. These skills will improve future employment opportunities for those individuals involved thereby addressing, to a certain extent, a structural problem the country faces.

5. Improving Agricultural Production. In terms of enhancing agricultural capacity the Drought Relief Programme provided the free distribution of seed and subsidized tools, inputs, and draught power - encouraging long term agricultural production in the midst of the emergency. This was complemented by efforts to maintain the water supply for cattle at public watering sources. Farmers were also offered cash for land destumped for cultivation after the drought. The public works program was suspended during key periods of the growing season so as not to create a disincentive for farmers to return to their normal income earning occupation.

6. Environment. Reforestation, soil conservation, and drainage efforts enhanced the environmental capacity of the land to sustain on-going agricultural production and improve soil fertility. These efforts have helped reduce the side-effects of drought associated with poor land management practices.

7. Local Participation. Relying on Village Development Councils to choose and coordinate local public works projects required local participation and supported village-level institutions. Also, by coordinating the relief

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program through the existing private network of traders not only reduced the logistical structure required but reinforced the economic institutions that play leading roles in the economic development of a region.

8. Institutional Capacity for Responding to Drought. In terms of the organizational capacity of the Drought Relief Programme itself, the experience gained by the FRD in large-scale food distribution, the regular and continuing nature of the EWTC, the incorporation of weather and nutritional status data into the policy process, and the institutional experience of having various agencies working together has better prepared Botswana for the next drought. The creation of a post of National Food Strategy Coordinator, increases the likelihood that lessons learned from the experience can be internalized. This integrates future relief program planning and organizational requirements within the overall framework of the National Food Strategy (RDI, p.82).

Identifying improved drought relief capacities as a national priority in the National Food Strategy and the National Development Plan further institutionalized the government's commitment to reducing vulnerability to drought and famine and thereby can be considered a developmental change.

9. Plan. Outlining a plan over the years that clearly defined the responsibilities and interrelationship among the various ministries involved in drought relief, further

enhanced the organizational strength of the drought relief network. Ministries with responsibilities were given the appropriate authority with which to carry out their tasks. After the 1979 drought, the budget of the FRD grew by 22% over 3 years, more than any other department (Holm and Morgan, p. 475).

The formulation of an EWS that routinely monitors nutritional and agro-meteorological data and reports its recommendations in a timely manner ensures that the system is alerted far enough in advance that it can adequately respond.

The establishment of a Strategic Grain Reserve storing enough grain to meet the national needs for four months at 16 sites throughout the country provides the necessary time buffer required to make arrangements for external food supplies.

Viewed as a whole, it can be seen that Botswana's Drought Relief Programme of 1981-1986 did far more than meet emergency food needs. By enhancing the economic, human, institutional and environmental capacities of the society during the emergency time period, the response effort addressed long run developmental problems the society faces which in turn influences the vulnerability of the country to future famines. A comprehensive evaluation of the various national emergency relief programs in Africa during the 1984/1985 drought concluded that, "While there were

difficulties at first because of the new changes, what developed was a substantial and comprehensive relief program of comparatively greater effectiveness than any other relief program in Africa" (RDI, p.79).

## VI. ASSESSMENT

Botswana's Drought Relief Programme of 1981-1986 was successful because the government had established over many years of drought experiences the institutional capacity with which to meet the problems caused by drought. Government recognition that drought was a normal feature of the regional climate and a serious detriment to the development and welfare of the population was the key catalyst for the change. This recognition led to the attitude of openness and modification that typified the evolution of the institutional system since the late 1970's and which was evidenced by the improvement of the organization even during the 1981-1986 drought response.

This success did not occur easily even with governmental commitment. Instead, it took time and several attempts, shaped by both external evaluation and internal monitoring, before the current system evolved. This system is codified today in a clearly determined drought relief plan of responsibilities.

### Lessons from Botswana's Drought Relief Programme

Most components of Botswana's program are implemented at least in part in other African countries' post-drought recovery programs (eg.'s - cash for work, free seed, grants for land clearance, subsidization of draught power). However, Botswana's productivity-enhancing measures are

notable for being implemented simultaneously with more strictly relief oriented measures (Morgan 1988, p.116). It is more common to see such economic support measures instituted after the crisis period has passed. The timeliness of these actions help prevent the situation from deteriorating further and improve the likelihood of linking relief efforts to development. Several features of Botswana's effort bear emphasizing:

1. Cash for Work. By instituting a Cash for Work program rather than Food for Work or free food distribution, the government recognized that their drought vulnerability wasn't only a matter of a shortage of food supplies but also a lack of stable income earning possibilities with which food could be purchased. The public works programs enabled rural people to earn greater entitlement for food and maintain their balance of productive assets.

Cash has the advantage of allowing people the freedom to choose how to spend their wages among or between essential food and non-food expenditures and therefore allows people more flexibility in optimizing their needs (Gooch, p.127). Cash also allows for investment in human capital in the form of education and health expenditure (Ibid).

Cash for Work, by representing an earned income rather than a free hand out, is more beneficial to peoples' self-respect, morale, and dignity - serving to enhance local

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initiative and confidence rather than diminishing it and possibly creating dependency. Since workers prefer cash to food, increased productivity has been noted in Cash for Work programs as well (Ibid).

By allowing the government to rely on the private network of traders for the handling and transport of food, Cash for Work supports local economic institutions and is easier and less costly to administer than Food for Work programs. Shop owners and private contractors, not surprisingly, prefer to receive cash for their transactions rather than food vouchers (Ibid, p. 128). This system requires some governmental monitoring to ensure adequate supplies are maintained and that prices are not raised but is less demanding than establishing an entire supply system.

The daily wage rate must be pegged at a level high enough to enable workers to support themselves and dependents but low enough that the program can help the targeted beneficiaries and not create a disincentive for other potential employment or agricultural production opportunities (ie. the rate must be set equal to the unskilled agricultural labor wage). This rate may have to be adjusted periodically with changes in inflation.

It should be clear that a Cash for Work program can't succeed without food supplies of some sort (food-aid, imports, grain from other regions, etc.), which can be injected into the marketing system.

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2. National Government Coordination. As coordinator of the relief effort, the Botswana government was able to integrate emergency and longer term objectives into the response. Establishing the responsibility of the Drought Relief Programme within the Ministry of Finance and Development Planning, the ministry responsible for strategic development planning, facilitated the incorporation of emergency relief into long term plans. This is an ability donors and private voluntary organizations generally do not possess, being unaware of or not understanding the long-range goals of a country's developmental aims. Moreover, many external relief efforts are of a short-run nature -- responding to a mostly external constituency. Success in these operations may be measured by the external agency by how much food was distributed rather than targeting for broader impacts.

The government was prepared to excel in this role due to its prior commitment and formulation of a drought relief plan as part of broader national policy objectives and the existence of an able civil service and infrastructure. This framework does not preclude the use of donors but that all efforts be coordinated under one authority accountable to the government. This approach maximizes assistance from the international donor community as donors will not be forced to expend resources toward coordinating themselves but rather direct them to potential beneficiaries. The USAID summary evaluation report from the 1984-1985 Sahel drought



concurred that a "well-organized central office capable of coordinating all famine assistance is the ideal situation" (USAID Vol. II, p. 60). Furthermore, operating the program through existing organizations greatly improves continuity. This avoids delays and hardships in gearing up during a drought and workers have a job to do once the drought threat has passed.

3. Interministerial. The multi-functional nature of emergency relief exceeds the bounds of expertise of any one ministry. Placing the ultimate responsibility of the program under the MFDP was integral for coordination. However, integrating the special skills and capacities of other ministries into the response effort greatly improved the efficiency and effectiveness of the operation.

4. Decentralization. Employing a decentralized approach brought food and cash into rural villages where they were needed rather than encouraging dislocation in order to obtain food. This was integral in keeping local village economic and social institutions intact, more independent, and potentially more productive than would otherwise be the case.

A decentralized strategy also serves to strengthen local capacities. Communities must organize themselves to best utilize available program resources. This gives local communities more control over the public works projects undertaken in their areas. Given the geographically

dispersed and labor intensive requirements of a labor based public works program, a decentralized approach is essential since central government capacity simply cannot be stretched to the extent necessary (Hay 1986, p.275).

A decentralized emphasis creates the opportunity for information to flow up from the bottom -- improving monitoring and targeting of vulnerable groups, nutritional status, and tracking logistical difficulties in the implementation of the program. This factor greatly improved the effectiveness of Botswana's program by accelerating the pace at which information was shared throughout the system.

Growth in productive capacity results from progress made on four fronts: technological advances, improved institutions, human skills, and an improved and expanded capital (physical and biological) base. All are essential, but none is individually sufficient (Johnson, p.5). By orienting its Drought Relief Programme in such a way as to augment each of these areas, Botswana has succeeded in achieving a relatively high level of net benefits during the drought. This has allowed Botswana to remain near to its growth path and leaves it in a position to resume more quickly this level of growth in the near future than would otherwise have been the case.

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Applicability to Other Drought Prone Countries in Africa

It can be argued that few African countries possess the combination of a favorable resource base in diamonds generating large budget reserves, a stable political system, an effective bureaucracy, an extensive private sector, and a small population as does Botswana, enabling it to implement its Drought Relief Programme successfully. Effective management of these 'comparative advantages', undoubtedly contribute to the success of Botswana's relief efforts. However, these suggestions miss the key factor that has caused many other famine relief programs in Africa to fail, namely government commitment to the fact that drought is a recurrent phenomenon and the necessity of creating the institutional capacity required to respond adequately to this threat. Most of the failures of other African relief efforts are the result of organizational weaknesses rather than only financial limitations. It should be remembered, that Botswana has many serious structural difficulties with its economy as well. In addition, most other African countries that have suffered famine have a more favorable natural resource base and agricultural potential and have a less arid climate than does Botswana. Still Botswana was successful and for that reason deserves to be considered as a possible model. To dismiss it's lessons because of its unique characteristics would be unfortunate.

In short, success or failure in combatting famine can

be attributed to a government's ability to focus attention towards the threat and away from 'business as usual' as evidenced by a drought plan aimed at supporting rural incomes, an early warning system, and inclusion of drought relief as a national priority. Countries that are caught unprepared still mount belated but expensive famine relief programs in emergencies. Yet their losses are greater in terms of lives, nutritional status, health, human capital, agricultural and industrial productive capacity, refugees, and additional development outlays to rebuild. While these 'better late than never' efforts to respond are commendable for the lives that are saved, opportunities to mitigate the effects of the famine and achieve modest developmental gains in the process are lost. The case of Botswana suggests that these resources would be better spent in a timely, decentralized response aimed at both supply and demand bottlenecks. As Hay has written in regards to Botswana's efforts, "The coherence of the program design was due to the clarity with which drought was seen to cause a loss of income. This clarity should be replicable everywhere. Moreover, the mix of instruments Botswana used to transfer income should be considered in other countries which suffer disasters other than drought" (Hay 1988, p.1123).

The relatively democratic political environment in Botswana has allowed attention to be directed towards peoples in rural areas. The threat of repercussions at the

ballot box and embarrassment in the country's free press were and are powerful incentives for the ruling party to focus attention on rural areas. This is particularly true in the event of a drought or emergency situation where apparent government apathy could provide the occasion for adversaries to gain the upper hand in terms of popular support. Botswana's success in building an adequate institutional capacity to handle drought was undeniably helped by this political reality. These same conditions may not exist in other drought prone countries thus removing a potential catalyst for developing effective famine prevention measures.

It has been argued throughout this paper that governmental commitment towards lessening disaster vulnerability is an important pre-requisite of an effective relief effort. While free elections and a free press are guarantors of this commitment, countries with these conditions do not make up an inclusive list of all governments intent on improving their disaster response capacity. Many African governments instituted some type of emergency relief program during the drought of 1984-85, committing many resources and large numbers of personnel in the process. Thus, some level of commitment to the most marginal populations exists in almost all governments. What must be improved is the timeliness and effectiveness of implementation of these programs. All such governments can

learn from Botswana's example that resources expended early on and towards developmental objectives, can have more substantial impacts both immediately and in terms of long term gains. If resources are to be committed to an emergency operation at some point, why not use them wisely and in a way that may lessen the vulnerability of the population to future disasters.

Botswana's Early Warning System (EWS) relies on agro-meteorological, rainfall, and nutritional data as well as monitoring of the national grain reserve. This system produced a timely forecast of drought and of the potential shortfall of food. The qualities of being regular, monitoring a few relatively simple variables, and relying on both input and output factors<sup>1</sup> make this approach attractive to other African countries. However, other countries may also wish to monitor local coping mechanisms to famine as a component of their EWS to improve the timeliness and reliability of their system. The effectiveness of Botswana's EWS, not relying on coping mechanism indicators, may be due to its small size, concentrated population, and relatively well developed transportation network, which accelerates information transfer.

As mentioned earlier, disasters exacerbate the

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<sup>1</sup>. Input indicators reflect food production potential and include rainfall, soil moisture status and crop growth. Output indicators reflect the actual food scarcity situation, the results of shortage (eg.'s nutritional indices, and crop and livestock prices) (Morgan 1985).

weaknesses of every component of a society. Thus, any relief response coordinated by the central government is only as effective as the national bureaucracy. While there were problems in this regard, Botswana's professional civil service, with established lines of authority and an open attitude to evaluation and change made the success of the relief effort possible. Other African nations not having an acceptably functioning bureaucracy will have more trouble implementing an emergency relief program. This reality highlights the vital importance of having a well-defined plan of responsibilities for handling an emergency. Without this clarity, the possibilities for a bureaucracy to strangle an emergency response are innumerable.

Finally, the lessons from Botswana are most applicable to those countries that are vulnerable to famine due to availability and accessibility shortcomings resulting from natural phenomenon. A committed government can identify and build up over time the capacity to respond to these threats, as has Botswana. Accordingly, the Botswana example does not provide a solution to famines caused by civil strife.

#### Improvements

Botswana could have made its efforts even more developmental by aiming a greater part of its public works program directly towards structural problems the country faces.

Botswana, as many economically poor countries, has a

large number of unskilled people who are unemployed. The public works scheme might have achieved greater long run impacts by training some of those people affected by the drought, especially those for whom a successful livelihood in agriculture was doubtful, in skills that are in demand—carpentry, masonry, mechanical repair, welding, tool-making, shoe-repair, book-keeping, secretarial, etc. People learning these skills could be paid for their training in lieu of the public works projects. By so doing, long term vulnerability of rural families to drought could be reduced.

Agricultural production is stagnant and highly dependent on an erratic climate leading to unstable incomes. There is a real need to increase agricultural productivity, if Botswana is ever going to be able to meet its food needs or adequately provide employment opportunities for a large proportion of its population, as is the stated goal of the National Food Strategy. This achievement is essential for stabilizing incomes and encouraging rural investment. Therefore, more emphasis should be placed on small-scale irrigation to help reduce the variability in production and incomes. Most water projects initiated during the drought were primarily aimed at providing better access to water for animals (Hay 1988, p.1120). Another possibility is periodically to use the public works program as a forum for extension workshops discussing research outputs concerning more effective production methods, how best to take

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advantage of available soil moisture, inputs and new tools. Improved productivity will ultimately rely on research, generating more drought resistant and higher yielding varieties or new appropriate technology, for example. Directing research towards small family farms and the main staple crops (rather than specialty crops) will yield the greatest impacts for improving the employment situation and assisting the most vulnerable. This will, in turn, do more to help the rural economy by improving the environment for local investment than other types of research (Lipton, p.78).

Other possibilities for improvement involve experimenting with available capital to try and initiate small-scale industries that could be self-sustaining once the start-up capital has been invested. Development of these enterprises in the local economy will give wage earners opportunities to invest part of their incomes in the local economy. These would offer on-going benefits in terms of services to the community and increased income generation as well as diversifying the rural economy. In an evaluation of employment possibilities in Botswana, Michael Lipton recommended that government investment be directed away from physical and social infrastructure and towards agriculture and industry where greater permanent employment opportunities exist (Lipton, p. 16). Recommended industries to support would emphasize processing in areas such as

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sunflower oil, dairy products, and tanning and leather goods. Currently, income earned from the Labor-based Relief Programme is too small to have a significant effect on non-food expenditures and investment (Asefa, p. 27). Asefa argues that this linkage could be better accomplished if the public works program was linked with the ALDEP - part of the governments' long run agricultural development program (Ibid).

Botswana is located in an ecologically fragile area. Perhaps greater attention could be placed on redressing some of the human caused environmental problems with projects aimed at reforestation, aiding the re-establishment of grazing, areas, constructing wind breaks, encouraging soil conservation, or simply educating people on the effects of their land use practices (for example, the causes and effects of over-intensive cattle grazing, lack of soil cover, wind and soil erosion). While certain environmentally targeted projects were instituted, they were few in number and small in scale.

An important policy issue evident in Botswana is when to pull back from the employment generating program. Theoretically, the wage rate is to be gradually reduced after the drought has passed and people can return to their normal productive duties. This lowers the numbers of people in the program until it is no longer worth anyone's opportunity cost of time and labor. However in Botswana,

given the popularity of the Drought Relief Programme, the government is forced to decide whether to continue the program on a permanent basis -- effectively creating a permanent set of social welfare services or to terminate the program and redirect the capital invested in the Drought Relief Programme towards programs or sectors that would yield greater returns in terms of output, incomes, and employment. A related concern is whether by continuing the program, the government is discouraging community initiatives for problem solving, leading to increased dependence on the national government. "It was a stated priority to prevent a dependence on state welfare during the drought program. Whether or not this has been achieved is debatable" (Hay 1988, p. 1115). How to create a self-sustaining, employment and income generating rural economy that does not rely on continued government subsidies remains a key structural question for Botswana (Asefa, p.26).

## VII. CONCLUSION

This paper has attempted to address the gap in knowledge regarding how an emergency relief response can have developmental impacts. By examining Botswana's Drought Relief Programme of 1981-1986, it can be seen that an emergency relief effort can do more than just 'feed the people'. By acknowledging the root causes of the vulnerability, poverty and low food production, the government was able to direct its efforts towards increasing both food availability and access to food. By instituting a decentralized labor-based cash for work strategy guided by an on-going monitoring network for identifying the most vulnerable, the rural people most affected by the drought could earn incomes, maintain their assets, remain in their villages, and retain their productive potential. By so doing, the government achieved a temporary re-distribution of income towards the poor during the drought -- the opposite of what normally occurs in disaster.

The underlying policy environment making the evolution of the program possible has been an explicit recognition by the government of the endemic nature of the drought threat in Botswana and the government's commitment to mitigate its effects. The commitment to developing the institutional capacity to deal with drought has been outlined in the National Food Strategy and National Development Plan. This

commitment has led to the development of a clear organizational division of responsibilities of how disaster relief was to be coordinated.

This paper has also indicated that national government coordination of the relief effort offers the best possibilities for integrating short term and long term goals given the government's awareness and commitment to the developmental aims of the country. National government coordination in this case provides a greater accountability to the people than external agencies operating in a country for only a relatively short time. This national coordinating capacity, by enhancing autonomy, is in itself a developmental gain as well as a means at generating important improvements in human capital throughout the society.

The success of Botswana provides an African model of an effective drought relief program for other drought prone countries on that continent. While unique, the distinguishing variable for success in Botswana has been the establishment of an organizational structure effective at mitigating drought effects while achieving public objectives. This is not to suggest that Botswana's model can be transplanted in whole to other famine vulnerable countries. Each nation would need to make the appropriate modifications given their unique political, social, economic, and environmental situations in order to adapt

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Botswana's approach. In this light, Botswana can serve as an example of success towards which other countries can strive and a source of ideas they may wish to borrow while trying to reduce their own vulnerability to famine.

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