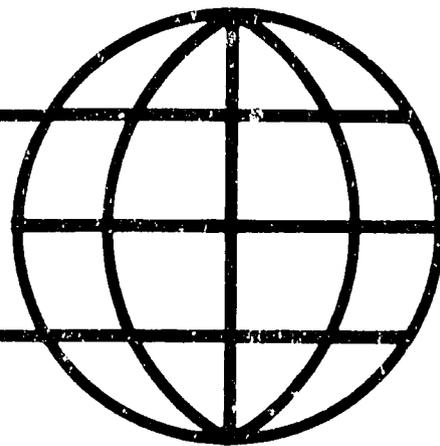
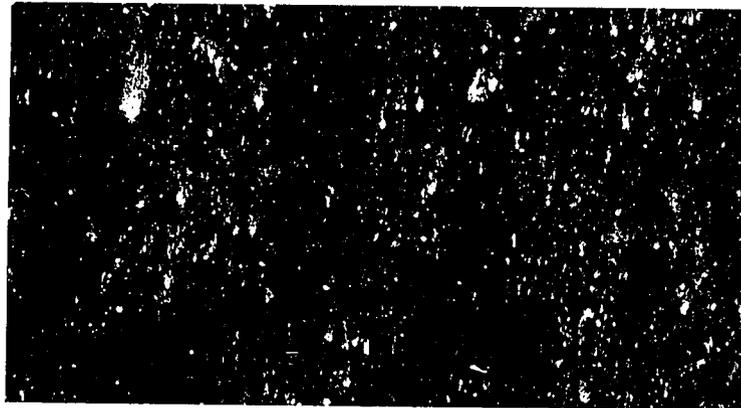


**COOPERATIVE AGREEMENT ON HUMAN SETTLEMENTS  
AND NATURAL RESOURCE SYSTEMS ANALYSIS**

Working Paper No. 22



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A HISTORY OF DEVELOPMENT  
IN THE TWENTIETH CENTURY:  
THE ZAMBIAN PORTION  
OF THE MIDDLE ZAMBEZI VALLEY  
AND THE LAKE KARIBA BASIN

by

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**A HISTORY OF DEVELOPMENT IN THE TWENTIETH CENTURY:  
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**1. INTRODUCTION**

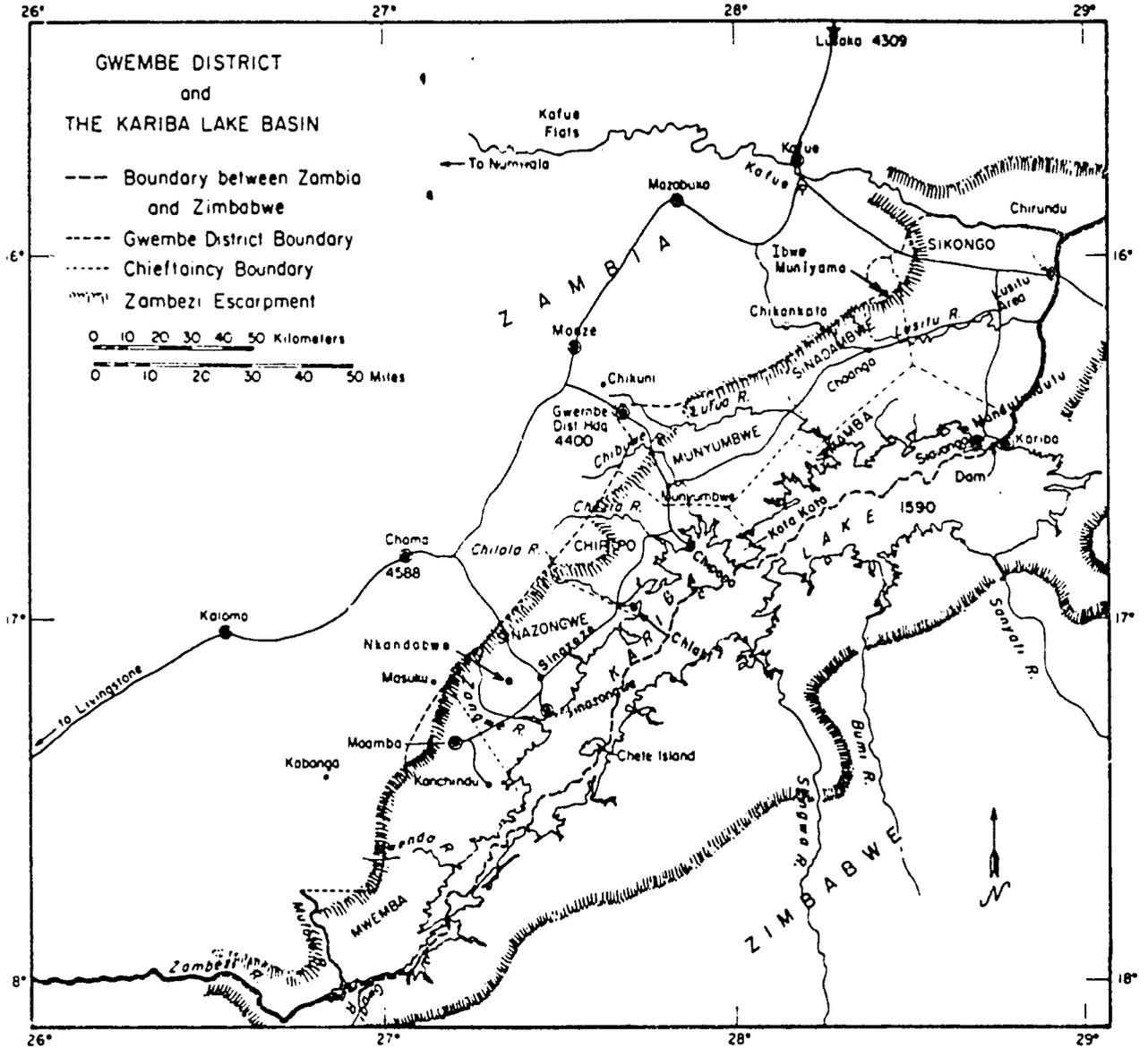
This is the fourth in a series of policy oriented reports on the Gwembe Valley which includes the Lake Kariba basin and comprises most of the upper portion of the Middle Zambezi Valley of Zambia and Zimbabwe.<sup>1</sup> The intent of the present report is to summarize the history of development since the turn of the present century in Zambia's Gwembe District (Figure 1). As defined here development refers to the district's incorporation within a wider market economy, to an increase in the number of economic opportunities and social services available to Gwembe's residents, and to a rise in their living standards as measured by such indices as reduced morbidity and mortality rates, increased access to formal education, improved housing and household furnishings, and increased amounts of disposable assets including cash and livestock.

No moral judgement is intended as to the desirability of development as defined. In the Gwembe case it has been accompanied by both advantages and disadvantages as seen by both outsiders and by local residents. While I see increased longevity, a broadening of available opportunities and increased purchasing power as potentially advantageous -- as on the adjacent plateau at an earlier date (Dixon-Fyle, 1983), in the Gwembe they have been accompanied by increased economic inequality and social stratification as well as by environmental degradation. And during periods of economic downturn, many people may well see themselves as worse off than in the past because of a widening gap between their aspirations and their achievements, and because of reduced self-sufficiency at the household and community levels.

The Gwembe extends from the upper end of Lake Kariba over 300 kilometers downriver to the Zambezi-Kafue confluence. A rugged rift valley, the Gwembe is an isolated, drought-prone habitat lying several thousand feet below the Central African Plateau. Geopolitically the Valley contains on the Zimbabwe side Binga, Gokwe and Kariba Districts (which were excised from the former Sebungwe and Urungwe Districts). On the Zambian side, Gwembe District is the only administrative entity.

Like the Valley itself, Gwembe District also stretches from the upper end of Lake Kariba to the Kafue's confluence with the Zambezi. There the district boundary follows the southern bank of the Kafue to the top of the escarpment which it follows in a southwesterly

FIGURE I



South Gwembe Chieftaincies  
 Mwemba  
 Sinozongwe  
 Southern Chipepo (Chiabi)

Central Gwembe Chieftaincies  
 Chipepo  
 Munyumbwe  
 Southern Simamba

North Gwembe Chieftaincies  
 Northern Simamba  
 Sinadambwe  
 Chipepo Lusitu  
 (New Chipepo)  
 Sikongo

direction back to the Zambezi where it joins Lake Kariba after flowing through a series of precipitous gorges below Victoria Falls. Encompassing somewhat over a million and a quarter hectares, the District's population exceeds 100,000 people, 97,000 being recorded during the 1980 census.

Within Gwembe District my emphasis is more on the inner portion of the Lake Kariba basin and the valley floor below the dam than on the upland areas at the base of the escarpment. It also pertains more to the Tonga-speaking majority of the Valley than to the Shona-speaking Goba (Lancaster, 1981) who form a distinct cultural category within North Gwembe.<sup>2</sup> This history, however, does not distinguish between the two peoples except where mention is made of specific neighborhoods and villages, in which case the comments refer exclusively to Tonga-speakers. Nor does this history deal in any detail with the precolonial era of the Middle Zambezi Valley. Those who wish to examine more closely the ecology, the ethnohistory and the ethnology of the Valley are referred to Colson, 1960 and 1971; Lancaster, 1981 and forthcoming; Matthews, 1976 and forthcoming; Reynolds, 1968; Scudder, 1962 and 1971; and Scudder and Colson, 1979.

## 2. OVERVIEW

Within Gwembe District, twentieth century development accelerated during periods when local initiative at the individual, household, and community levels was facilitated by governmental assistance that strengthened local government while providing strong technical assistance backed up by the necessary funds. All three ingredients -- local initiative, a strong decentralized local government with a degree of fiscal autonomy, and a major government effort through line departments and specialized agencies and supported by international finance and technical assistance -- would appear to be essential for future development.

Though not as crucial as the other three ingredients, non-governmental agencies can make a major contribution, especially when unfavorable rural-urban terms of trade, and other constraints, reduce the input of government services. In the case of Gwembe District this conclusion applies to the 1901-1955 and 1975-1983 periods during both of which government inputs in the form of expertise, personnel, and funds were minimal. While Christian missions and other private sector groups have also played an important complementary role when governmental assistance increased, their major weaknesses are two. First, their impact tends to be restricted to a small minority of the local people. Second, there is, as yet, no institutional mechanism for assessing the extent to which their localized experiences are applicable to Gwembe District as a whole. Each private voluntary organization tends to work in isolation with little awareness of what other private, district council and central governmental agencies are

doing. For such reasons, inputs from such organizations, important though they are, are no substitute for government assistance. The lesson of the past emphasizes the need for a partnership between the people and their own institutions, and governmental and nongovernmental organizations. The extent to which this will require a restructuring of institutions and perhaps class relationships is discussed in the final sections of this report.

In Zimbabwe, the Middle Zambezi Valley continues to be the least developed portion of the country. In Zambia the situation is more complicated for a number of reasons, including closer proximity to the surrounding plateau (and hence the line of rail and the major urban centers), an earlier and more extensive penetration of missionary activity, earlier decentralization of certain development responsibilities to a local district council, and a more active development policy on the part of the central government between the late 1950s and the early 1970s.

In dealing with Gwembe development, I have found it useful to break the historical sequence down into four time periods. The starting date of 1901 is not intended to suggest that development began only at that time. The Middle Zambezi Valley has had a complicated history over the centuries. Two major influences on the people were the earlier introduction of such new world crops as maize, cucurbits and tobacco, and the long distance trade in ivory and slaves. Matthews (forthcoming) points out that slavery played a major role in the rise during the latter part of the nineteenth century of such South Gwembe chiefs/ritual leaders as Mwemba, who increased their dependents and their power over rivals through the acquisition of slaves.

Though certain dates after the commencement of the present century mark clear transition points, such as the decision to proceed with the Kariba Dam in 1955, these periods do not represent simplistic sequences in which one type of development is stressed to the exclusion of other approaches. The second period (1932-1954) is a case in point. While the emphasis during those years was on reducing the periodic food shortages that plagued the Valley, the district council and treasury were established during the 1930s while the first road from the Plateau to the Zambezi in Central Gwembe was built in the late 1940s and the early 1950s. Both events had major development implications for the district and its people.

The first time period starts with the establishment of administration in 1901 and goes through 1931. Very little government-sponsored development occurred during that period, as government inputs related primarily to the establishment of "law and order," tax collection and famine relief. What development did occur was due primarily to local initiative and missionary activities, although local memories suggest that some district commissioners may have

periodically attempted to introduce improved seed and upgraded livestock prior to 1932.

The second time period, 1932-1954, is characterized primarily by attempts to alleviate famine and the initiation of some indirect rule through a newly established district council and treasury. The third period, 1955-1974, I have labeled the years of development, with the Kariba dam project being the initial and major stimulus, followed by the advent of Zambian Independence in 1964. The fourth period, 1975-1983, is a period of severe economic downturn and social disorganization. Though the impact of the war for Zimbabwean Independence and Zambia's economic recession contributed to this downturn in a major way, Seidman (1979:106) and others have shown that money could have been made available for village development during that time if rural development had been a major priority of the government.

In the final section of this report I ask whether an upturn in the district's fortunes has begun recently. Such an interpretation would be based on a number of events, including national pricing policies more favorable to the rural producer, a decided improvement in the artisanal Lake Kariba fishery, the revitalization of the two major joint ventures between the central government and overseas donors, a surge in private voluntary activities, and the extension of rural electrification into the Lusitu. Encouraging as these events are, their impact has been blunted by three years of drought and has yet to spread beyond a few neighborhoods. Elsewhere the quality of life was still deteriorating in many villages at the time of my 1981-82 and 1983 fieldwork. And at the national level, policies continue to be biased against the village sector.

Though these four periods emphasize changes in governmental inputs, this approach is not intended to denigrate the importance of local initiative on the part of the Gwembe people. Since the commencement of Gwembe research in 1956, my observation has been that individual farmers are constantly experimenting with new seed and new crops, and are quite willing to accept new technologies from their neighbors and others once their utility is shown. Elsewhere I have noted that "although less than 10 percent of Tonga household heads may be experimenting with new modes of production at any one time, in one study village 52 percent of those over 30 years of age in 1972 had initiated experiments in the past, including household heads in each of the three 1973 income categories" (Scudder, 1980). There is no reason to expect this village to be exceptional, for the other three villages in our sample also have a high level of experimentation.

Throughout their history the Gwembe peoples have shown a capacity to change modes of production and other aspects of their way of life. In the only detailed study on the Valley's history, Matthews concluded that the Gwembe has had "a rich, diverse, and varied history which,

above all, reveals the Gwembe peoples' adaptability in the face of change and their own initiative in shaping the pattern of their lives through time in a difficult environment" (1976:9).

Though rates of economic change may be relatively slow at times, accumulative changes have had major implications for the nature of local production systems -- here defined to include a wide range of on and off-farm activities including crop agriculture; livestock management; gathering, fishing and hunting; wage labor; and a range of business enterprises. Primarily the result of local initiative, which at times was constrained by government policies, perhaps the most beneficial change in the production system during the current century has been the shift from hoe cultivation to animal traction, while the least beneficial has been an increasing dependence on the cultivation of less fertile soils.

During the current century the relationship between the Valley peoples and their resource base has been constantly changing. Though population estimates are unreliable during the first half of the present century, nonetheless it would appear from the tax roll of adult males that the number of people living in Gwembe District has at least tripled since 1901. Though local production systems have changed through time, before Kariba the majority of the population lived in permanent villages along the Zambezi and its major tributaries. Permanency was associated with the preferred cultivation of the more fertile Zambezi and tributary alluvia, including the double cropping of soils that were annually inundated.

While the fertility of recent alluvia stimulated the buildup of population, irregular rainfall, floods, and a wide range of pests were responsible for periodic food shortages (Scudder, 1962:215-247). These shortages probably were the major cause of extensive emigration to the Northern Rhodesian Plateau -- "a movement that continued into the 1940s" (Colson, 1960:8). Villagers responded to population increase and the associated degradation of the less fertile alluvia in other ways as well. They continued to use a wider range of wild produce than documented for other savanna woodland cultivators in Central and East Africa (Scudder, 1971). Dispersing from the more extensive alluvial areas, they settled secondary alluvial deposits along the Zambezi and its tributaries with the major exception of areas in North Gwembe which were heavily infested with the tsetse fly carriers of bovine and small ruminant trypanosomiasis. Labor migration rates among younger men increased, with 42 percent of taxable men away at work during the dry season of 1956 (Annual Report of the District Commissioner), and with increasing land pressure associated with longer absences.

During the late 1940s, as the pressure of population on available land resources continued to increase, men began to clear bush gardens on Karroo sediments inland from riverine villages. In the more

densely populated portions of South and Central Gwembe, the better land had been largely utilized by the mid-1950s. The Kariba resettlement of a majority of Gwembe residents toward the end of the 1950s accelerated the shift from a dependence on alluvial soils, which could be permanently and semi-permanently cultivated, to less fertile Karroo sediments which required more frequent fallowing.

Resettlement accelerated a process whereby the people responded to population increase and land degradation by expanding cultivation into more marginal areas. In other words, they chose to extensify, and diversify, a relatively intensive system of farming rather than to further intensify production on existing lands. They chose to increase yields per unit of labor rather than the more labor intensive approach of increasing yields per unit of land. Except in the less densely settled areas of North Gwembe, this response is no longer possible since no more arable land is available. While a few village farmers have begun to enclose land in areas of greatest land pressure, no trend toward intensification of dry land farming is discernible within the Valley. Whether such a trend develops to alleviate the current crisis whereby many recently married couples are no longer able to find land to support their families remains to be seen.

### 3. 1901-1931: THE LOCAL ECONOMY DURING THE INITIAL YEARS OF ADMINISTRATION AND THE PROBLEM OF FAMINE

During the early decades of colonial administration, government efforts were restricted mainly to the establishment and maintenance of law and order, the collection of taxes and the provision of famine relief. In itself, the establishment of law and order was a major achievement and prerequisite for later development since the Valley had been the scene of frequent inter and intratribal raiding during the latter half of the nineteenth century. That half century had been characterized by major displacements of population, with villagers fleeing back and forth across the Zambezi or seeking refuge in such isolated escarpment areas as Ibwe Munyama. The coming of law and order also brought to an end both the export of slaves and domestic slavery.

The problem of periodic food shortages, including their reappearance in recent years due to three successive droughts and the breakdown in the communications system, has been chronic throughout the Valley's history. Throughout this time period practically all Gwembe households supported themselves with a diversified system of production. Variations in the domestic mode of production occurred within the Gwembe owing to differences in habitat between villages close to the Zambezi and those located near the base of the escarpment, the distribution of tsetse flies, and cultural distinctions between Tonga-speakers and Shona-speakers and among Tonga-speakers themselves.

For the majority living close to the banks of the Zambezi and its major tributaries the production system appears to have evolved in a similar fashion over the years. From the time of the earliest reports, it was based on the cropping of the more fertile riverine alluvia, with the most valued soils being cropped on a permanent basis during both the rains and, following the annual flood of the Zambezi, during the dry season (Scudder, 1962). Where conditions allowed, inland villages also cropped moist areas along the tributary system during the dry season, with small plots sown in tobacco, maize, cucurbits, and legumes backed up by bananas and pawpaws, with the sandier areas planted in sweet potatoes.

Other alluvia and adjacent colluvial soils were periodically cultivated only during the rains, with the length of the fallow period based on their fertility. Further inland from the river system various Karroo sediments, including the better mopane soils, were also alternatively cultivated and fallowed. Their relative importance depended on the availability and fertility of alluvia, annually flooded and flat garden land being preferred. Most households dealt with risk by cultivating three major cereal crops (sorghum, bulrush millet and maize), legumes, cucurbits and such minor but important crops as sesame and okra in a range of garden types (Figure 2). Very few fruit trees were grown. Virtually all cultivated produce was consumed within the neighborhood, the only cash crops being unknown quantities of turkish tobacco and hemp that were exported to the Plateau (other exports included such animal products as dried meat and skins).

The main agricultural implements were axes and short handled hoes, with most households cultivating approximately one acre per family member. Though they varied tremendously from year to year and from village to village and garden to garden in any one year, cereal yields in the better seasons tended to range around 400 pounds per acre. Rainy season harvests were by far the most important since only a minority of households had access to over half an acre of land per family member which could be cultivated during the dry season.

Though the cropping system was the basis of the economy at the village and household level, family members sought a range of livestock where tsetse conditions allowed. These included cattle, donkeys, small stock (goats and sheep), doves and chickens and dogs and cats. Food acquired through gathering, fishing and hunting (in that order of importance for the majority) supplemented cultigens and domestic animals in the diet.

Within the Gwembe an annual stress period occurred for at least some families (and when crops failed on an extensive basis, for the majority) during the period September through February, only coming to an end with the harvest of early maturing maize (kaile) and ratooning millet (eluwi) in late February and early March. The worst months

FIGURE 2

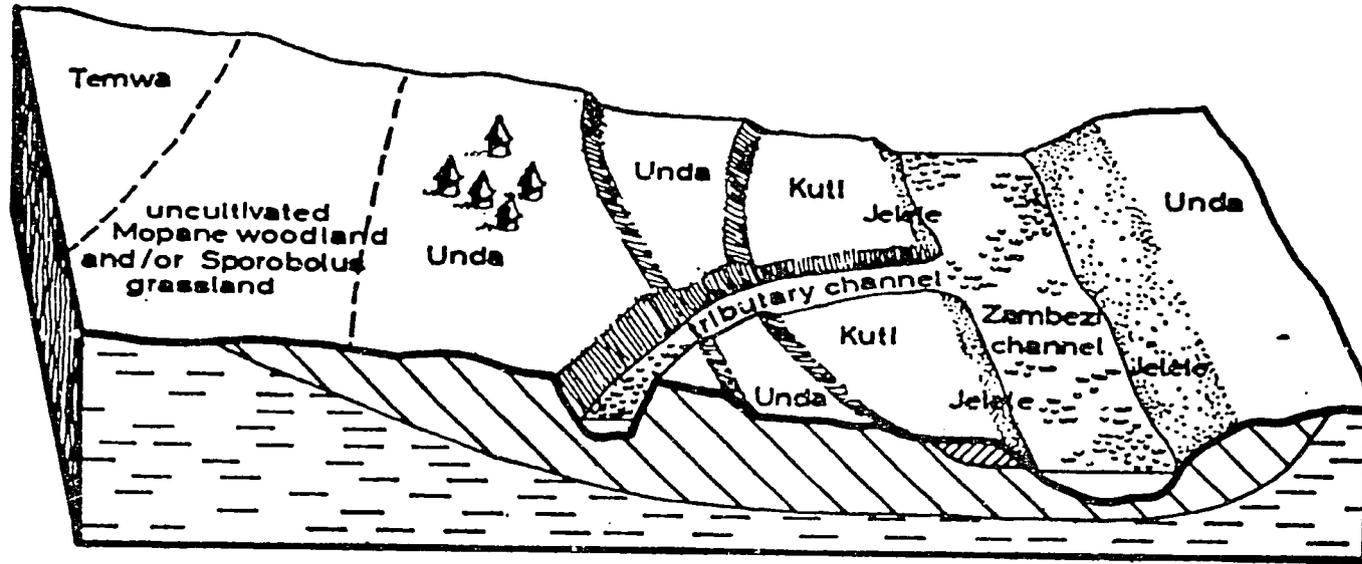
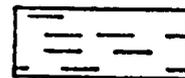


FIG. 12.—Major Middle River Garden Types



Karoo sediments



Alluvium II



Alluvium III

*Garden Types Supporting Permanent Cultivation*

*Jelele*: Zambezi river bank gardens cultivated primarily during the dry season.

*Kull*: Annually inundated floodplain gardens cultivated during both the rains and the dry season.

*Garden Types Supporting Land Rotation Cultivation*

*Unda*: Rains gardens cultivated on rarely inundated Zambezi and tributary alluvia or on adjacent Karroo sediments.

*Temwa*: Rains gardens cultivated on Karroo sediments farther removed from the river system and more often than not separated from *unda* and associated villages by an uncultivated area of infertile land.

From Scudder, 1962

were just prior to the rains in September-October (at which time fires swept the Gwembe, reducing the availability of most wild produce until after the rains came) and just prior to the rainy season harvest. Then gathered produce played a crucial role as a cereal substitute in the more densely populated riverine areas, with the seeds of Acacia albida supporting many families over several weeks in September-October, while various wild grass seeds played a similar role in late January and February since they matured prior to cultivated cereal crops (Scudder, 1971).

Though some fish were caught throughout the year, fishing's greatest contribution to the diet was during the Zambezi's fall following the annual flood, and especially during the period April-June. In the more densely populated neighborhoods, hunting probably was the least important single source of nutrients, although its importance no doubt increased, especially in outlying communities, as tsetse flies re-occupied territory vacated after the rinderpest epidemic of 1896.

A further component diversifying the local production system at the household level was wage labor. Although the first Gwembe men had begun to seek employment opportunities on the Plateau during the 1870s (Matthews, forthcoming), the levying in 1904 of an annual "hut" tax to be paid in cash forced an increasing proportion of men to seek work along the line of rail. By the 1930s wage labor during the dry season (and for longer periods of time in land scarce neighborhoods) probably was an integral part of the household production system, providing not just money for taxes but also for an increasing range of consumer goods, for food in years when harvests were insufficient, and, of increasing importance toward the end of this period, for cattle and plows.

Aside from wage labor, the above description probably fits the situation between 1860 (when Livingstone traveled through a portion of the Gwembe) and the mid 1930s when more detailed accounts of the Valley systems of production were provided by Read (1932) and Trapnell and Clothier (1937). 1860-1931 also was probably the period when annual food shortages caused the most suffering in the Valley's history.

Seasonal hunger is a characteristic feature of the more arid lands of Africa's savanna habitats. A major cause of under-nutrition and malnutrition, periodically the food shortages lead to starvation unless external supplies of food are made available in sufficient amounts at the right time and in the right place. Such starvation appears to have characterized the Gwembe Valley during the latter part of the nineteenth century and the early years of the twentieth century. In 1909, for example, district administrators were of the opinion that the total population of the Gwembe had decreased in spite of famine relief. Read refers to a "high adult death rate" in 1913-14

due to famine (1932:12). Thereafter, an increasingly effective famine relief program appears to have eliminated actual cases of death through starvation, although malnutrition no doubt continued to contribute to higher death rates, especially among small children and the elderly.

#### 4. 1932-1954: ATTEMPTS TO ALLEVIATE FAMINE

In response to the food shortages of the 1931-32 season, Gordon Read toured extensively through the Valley early in 1932. In his report to the government he made a number of recommendations, including stepped up cultivation of bulrush millet and cassava, with the former to be stored in communal granaries to which each household would be required to contribute millet after a good season with amounts equal to contributions to be drawn out following crop failure. But it was cassava that Read thought would "go far to make famine in Gwembe a thing of the past" (p. 41).

Though a number of Read's recommendations eventually affected government policy, administrative neglect of the Gwembe continued throughout the depression and the early years of World War II. Returning to the Gwembe in 1942, S. D. Facey, who had accompanied Read on the earlier visit, wrote that to his dismay not one of the 1932 recommendations had been carried out (1945 District Report). The situation began to improve incrementally thereafter, with the district's first five year development program drawn up in 1943. In 1944 a Communal Granaries Order was implemented that required farmers to deposit 60 pounds of millet in communal grain stores following a "normal harvest." Five years later a Cassava Order was passed by the district council requiring each household to contribute labor to a half acre village plot, with individual households required to cultivate ten by ten yard plots.

Partly because of population pressure and the removal of various previous constraints (Scudder, 1962) and because of the communal granaries order, between 1948 and Kariba resettlement in the mid 1950s there was a dramatic increase in millet production which was associated with the pioneering by villagers of a new garden type. Called matemwa in Central Gwembe and magani in South Gwembe, this was cleared on Karroo sediments usually one or more kilometers inland from village sites. By the time of our initial fieldwork in 1956, the severity of food shortages had been reduced, with increased yields of bulrush millet being the major reason.

As for cassava, its cultivation never "took." Opinions vary as to why. In riverine areas, informants insisted that cassava was an inappropriate crop, being highly susceptible to termites and other problems. On the other hand, cassava was said to do very well in such inland chieftaincies as Sinadambwe where resistance to the

Government's Cassava Order resulted in rioting during the early 1950s. There cassava became a focal point for a number of grievances. People also resented being ordered what to grow irrespective of suitability. Strongly egalitarian even today, Gwembe villagers do not like to be told what to grow or what to do. Much of what has been labeled as Gwembe apathy to development or conservatism in the face of new ideas is more likely a reasonable reaction to untested ideas (and cassava, unlike millet, was an untested crop), to lessons learned from innovations that subsequently failed or to the way in which ideas were presented.

Another factor alleviating food shortages during the 1932-1955 period was the gradual buildup in cattle numbers and ox plows in tsetse-free areas (Read reported 81 plows in 1932, over half of which were in Mwemba's Chieftaincy. In his 1983 article, Dixon-Fyle describes the earlier introduction of plows, and their significance, on the Plateau). Though the European explorers of the second half of the nineteenth century made no mention of cattle in the Gwembe, villagers began to acquire them from the Plateau after the rinderpest epidemic of 1896 forced the tsetse fly back into three small pockets on the Zimbabwean side of the Valley (Scudder, 1962). Starting from less than 1000 cattle in 1914, the number increased to over 10,000 in 1930, 17,000 in 1948 and 21,000 in 1956. The number would have been still greater if the tsetse fly had not re-occupied extensive areas in Central and South Gwembe, although the introduction of trypanosomidal drugs in the late 1940s allowed some villagers to keep cattle on the edge of tsetse zones.

Over the same time period plows increased from 81 in 1932 to 1691 in 1956, enabling users (who included relatives and friends of the owner) to double areas under cultivation without major increases in labor inputs. Though tsetse reinfestation elsewhere continued to restrict the numbers and distribution of cattle, the slowly increasing reliance on ox traction in Mwemba's, Munyumbwe's and Sinadambwe's Chieftaincies contributed to the alleviation of food shortages, as it did in portions of Chipepo and Sinazongwe.

The period under consideration also includes the arrival of the Department of Agriculture on the Gwembe scene. Though various agricultural officers had toured the Gwembe from time to time, it was not until 1952 that the first senior staff member was assigned to the district. He was soon replaced by C. Mitchell who spent the next ten years developing cropping systems for rainfed and irrigated agriculture in the Valley.

Prior to 1952, attempts to resolve the problem of famine and to improve productivity were initiated by the provincial administration through the district commissioner. Though advice on occasion was sought from various technical departments (including the Department of Agriculture, the Forest Department and the Veterinary Department) at

provincial and national levels, these departments were understaffed in relationship to the needs of the village sector (this being especially the case during the depression and the war years). During the late 1940s, however, one has the impression that the district commissioner was more apt to criticize the Department of Agriculture for its neglect of the Gwembe than to seek its assistance. In his 1947 Annual Report Facey wrote that "no progress [is] likely in either agriculture or in food supplies until the Agricultural Department can start work in the District." The following year Bourne wrote that the newly appointed agricultural councilor of the district council would be the liaison officer between local government and the Agricultural Department "when the latter is in a position to devote its attention to the agricultural needs of the District." In a more critical vein, he reported in 1951 that "it seems absurd that improved seed of the varieties most suitable to particular conditions cannot be supplied by the Agricultural Department when they are required." This outburst followed the inability of the Department to provide seed of an early maturing variety of sorghum after recommending its trial under Gwembe conditions, with the result that the district council sought out supplies from a European farmer on the Plateau and from Zimbabwe.

As Facey noted, the development of Gwembe agriculture suffered from the neglect of the Agricultural Department. Though the District Administration maintained a garden and a small herd of cattle at the Boma and occasionally distributed seed, cuttings, exotic varieties of sheep and improved cockerels to chiefs and villagers, all of this was on a very small scale. The same applies to gardens maintained at various schools. Though such gardens may have had a minor demonstration effect, extension services were nonexistent, the thrust rather being development via the enforcement of agricultural ordinances (including the Cassava Order, the provisioning of Communal Granaries, and various natural resource management ordinances such as the prohibition against clearing riverine forests and bush).

It was not until Mitchell arrived that the situation improved. Very cautious in his approach, Mitchell's actions suggested that he believed that much more experimental research was necessary before a large scale development program could be launched. Certainly he favored small experimental plots some of which in time became demonstration gardens. His approach to extension emphasized field days in experimental plots as opposed to onfarm extension work in village fields. While there is much to criticize in this approach, it is indisputable that much of the agricultural development that occurred following Independence and Mitchell's transfer was based on his research and on his recommendations. But this was in the 1960s and the early 1970s, so that the opportunity for agricultural development presented by the Kariba resettlement was essentially lost.

## **5. 1955-1974: THE YEARS OF DEVELOPMENT**

### **a. Introduction**

Gwembe's main period of development began after the Federal Government announced in March 1955 that bidding was open for the construction of a dam at the Kariba as opposed to the Kafue Gorge site. It came to an end around 1974, after copper prices began to fall and after the war for Zimbabwean Independence began to adversely effect the district's economy.

Though the Kariba scheme has brought major problems -- some yet to be resolved -- to the district and to the 36,000 Zambians who were relocated from the future reservoir basin, it also provided impetus and funds for a period of village development without parallel in the agrarian history of either Zambia or Zimbabwe. Though atypical, this development is not only interesting in its own right, but also contains valuable lessons for improving the lot of rural populations the world over. This is because the development that occurred raised living standards not just for a small rural elite but for the majority of the Gwembe population. In achieving that accomplishment, the development process combined the local initiative of village households with assistance from the district council and from various government departments. During the "Kariba years" both council and departments had sufficient funds for implementing plans that were beyond the resources of the private sector, a crucial component that has been absent since 1974.

After a brief analysis of the background to Kariba, this section will deal sequentially with policy and institutional infrastructure, physical and social infrastructure, the Lake Kariba gill net fishery and small scale commercial enterprises, tsetse control, the development of rainfed agriculture, irrigation, and mining development.

### **b. The Background of the Kariba Dam Project**

Though 1955 is a somewhat arbitrary date for initiating the major phase of Gwembe's development, it coincides not only with the decision to proceed with Kariba and with the commencement of preparatory works at the dam site, but also with the Secretary for Native Affairs officially notifying the district council that construction was about to begin. Prior to that time the people of the Gwembe had only heard rumors concerning the possibility that a majority of them might be required to relocate as a result of dam construction.

The decision to proceed with Kariba rather than Kafue was more political than economic. While the less costly and spectacular Kafue project was favored by the Northern Rhodesian authorities, the Kariba site was the favorite of high officials in the Federation and Southern

Rhodesian Governments, both of which were dominated by white settlers from south of the Zambezi.<sup>3</sup> Though the largest single user of Kariba power was to be the Northern Rhodesian copperbelt, the Federal and Southern Rhodesian authorities wanted to control the power generating and transmitting installations. Putting the dam on the border between the two countries, and the installations and control center on Southern Rhodesian territory, would achieve that goal.

In terms of economic development, Kariba was planned and built as a single purpose project to supply hydropower to the urban-industrial centers of the Federation, with major sources of funding provided by the World Bank and the mining companies. From their perspective the project has paid its way, with the World Bank providing additional funds for the installation of further generating capacity, this time on the North Bank, after Zambian independence in 1964.

Viewed from a different perspective, however, the project has failed to realize its potential as a mean for the integrated development of the Middle Zambezi Valley, though such an opportunity still exists if Zambia and Zimbabwe can cooperate for their mutual benefit. When the project was planned, little consideration was given to the possibility of irrigation, in spite of the fact that thousands of hectares of suitable land are available below the dam in Zambia's Lusitu-Mpendele area. Indeed, the planners paid scant attention to how the project might speed the development of the local people. In the early 1950s, for example, when the Kariba alternative to a dam on the Kafue was first costed out, no provision was made in the financial estimates for post-relocation development for relocated and host populations. Indeed the planners had little idea even of the numbers of potential relocatees, initial estimates being far too low. Though subsequently all three governments provided one million pounds apiece for the development of the lake, as far as the Federation and Southern Rhodesian governments were concerned the beneficiaries were to be primarily the White population.

Pointing up the single purpose nature of the Kariba Dam Scheme, the implementing institution was the Federal Power Board (FPB). The FPB was established in 1956, taking over from the Hydro-Electric Board which had been involved in the Kariba undertaking since 1954. Primarily concerned with the construction and operation of the dam, powerstation, and transmission network, the FPB shunned more comprehensive activities unless they threatened power generation and transmission. As for those forced to move, they were considered an expensive nuisance. The FPB released money for their physical removal, but until 1960 it resisted claims from the Northern Rhodesian government for monies for rehabilitation and development purposes.

No similar organizational structure was created for the development of the Middle Zambezi Valley as a whole or even for the lake basin itself. Both the resettlement and development of the

local population were seen as the responsibility not of the federal government, which had caused the dam to be built, but of the Northern and Southern Rhodesian governments, which continued their separate responsibility for "Native Affairs" throughout the federal period. In spite of the large majority of those forced to move being Tonga-speakers, virtually no exchange of information took place between the two territorial governments. The major exception related to the lake itself as opposed to the much larger terrestrial portions of the Gwembe Valley. In the mid-1950s the Kariba Lake Committee was established. Composed of representatives of all three governments, it met sporadically to discuss utilization of the future reservoir. Toward the end of 1955 the Committee set up the Kariba Lake Fisheries Committee "to examine and report on the industrial, subsistence and recreational fishing potentialities of the Lake" (Kariba Lake Committee Minutes, Sept. 19, 1955).

Partly because of the work of the fisheries committee, the subsequent fisheries development program on the north bank had a major impact on Gwembe District in spite of the fisheries' collapse after 1964. The fisheries committee itself was subsequently absorbed within the Kariba Lake Coordinating Committee (KLCC). Established in 1957, the KLCC was supposed to "supervise and coordinate the basic work essential to the development of the lake and its littoral" (KLCC Minutes, 1937). It was also supposed to eventually give way to a Kariba Lake Development Company that was to provide a framework for development of the lake's resources through private enterprise. Operative until Zambian Independence in 1964, the KLCC concentrated on harbor development and navigational aids, aquatic weed control and fisheries research, laying the basis in the latter case for the short lived United Nations Development Programme/Food and Agriculture Organization/Lake Kariba Fisheries Research Institute. The company, however, was still-born since the Northern Rhodesian authorities and the Gwembe District Council saw it as just another mechanism whereby the European community of the Federation and expatriate companies would exploit Kariba resources for their own benefit at the expense of the interests of the local African population. Bearing in mind that the entire lake shore margin on the south bank was gazetted as a European area, and that the South African firm of Irvine and Johnson was given a permit to fish the lake, this perception was quite understandable.

To sum up, the Kariba Project is a classic example of government policy ensuring unfavorable rural-urban terms of trade. An efficient but narrowly conceived organization, the Federal Power Board (after 1964 the Central African Power Corporation) had one goal -- to export power to the urban industrial centers of the plateaux. Though the dam was built in a rural area populated by tens of thousands of rural residents who subsidized the project at the expense of their land and livelihood, as late as 1983 no Kariba power had been made available for rural development in the lake basin area nor is there any revenue

sharing of income received from the sale of power on the plateaux. Correctly perceiving where the opportunities lay, Valley residents followed the transmission lines to look for jobs along the line of rail.

On the Zimbabwean side of the reservoir impacts of the dam on relocated and host populations have been largely negative. On the Zambian side they have been mixed, the more positive outcome originating largely through the insistence of the Northern Rhodesian Department of Native Affairs that the Valley people receive some cash compensation for the loss of homesteads and livelihood and that they not be excluded from the benefits of the dam. Reinforced by the activities of the district council and the African National Congress, this insistence fostered a development process which the Zambian government continued during the first ten years of Independence.

### c. Policy and Institutional Infrastructure for Gwembe Development

The development thrust that began in 1955 was not the product of Federal and national development policies, which continued to discriminate against African as opposed to European farmers, and rural as opposed to urban-industrial areas. Nor was it due to a conscious attempt at development on the part of the Federal Power Board and the funding agencies, since Zimbabwean residents of the Gwembe fell even further behind the African populations of the Plateau between 1955 and 1974. Rather it was due to the interplay between the Northern Rhodesian Provincial Administration, the Gwembe District Council, and the African National Congress (ANC) in responding to local initiatives, needs and concerns, with the first two institutions working together in opposition to the third, but all concerned about the impact of Kariba on Gwembe's village population.

In analyzing the interplay between these three organizations, the temptation to view it strictly as a competition over the control of the Valley population would be a mistake. In dealing with events at district level, personalities are also important. Though they made mistakes at the expense of the Gwembe people, the majority of administrators stationed in the Gwembe between the district's reestablishment in 1947 and Zambian Independence in 1964 had a genuine concern for the welfare of the people (Howarth, 1961). Four individuals in particular stand out. These are S. P. Bourne, John Sugg, Leonard Butler and Alex Smith. While Bourne pushed hard for an integrated development program while serving as district commissioner during the late 1940s and early 1950s, Sugg (first as district and then as provincial commissioner) not only administrated the most traumatic years of the resettlement program but also played a crucial role in the establishment and supervision of the Gwembe Special Fund. As district commissioner, Butler pushed for local institutions. Although his hopes for a strong cooperative movement were never realized, before their demise Gwembe coops gave invaluable experience

to a number of local residents who have since played a major role in both district and national development. As district officer responsible for the most difficult tasks involving the physical resettlement of the people, Smith literally ruined his health through overwork and concern.

Among the Tonga-speaking population Hezekiah Habanyama was equally outstanding. After receiving his primary school education in Chief Sinadambwe's area, Habanyama was one of the first Gwembe villagers to attend secondary school. Subsequently he was the first to attend college, taking a course of study in England at Bristol University. Returning to the Gwembe, he joined the district council which he dominated after becoming Chief Councillor in 1955.

While these men had an impact on Gwembe development that deserves mention, it would be a mistake to overemphasize their influence, for all had to operate within an adverse policy context, formulated at the Center, which was strongly biased toward the urban industrial sector. Though they had a major influence on how Kariba resettlement and post-resettlement rehabilitation were implemented, they had little influence on the decisions that led to resettlement or even on the allocation of sufficient resources for the timely planning of removal. Bourne's pleas between 1948 and 1953, for example, that appropriate resettlement surveys be carried out in the event that the Kariba project might be implemented, were ignored, as were his ideas for the integrated development of the district as a whole, with or without the Kariba project.

Nonetheless, Kariba was the catalyst for the Valley's first major spurt of development before Zambian Independence. The same was true for the post-Independence period until the mid 1970s. With the African National Congress in eclipse, the government formed by the United National Independence Party (UNIP) continued (and in some areas like tsetse control and rural credit, increased) support for the development policies formulated during the 1950s and early 1960s. The most important major changes thereafter were the commencement of coal mining operations in the late 1960s and early 1970s, and the appearance in the early 1970s of two joint ventures between the central government and overseas donors. These ventures were the Zambezi Training Farm and the Gwembe South Development Project.

When the decision to proceed with Kariba was made early in 1955 no planning for resettlement had begun. Nor were accurate figures available on the numbers of potential relocatees, in spite of the fact that several villages near the dam site would require relocation in 1956. While this situation resulted in a poorly conceived crash, and trauma-ridden, program to get the relocatees out of the lake basin before the dam was sealed (Colson, 1971), three well planned and highly successful development interventions were launched at this time. These were the Lake Kariba gill net fisheries, an expansion of

education, and the tsetse control program. The first was pushed by the provincial administration, the second by both the district council and the provincial administration, and the third by the district council, which, more than any other institution, realized the importance of cattle in the local production system, and hence insisted that a major effort be made to clear tsetse flies from all resettlement areas at the time of settlement.

When district councils were first established and then liberalized in the 1930s, one goal of the government was "to encourage co-operation between the chiefs and the more progressive young men of their respective communities" (Mulford, 1967:13). Though initially this goal was thwarted in the Gwembe due to the sparsity of locally educated people (with the result that developmental posts were dominated by outsiders prior to Independence), in the mid-1950s the post of chairman passed to Habanyama. It was he, more than anyone else, who pushed for better educational facilities for Gwembe boys and girls, and he played a major role in drafting the ten points on resettlement that the council successfully negotiated with the government after being notified in March 1955 that Kariba was to be built. Without his presence, it is probable that the district council would have been less effective in its insistence that the Gwembe people share in the benefits of the Kariba Scheme.

The ten points submitted to the Secretary for Native Affairs dealt with a range of topics, four of which had major development implications. The first was that the council, as well as individual relocatees, should receive compensation for general losses (reduction of land base, among others) associated with the Kariba Dam Scheme. As a result the council became the wealthiest local government in Northern Rhodesia, receiving funds sufficient not just for salaries and other recurrent expenditures (which claim a disproportionate share of the funds of most district councils in Africa) but also for development.

The second point stated that the council had the right to license and tax new enterprises attracted to the district by the lake. Though agreed upon by the colonial government and implemented through 1964, the Zambian government did not observe this commitment after independence. Strengthened by the new policy of decentralization in the 1980s, however, negotiations continue, especially in regard to licensing fees for the capital-intensive (and Plateau-dominated) kapenta fisheries that have developed since Zimbabwean Independence.

The third point was that people should be allowed to reoccupy any land that was not flooded by the dam. Unlike the situation in Zimbabwe, where the government excluded the relocatees from utilizing most of the lake shore margin, this point gave people the option of rebuilding along the reservoir in the future -- with important implications for agricultural and fisheries development. The fourth

point stressed that government should launch a major attempt to control tsetse flies in all resettlement areas. Since these areas were spread throughout the district, the successful completion of such a program would reduce the risk of bovine trypanosomiasis throughout Gwembe as a whole.

The role of the ANC in Gwembe development is harder to analyze. A national political organization representing African interests by Africans (as opposed to Europeans) developed only as recently as the mid-1940s, evolving shortly thereafter into the African National Congress. The first Gwembe recruits had joined the Congress at least by 1950, with the ANC playing a role in the 1953 riots against the Cassava Order. The following year the district council was pressured by the government to ban Congress activities throughout the district. Recruitment then went underground. When the Kariba Scheme was approved in 1955, the ANC opposed it on a number of grounds, of which the forced relocation of large numbers of Gwembe villagers was one. Accordingly recruitment activities and fundraising for the Congress accelerated, with headmen and other villagers becoming members.

The provincial administration was certainly aware of the growing strength of the ANC in the district. And probably it was aware that banning Congress in 1954 made recruitment and other activities more difficult but not impossible. Against this background it can be argued that both the administration and the district council, in vying for the loyalty of the Gwembe people, pushed for stronger resettlement and development benefits than would otherwise have been the case, especially after 1958 when at least nine Central Gwembe residents were killed and over thirty injured during an unnecessary show of government force against those resisting resettlement to the Lusitu area below the dam. This "incident" made Habanyama in particular look bad, and might have reinforced his commitment to district development.

Prior to the rise of the United National Independence Party, I suspect that there was an attempt on the part of both government and the council to undercut the Congress by pushing for post-relocation development, especially since all the evidence suggests that the authorities over-estimated ANC capabilities in the District at the time. On the other hand, Bourne's concern that the Gwembe people also benefit from Kariba predates the ANC, so political considerations should not be overemphasized at the expense of other factors.

It was only after the physical removal of the relocatees that increased funding became available for their rehabilitation and for a more general program of district development. The year was 1960. At that time the claim of the Northern Rhodesian government on the Federal Power Board for relocation and development purposes exceeded three million pounds sterling. In August a settlement was reached at £2.6 million.<sup>4</sup> Of that amount somewhat over £900,000 had already been spent on the physical resettlement of the people, along with £312,500

for the compensation of individual relocatees, leaving £1.37 million. £200,000 was paid to the Gwembe District Council as general compensation while the rest was to be paid in equal installments over a five year period into a Gwembe Special Fund for development purposes. These funds were in addition to Northern Rhodesia's share of the £3 million previously allocated for the development of the reservoir itself and interpreted by Northern Rhodesia members of the Kariba Lake Coordinating Committee (KLCC) to include facilities for the artisanal fishery as well as tourism and a commercial lake transport system.

Established in 1960, the Gwembe Special Fund was headquartered in Livingstone where the Provincial Commissioner could keep an eye on it. Decisions were made by a group of five trustees, two of whom represented the Gwembe District Council. The secretary to the Fund was a political officer who was also a Northern Rhodesian member of the Kariba Lake Coordinating Committee.

At the time of the Gwembe Special Fund's establishment, agrarian development in the valley still lagged well behind that in other districts of Zambia's Southern Province. According to Johnson, (1974:16), at that time, "in terms of agricultural extension services the Valley had been described as 'virtually virgin country'. . . . Furthermore the Southern Province African Improvement Fund did not extend its activities to Gwembe."

During the six years of its life the Gwembe Special Fund began to correct the balance. Though a major effort was made not to contribute financially to activities that were the proper responsibility of the various government departments, it did plan to make those activities more effective by providing additional personnel, equipment and funds. To coordinate expenditures with departmental programs, and with activities of the district council and other agencies, a working party on the development of Gwembe District and the Lake Kariba area was formed in 1961. During the same year this working party roughed out a development program the outlines of which were followed both before and after Independence in 1964. The plan covered a range of topics including fisheries, tsetse control, dry land farming, and irrigation. It also dealt with physical and social infrastructure, including roads, village water supplies, schools, and clinics. Zimbabwe had no equivalent to either the Gwembe Special Fund or the accompanying plan, with the result that Valley residents there fell still further behind their northbank counterparts as well as the African population of the Zimbabwean plateau.

Zambian Independence in 1964 did not break the continuity of Gwembe development. The Gwembe Special Fund continued until April 1966 when its remaining financial resources were handed over, including approximately £30,000 for district council maintenance of potable water supplies in various resettlement areas. Though a

succession of changes were made in the district administration, first weakening and then strengthening the position of the district governor (formerly district commissioner), the district council continued as before, as did the various technical departments.

If anything, financial resources available to the district increased, with larger sums available, for example, for tsetse control and for credit for mechanized fishing units (boats, outboard engines and gillnets), and for dry land agriculture (including loans for oxen and ox-drawn equipment). Funds were also forthcoming for the construction of a Farmers Training Center at Buleya-Malima on the Valley floor. Coordination remained a problem since organizational structures both before and after independence were vertical, with technical officers reporting to their superiors at the provincial and national levels. Though the district governor has tried to reestablish the role of "head of the District Team" previously carried out by the colonial district commissioner, today horizontal linkages are largely restricted to quarterly meetings of the district council, which has absorbed the former District Development Committee.

Since Independence the major institutional innovations for implementing Valley specific projects (as opposed to the establishment of such national agencies as the National Agricultural Marketing Board which operate in other rural areas as well, and the coal mines which are intended to meet national as opposed to local needs) involved the establishment in the early 1970s of the Zambezi Training Farm and the Gwembe South Development Program. The Zambezi Training Farm (ZTF) is part of a larger effort involving the Catholic Church, the Italian Government and the Government of Zambia.

Again Kariba provided the impetus. The dam had been built by an Italian firm. As construction proceeded, the priest who served the Italian labor force suggested that the Church begin a mission to the Valley people in North Gwembe to be run by church personnel recruited from various dioceses adjacent to Milan. Once the idea was approved, a broader development effort was formulated. This involved a school, a hospital and a center for training local primary and secondary school leavers as small-scale pump irrigation farmers. The first two classes of graduates were to be settled on two acre plots under the continued supervision of the center's technical personnel. Construction costs for the center, called the Zambezi Training Farm, exceeded £100,000 and were shared between the Church and the Zambian Government. The Italian Government paid the salaries of two technical experts who arrived in late 1969.

The Zambezi Training Farm was sited where the Kafue River joins the Zambezi some 20 kilometers downriver from Chirundu (Figure 1). Of 150 acres suitable for irrigation, the first 25 were planted in March, 1970. The first trainees were selected within the next few months. In August temporary pumps were replaced with a permanent facility

capable of pumping 30,000 gallons per year. That same month the training farm was officially opened. During 1972 the first 25 graduates were settled on 2-acre plots, with 14 settled on the farm itself and the remainder at a 50 acre site close to the Zambezi in the Lusitu. By 1974, 47 trainees had been settled at the two locations, occupying all but three of the available plots. A class of trainees from South Gwembe had also been graduated.

Bananas were the main crop with the North Gwembe producers a major source of supply for the Lusaka market. Though aging rapidly, ZTF transport was still operational in 1974 and government evaluators believed that the time was near when the farm could commence training irrigation farmers from other parts of Zambia. That hope, however, was dashed by the war years: irrigation operations suffered a major setback after the 1977 departure of the Italian technical volunteers.

Also starting in 1970, the Gwembe South Development Program was established on the Valley floor at the opposite end of the district in Mwemba's and Sinazongwe's Chieftaincies. In this case the Ministry of Agriculture and Water Development entered into a joint venture with the Gossner Mission of Berlin, a private sector organization working in several countries. Dedicated to economic and social development as well as church work, Gossner draws much of its financial support from German-based church groups.

During the 1960s, extreme land pressure developed in some resettlement areas, especially in the more remote portions of Mwemba's Chieftaincy. Though once again government officials considered relocation as perhaps the best option, villagers refused to move, supported by their chief who opposed removal from his jurisdiction. The stalemate ended when a consultant (Gunther Garbrecht) who carried out various surveys reported that further resettlement was unnecessary since "there are technical possibilities of developing the land and water resources of the Valley" (1969).

Though Garbrecht suggested that attention also be paid to dryland farming, livestock management, fishing, and the improvement of infrastructure, his most eye catching conclusion was that some 160,000 acres were suitable for pump irrigation from Lake Kariba. A good proportion of this acreage was in South Gwembe. While the better irrigation zones were not close to the worst affected areas, the possibility caught the attention of the central government. Two irrigation initiatives followed. Under the first, the primary responsibility of the newly recruited Gossner Team was to rehabilitate a small-scale irrigation scheme in the uplands of Sinazongwe at Nkandabwe, and to initiate on lakeside mopane soils a second small irrigation project at Siatwinda in Mwemba's Chieftaincy. Experiments with handpumps also occurred near the upper end of the lake at Kafwambila.

The second initiative involved setting up a government irrigation research station/settlement scheme at Buleya-Malima which subsequently was handed over to the Gwembe South Development Project. As in the case of the Zambezi Training Farm, relatively small numbers of families received land, with the Nkandabwe, Siatwinda and Kafwambila operations involving less than 100 households, while Buleya-Malima -- conceived as a medium sized project -- also had less than 100 settler households. The large majority of recruits came from the surrounding villages.

Though irrigation has continued to be its major focus, the Gwembe South Development Project also concerned itself, with varying success, with village water supplies, alternative technology, building construction, sale of local crafts, public works, institutional development (including two successful irrigation associations and several credit associations) and a range of other activities. Dry land farming, along with livestock management and fishing, were not emphasized.

Though differing in detail, the early history of the Gwembe South Development Program duplicates that of the Zambezi Training Farm in many respects. It too was initiated in the early 1970s as a joint venture between the central government and international donors. Though prominent local residents and local committees were more involved in implementation and operations, articulation to district government and the district council was minimal. Once the relevant chiefs had approved various sites for occupation and use, and the agreements between the central government and the donors had been rubber stamped by the local authorities, the latter had no oversight responsibilities or control over programming and budgeting.

Both programs were equally dependent on expatriate volunteers who contracted to live in the Valley for periods of several years. Varying in numbers between one and ten (the ZTF, dealing only with irrigation, consistently had a smaller staff), the expatriate staff lived lives separate from both their counterparts and project beneficiaries. Concentrating on irrigation as opposed to dryland farming, neither program had a major impact on the dominant production system of their respective areas which continued to focus on a combination of dryland farming and livestock management. They were enclaves within the district, with an impact restricted to a rather small minority of Gwembe residents in spite of the considerable amounts of funds and personnel time expended. Granted the high opportunity costs of funds expended in the area, it can be argued that they could have been used to much better advantage in terms of overall development.

Notwithstanding the above critique, both programs demonstrated on a larger scale what Mitchell and the Valley people already knew -- namely, that various crops can be profitably grown under irrigation in

the Valley and that Gwembe villagers can operate small scale irrigation projects profitably as both producers and, through project associations, as managers, provided marketing problems can be resolved. At the same time, the hospital at Chirundu has proved invaluable to villages within a twenty mile radius while the Gwembe South Development Program has learned how to market local crafts from some of the poorest villages in the district. Shut down or seriously curtailed during the war years, both joint ventures once again geared up following Zimbabwean independence in 1980.

#### d. Physical and Social Infrastructure

A large-scale development project like Kariba inevitably incorporates the local population into a wider political economy, although impacts can vary greatly from community to community according to their proximity to the dam and other dam related infrastructure. In the Kariba case, an excellent all weather road was built to the dam site in 1955 from the Lusaka-Chirundu highway to Zimbabwe and points south. Becoming the best road in the country after tarring in the 1960s, it skirts the western margin of the Lusitu, connecting what may be the most densely settled rural area in Zambia with Lusaka less than 100 miles away. Subsequently the coal mining areas in Gwembe South were connected by an equally good tarred road to the Livingstone-Lusaka highway at Batoka, opening up parts of Chief Sinazongwe's area and the easternmost portion of Mwemba. Important as these roads are, however, most of the district continues to have an inadequate system of access, penetration and feeder roads.

Before the establishment of the Gwembe Special Fund, other Kariba related physical infrastructure included a network of resettlement tracks, as well as tracks to facilitate the clearing of 124,000 acres of bush in anticipation of the future lake fisheries. Harbors were also under development on both sides of the lake with Zambia's located at Siavonga (dam site), Chipepo (Central Gwembe), and Sinazongwe (South Gwembe), along with eleven anchorages planned for less accessible areas between the harbors. These were intended to serve the fisheries, with market and other facilities to be built on the land and connected with the inland road system by a series of feeder roads.

In noting all this members of the 1961 Working Party on Gwembe Development observed that the lateral system was defective. Either it needed upgrading or the possibility of "the bringing to service of large boats for the transport of fish from anchorages to harbors and the main access roads" (1961 Report) should be assessed. What the working party had in mind here was an integrated lake and land transport system. To that it added an airfield at Sinazongwe. As planners for rural areas they were ahead of their time, but unfortunately such a system was never carefully thought through (I am aware of no feasibility studies), let alone implemented.

The working party recommended that the development of an adequate integrated transportation system was the responsibility of the government under a four year plan. Construction of roads was clearly an expensive proposition beyond the resources of the Gwembe Special Fund. Though some of these were used for road maintenance, none were used for the creation of physical infrastructure. As for the recommended government program, over the years parts have been implemented on a piecemeal basis. A landing strip (now virtually never used) was built at Sinazongwe. Various roads were added and upgraded (especially to serve the coal mining operations that began in 1967 and 1970 at Nkandabwe and Mamba, respectively), but much of the Gwembe's road system continues to be closed down during the rains.

Indeed, during the last ten years the road system has deteriorated so seriously that lateral travel from one end of the Valley to the other is no longer possible -- unlike the situation in the Zimbabwean portion of the Gwembe. As for the more imaginative but much cheaper lake transport system, the completion of which could have reduced the financial burden of building roads that time and again wash out, that never got beyond the "think" stage, although for a short period of time a privately operated transport system tried to link harbors on both sides of the lake. Though much more difficult to implement now that two independent nations are involved, an integrated lake and land transport system continues to be a desirable goal.

Though the Gwembe Special Fund did not create new physical infrastructure aside from much needed village water supplies, it did play a very important role in developing the educational system of the Gwembe. In 1955/56, the district council obtained the agreement of the government to reestablish existing schools in resettlement areas prior to the move so that schooling would not be interrupted. Although enrollments in fact declined seriously during the period of physical resettlement, the nineteen schools involved were transferred according to plan with seven new schools built by the end of 1963 to serve neighborhoods that were either split up because of the move or were without access to any schooling.

Though the Special Fund contributed funds for the replacement and upgrading of the primary school system, its main contribution was to finance the construction at Chipepo of the Gwembe's first and only secondary school. While waiting for the school's opening in 1964, the first Chipepo students began their schooling in temporary quarters on the Plateau. Though a few Gwembe students had previously attended a number of secondary schools in Zambia's Southern Region, with the number increasing following Independence, the largest single number have been educated at Chipepo. Over the years it has provided at least some secondary schooling to over 1000 youths. In adjacent parts of Sebungwe the total who have attended secondary school would be less than 100.

The large majority of secondary school leavers from Gwembe have been able to better themselves. Although the majority currently live in towns and urban centers along the line of rail on the Plateau, many have helped capitalize the agrarian development of their home district. While interviewing a sample of secondary school leavers between 1973 and 1976, Colson and I learned that one fourth had purchased cattle from their savings. Since many of those interviewed were fairly recent graduates, with the proportion of cattle owners increasing according to number of years employed, we expected a majority of those interviewed to become cattle owners within the next few years. Since the large majority of cattle were kept with rural kin in the Valley, their existence increased the productive capacity of the households involved (see Scudder and Colson, 1980, for a more detailed analysis of the impact of secondary education on Gwembe District).

#### e. The Lake Kariba Gillnet Fishery

It is hard to overemphasize the importance of the gillnet fishery for the development of Gwembe District in spite of the fact that it collapsed within five years of its commencement. As a case study in development it contains many lessons with applicability elsewhere. Though initial estimates of productivity exceeded peak production in the mid 1960s by a factor of three, such optimism provided incentive for excellent planning and implementation of a multi-faceted development program. As a result, local villagers became gillnet fishermen on the lake almost from the day the dam was sealed. A gillnet fishery on Lake Kariba was the only development activity planned well in advance of resettlement. Though in 1956 the local people used a wide range of techniques to catch different species of fish in shallow waters at various times of the year, they did not fish the deeper waters of the Zambezi channel. Nor is there any evidence that they used gill nets prior to 1953. When various district commissioners began to plead in the early 1950s for planning surveys to be carried out in the event that Kariba resettlement proved necessary, net fishing on the lake was mentioned as a possibility. But as "the locals are ignorant of fishing methods and net making" assistance from the Department of Fisheries and skilled fishermen imported from other fisheries would be needed. That was written in a 1953 annual report of the district commissioner. In response, the Department of Fisheries sent P. I. R. Maclaren to make two surveys through the Valley. They also sent some old tires for making nets. From that rather inauspicious start came a venture which provides a good case study of development.

Within eight months of the sealing of the dam in 1958, 407 local residents were fishing the reservoir using 93 boats (of which 87 were dugout canoes) and 748 gillnets. By the end of 1962, over 2000 local fishermen were using over 5000 nets. Though the total number of boats was unknown, 225 were counted in nine fishing camps toward the end of

the year of which 75 were of improved plank and metal construction. Though most were hand paddled, at least twelve outboard motors had been purchased. Landings exceeded 3000 short tons, rising during 1963 to over 4000 short tons. On the average fishermen grossed over £50 per year, which greatly exceeded gross income from local agriculture.

The speed of this buildup was due to excellent plan implementation coupled with local initiative from Gwembe villagers and strong assistance from the district council. Planning that was implemented included a training program both on the lake and at a Fisheries Training Center opened at Sinazongwe in 1961, with financing from the Gwembe Special Fund. Actually training had begun along the Zambezi in 1955, when the Department of Fisheries seconded two fish guards to work with the district council. Prior to the sealing of the dam they toured the riverine villages giving instruction in gillnet mounting, maintenance, and usage to all who were interested. The mission schools along the Zambezi started school boys fishing with mission nets (some of which were provided by the provincial administration), while a few villagers made or bought nets. After the lake was formed short courses were given at the training center (which also trained recruits from Zimbabwe in 1963 in a rare instance of cooperation between the two governments), while a mobile extension unit -- also financed by the Gwembe Special Fund -- visited the fish camps. Nets and accessories were sold at recently established cooperatives, while boats were either built locally (with builders trained at Sinazongwe or brought from elsewhere) or imported with the assistance of the district administration.

With overseas funding, a revolving fund was established to provide credit to fishermen for the purchase of nets, boats and a small number of outboards. Such a program was essential granted the low cash incomes (not to mention savings) of Gwembe people, although it should be added that various elders used Kariba compensation or tobacco or livestock sales to capitalize young relatives joining the fishery. Repayment rates prior to Independence were excellent with quite a few fishermen paying off their loans in a matter of months (Parry, 1963).

Technical advice was also provided by both local and international fisheries experts. A UNDP/FAO/Federal research program was initiated in 1964. While this contributed invaluable information, especially for understanding the biology of fisheries in large manmade lakes in the tropics, two misinterpretations contributed more to fishery development than did more accurate advice. On the one hand, inflated estimates of the reservoir's productivity for a gillnet fishery no doubt influenced the provincial administration and the district council to push for a major development program. On the other hand, MacLaren's erroneous conclusion that the local people probably would have no aptitude for participating in a largescale commercial fishery probably influenced the decision of the provincial

administration to implement a major training and credit program, and to close the lake to outsiders in order to give the locals an opportunity to become effective fishermen. These procedures proved invaluable. They have global implications for helping reservoir relocatees participate in fisheries that develop over their former homes.

Elsewhere I have shown that the Gwembe people were effective fishermen within the constraints imposed by the riverine environment and their technology (Scudder, 1960). Unlike MacLaren, who had no access to sociological or historical data, I predicted on the basis of past response to opportunity that they could adapt to Lake Kariba conditions provided they received sufficient governmental assistance. As for the district council, it contributed to the fishery by building up and maintaining a lake transport system that served the fisheries through a fleet of 25 foot inboard diesels. The council was also able to derive a major source of funds through a fish levy paid by traders.

For primarily ecological reasons that need not concern us here, the gillnet fishery collapsed after 1964. By 1967, landings had fallen to less than 1000 short tons caught by less than 500 fishermen, with such depressed levels lasting throughout the 1970s (indeed during the war years the north bank fishery virtually ceased when larger boats were destroyed by Rhodesian forces).

The five boom years had a major impact on the subsequent development of Gwembe District. With their savings, fishermen and their sponsors built up their herds of cattle, with many of the cattle seen grazing along the lake shore margin in the 1960s and 1970s capitalized with fishing profits. Cattle in turn sped up the transition from hoe to ox traction throughout most of the Valley. Plowing increased cereal production during the 1960s and subsequently played a major role in expanding the cultivation of cotton as a cash crop in the 1970s. This diversification of the local production system enabled Gwembe villagers to substitute sales of cattle and of cotton for fish as major sources of income.

Coupled with the commercialization of village brewing in the 1950s and the 1960s, the gillnet fishery also played a major role in bringing Gwembe women into the market economy. While wage labor previously had played that role among men, very few women had left the Valley as labor migrants. During the boom years of the fishery, however, they came to the fish camps to barter and sell village produce for fish and cash and to cater to the seemingly insatiable thirst of the fishermen by brewing beer. Profits from fishing also were the largest single source of capital for building and provisioning the increasing number of small general stores, tea rooms and beer halls that appeared in villages, along major access roads and in administrative centers. During the years immediately preceding and

following Independence, fishing also provided the most important source of school fees for Gwembe children attending secondary school.

In summary the boom years of the fishery played a major role in the development of Gwembe District during the 1960s and the first half of the 1970s. Unlike the situation in Zimbabwe where the artisanal fishery developed at a much slower pace, local fishermen in Zambia were able to skim off the initial explosion of fish production that otherwise would have been lost to natural mortality. The lesson for future man-made reservoirs in the tropics is that every effort should be made to gear up local fisheries to take similar advantage of such "explosions" elsewhere. Like winning a lottery, these predictable but temporary increases in productivity can provide income in excess of local needs which is available for productive investment in other sectors of the economy. Such "windfall" situations are all too rare; they should be fully exploited where they occur.

#### **f. Tsetse Control and the Buildup in Cattle Numbers**

The most important component of Gwembe systems of production at the household and village levels continues to be rainfed agriculture, with the integration of animal traction into the farming system being a major mechanism for increasing production during the current century. The two major constraints to the continuing development of mixed farming in the valley are lack of capital and bovine trypanosomiasis (sleeping sickness in cattle), the latter being carried from wildlife to cattle by tsetse flies.

The Valley people look on cattle as a means of production that the large majority wish to acquire. In upland areas that have remained tsetse free over long time periods, numbers of cattle increased until they exceeded the human population. Though herd size varies from household to household with poorer farmers having none, the web of kinship is such that most villagers have at least delayed access to plow oxen. For that reason, as well as the increasing hire of oxen during the post Kariba years, planting with the hoe in tsetse-free neighborhoods became the exception rather than the rule.

Gwembe farmers began to acquire cattle long before their importance as a famine relief and development asset was recognized by government officials. Before Kariba the first cattle along the Zambezi in South Gwembe were acquired through kin and marriage networks, and sales from the Plateau and tsetse-free upland chieftaincies, with Munyumbwe farmers, for example, willing to sell to outside buyers (including other Gwembe farmers and Plateau butchers) by 1951 if not before. Initial capital for purchases initially came from the sale of tobacco (and no doubt hemp) as well as from wage labor. Thereafter, Kariba cash compensation was an important source of funds immediately after resettlement, with the Lake Kariba gill net fishery becoming the major source in the early 1960s. After the

fishery collapsed in the mid-1960s, sale of agricultural produce including cattle and especially cotton became a major source of funds.

Though there are exceptions, the majority of Valley households do not value cattle as an end in themselves (Vickery, forthcoming, makes the same point for the Plateau Tonga). Though cows, bulls, and oxen are named, the owners' enjoyment of his or her beasts is hardly different from that of a European admiring a good dairy herd. As with land and dependents, each head of household wishes to increase herd size. Motivation to do so is best analyzed in terms of the political economy of the encompassing neighborhood that includes no more than seven villages with a total population of between one and two thousand people. Cattle are a valued economic resource; they also bestow prestige and status on their owner in the same way as large granaries and homesteads.

In the past, villagers did not begin to acquire cattle until their thirties. Now ambitious young men and women in their twenties seek out stock, no longer so fearful of the jealousies of older people without cattle. The general strategy is first to purchase several cows with the expectation that these will produce oxen and the mothers of future oxen. As numbers increase most household heads are quite prepared to sell cattle as a cash crop but only after critical herd size has been reached. Fielder was the first to use the concept of critical herd size among African producers in Central Africa, applying it during his study of the Ila of the Kafue Basin. There he concluded that once an owner had reached a critical herd size of 30 to 40 cattle of the proper mix, he was willing to sell the annual increase (1970).

Though more research is desirable, I estimate critical herd size among Valley farmers at approximately 18 beasts, including four oxen trained to plow and two untrained bullocks. Though owners will sell animals prior to acquiring that number, sales are a reluctant means for meeting a variety of obligations that cannot be delayed. But once herd size increases beyond the critical figure, annual sales of "surplus" stock are not uncommon, with cattle becoming a major cash crop in some areas in the late 1960s and early to mid-1970s. In 1974/75, for example, the government's Cold Storage Board bought more Southern Province cattle in Gwembe than in any other district except for Namwala. Though most villagers sold their own animals to government and private buyers, at least some acquired bullocks to fatten for eventual sale. And a few entrepreneurs bought up small numbers of cattle and, as with tobacco, exported them to the Plateau, or in more recent years, drove them to the coal mining township of Mamba for sale. As for goats, they continued to be an important source of cash, Gwembe having more than any other district within the province.

Table 1 shows changes in cattle numbers between 1951 and 1972. In the South Gwembe chieftaincies of Mwemba and Sinazongwe numbers

increased over five-fold and twenty-fold respectively. Numbers also increased dramatically over that time period in the Central Gwembe lakeside chieftaincy of Old Chipeco, showing the propensity of the Valley people to purchase cattle when conditions are favorable. In all three cases the increase was sustained after 1959 by effective tsetse control measures and adequate water and food supplies along the shores of Lake Kariba. Once the reservoir filled, the lake shore margin was colonized by extensive swards of the grass Panicum repens, creating some of the best dry-season grazing in Central Africa (though less extensive grazing is available along Zimbabwe's shoreline, impressive increases in cattle can be expected there also once the tsetse fly is brought under control).

TABLE i  
GWEMBE DISTRICT CATTLE FIGURES\*

CHIEFTAINCY	1951	1956	1959	1962	1964	1966	1969	1972
Mwemba	3061	5766	5355	6586	7410	8374	14092	29404
Sinazongwe	407	351	935	2403	3840	4243	8313	**
Old Chipeco	338	1167	1199	1862	2166	2630	4929	5905
Munyumbwe	5420	8356	7484	8139	4399	3477	6234	6544
Sinadambwe	6141	4264	1881	2867	2145	2061	2513	4637
Simamba	156	n/d	79	169	18	41	n/d	160
New Chipeco	--	--	562	1562	2177	2524	3669	4284
Sikongo	1383	602	435	629	353	560	763	980
TOTAL	16,906	20,506	17,930	24,217	22,509	23,910	40,813	51,914

\*Extracted from reports of the District Commissioner (before 1964) and the Department of Veterinary and Tsetse Control Services (1964 and after).

\*\*Combined.

To date tsetse control has been most effective in South Gwembe. Elsewhere drastic declines in livestock due to tsetse encroachment have occurred as in Sinadambwe and Munyumbwe, while inability to control existing fly populations and ongoing encroachment from Zimbabwe has caused periodic outbreaks of sleeping sickness in Sikongo, New Chipeco, and Simamba. Even in those chieftaincies, however, the situation had improved significantly by 1973 with cattle numbers increasing in all areas during the next few years -- again because of more effective tsetse control operations.

Because of their complexity, the tsetse control operations can only be summarized. The distribution of tsetse flies in the Gwembe Valley just prior to the construction of Kariba is shown in Figure 3 upon which the reservoir boundaries have been superimposed. Two species of tsetse fly are involved, of which Glossina morsitans is by far the greater problem in terms of both numbers and distribution. Prior to Kariba relocation, the district council requested that the administration attempt to "remove" tsetse from all resettlement areas by the time of resettlement. This was one of ten council requests made and approved by the government in 1955, with the Zambian government continuing to honor the commitment of the colonial regime, at least between Independence in 1964 and the mid-1970s.

Prior to 1955 no tsetse personnel worked in the Gwembe, the government strategy being to protect the larger herds on the adjacent plateau by keeping the fly within the Valley. This goal was accomplished by allowing only inoculated cattle to leave the Gwembe (so as to protect Plateau cattle from mechanical transmission of the disease), and by establishing "pickets" along the main exit routes to intercept flies "hitchhiking" on travelers and stock leaving the Gwembe. Though hardly satisfactory to the Valley people, whose only aid was periodic drug injections (which became more available after the first veterinary assistant was stationed in the Valley in 1954), this low-cost strategy had the approval of senior tsetse officials, and no doubt would have continued indefinitely if it had not been for Kariba.

By insisting on tsetse control, the district council probably made its major contribution to Gwembe development during the 1950s. Once the central government agreed, the Department of Game and Tsetse Control launched a full-scale control operation, though senior officials believed at the time that the effort involved "could have been more profitably expended on the Plateau area" (Steel and Gledhill, 1956).

The most effective technique for controlling tsetse fly within the Valley is to combine spraying of the major fly habitats with bush clearance by pioneering farming communities. While spraying (and the use of prophylactic and -- where necessary -- curative drugs) allows the initial introduction of cattle, extensive bush clearing eliminates risks of re-infestation by destroying tsetse-preferred habitats. By the end of 1957, four tsetse control supervisors, with staff, had been stationed within the Gwembe, and extensive spraying operations had begun. These were initially successful in the major resettlement areas so that most relocatees with cattle were able to resettle with their livestock.

At the time of removal two major and two minor fly pockets remained, one of each being in the southern and northern portions of the Valley. By 1964, the tsetse problem appeared to be under control



in South Gwembe although constant surveillance was necessary to guard against the dangers of infestation -- either from unknown residual pockets within the area or via reinfestation by flies traveling with fishermen and others from Zimbabwe and Chete Island.

In spite of a similar confidence on the part of tsetse control personnel that they had the upper hand, the situation in the northern half of Gwembe proved to be far more difficult to handle. There were two reasons for this. First the Simamba-Sikongo fly pocket was not only a more difficult area to treat, but reinfestation across the Zambezi from Zimbabwe below the dam site was an ongoing phenomenon. Second, perhaps because of its isolation, distance from major resettlement areas, and location within the path of the new reservoir's rising waters, the small Moyo fly pocket was not treated.

The initial assumption in regard to the Simamba-Sikongo fly pocket was that once the tsetse had been brought under control away from the river, a combination of spraying, game control and fencing; selective bush clearing; and village settlement would keep reinfestation from Zimbabwe within manageable limits. If relocatees had initially been resettled along the entire Zambezi front between Chirundu and the exit of the Kariba Gorge, this strategy might well have worked. But because of a tight resettlement timetable coupled with inadequate planning surveys, all 6000 of those relocated below the dam were packed into the Lusitu area, with no upriver resettlement between the Lusitu delta and the gorge, in spite of there being good soils along the lower reaches of the intervening Mutulanganga and Mpendele tributaries.

With continual infestation from Zimbabwe, flies continued to reestablish themselves in the Kariba hills and along the downriver tributaries. From there they moved inland, joining forces during the mid-1960s with flies expanding outward from the Moyo fly pocket. Starting in the early 1950s before Kariba, the thrust of the expanding fly population was into Sinadambwe's upland chieftaincy. With no history of fly infestation during the first half of the present century, Sinadambwe had, in 1951, more cattle than any other Gwembe chieftaincy. Yet in spite of control operations by 1964 numbers were down almost by two thirds. And though control operations in the previously fly infested Lusitu area allowed cattle initially to increase rapidly, they were under continual risk.

The failure to deal with the Moyo fly pocket proved to be a very costly mistake. As the lake rose after the dam was sealed tsetse moved inland, adapting to the lake shore margin (where the high water table enabled such deciduous trees as mopane to retain leaf cover over a longer season and where temperatures were moderated during the height of the dry season). Once established there, tsetse multiplied in numbers and began to move at an alarming rate into cattle country in Chipepo's and Munyumbwe's Chieftaincies. Second to Sinadambwe in

number of cattle in 1951, Munyumbwe also had no recent history of fly infestation. By 1956 herd size increased by over 50 percent. Yet by 1964 Munyumbwe's cattle population had decreased to below the 1951 total.

In spite of the improved situation in South Gwembe where cattle more than doubled in number between 1951 and 1964, during the same time period the total number of cattle in North Gwembe decreased from 7680 to 4693. Mindful of its commitment to the Gwembe relocatees and the increasing threat to the adjacent Plateau (for the first flies were already climbing the escarpment), the colonial government stepped up control operations. With insecticide being the major expense, and with control operations focused on the Simamba portion of the fly pocket, 1964 expenses for the District as a whole were nearly £29,000. During the next year, the new Zambian government spent nearly £44,000, having sprayed a record total of 1338 lineal miles. While 1966 was a period of consolidation, control operations were intensified again in 1967.

The good news in 1967 was that for the first time the best grazing land along the lake shore margin in South Gwembe was fly free, with the number of cattle continuing to increase. The bad news was that the situation had deteriorated in both Central Gwembe and North Gwembe. In Central Gwembe flies focused on Kota Kota Hill not only had colonized the lake shore margin between the cattle-owning Chezia and Chilola neighborhoods up the lake from Chipepo Harbor, but had penetrated inland and up the escarpment to within 15 miles of Chief Chona's plateau headquarters (Scudder, 1972:218-19). In North Gwembe, holding operations along the Zambezi front were insufficient to keep flies from continuing to move into Sinadambwe. And to the north the incidence of sleeping sickness was increasing in the Lusitu, in spite of the use of prophylactic and curative drugs and expensive ongoing operations along the Zambezi front, with somewhat over 10 percent of the area's cattle dying during 1967. This was a major blow for the relocatees, the large majority of whom had shifted from hoe cultivation to ox traction since their resettlement nearly ten years ago, and some of whom had begun to sell cattle as a cash crop.

During the next few years, control operations intensified still further, and gradually the situation was brought under control in the early 1970s. The major achievements were twofold. First in 1969 the long awaited spraying of the Kota Kota focal point was successfully completed, including mopping up operations in outlying areas. Second, partly because of the clearing of an extensive bush free barrier along the Zambezi front in addition to spraying and game control, the reinfestation of fly from Zimbabwe was more contained than in the past.

The first half of the 1970s was the first time since the commencement of the colonial regime that the large majority of Gwembe

farmers could obtain cattle without the risk of their catching sleeping sickness. The entire margin of the reservoir was fly free as were the inland chieftaincies. The only major exception was the Lusitu area, where reinfestation from Zimbabwe continued, and even there control operations along the Zambezi front and the use of prophylactic and curative drugs among cattle at risk allowed numbers to increase.

Tsetse control officials knew that this success was no cause for complaisance, since the risk of reinfestation from Zimbabwe continued both above and below Lake Kariba. Though the mid-1970s showed that holding operations were indeed possible, they required constant surveillance, followed by spraying where necessary. Unfortunately, after 1975 the necessary surveillance and control operations ceased due to the combined impact of the war for Zimbabwean Independence and the economic downturn in Zambia.

#### g. Rainfed Agriculture

The two major changes that occurred in rainfed agriculture between 1955 and 1974 were the shift from hoe cultivation to ox traction throughout most of the Valley (the major exception being Simamba where tsetse have continued to be a problem except for a short period in the 1970s) and the increased cultivation of cotton. A less influential development, which provided an important source of income for a minority of village households, was a surge in the production of an early maturing malting sorghum (red flammida) as a cash crop in the late 1960s and the early 1970s. This was a response to a major increase in village brewing, with women brewers willing to pay a much higher price for red flammida than the government marketing board paid for any cereal. The market in the most accessible areas of the Valley subsequently collapsed when local taverns began to import an opaque beer manufactured by Zambia National Breweries, a parastatal organization. Rural development thereafter was adversely affected by the siphoning off of local income to the line of rail.

I have repeatedly emphasized that the most important single improvement in the Valley production system has been the switch from hoe cultivation to animal traction. As cattle multiplied in numbers over the years, trained and untrained oxen continued to constitute approximately 30 percent of the district herd, increasing from 5,619 in 1959 to 18,055 in 1972. Though figures on ox drawn implements have not been kept during the post-Independence years, between 1956 and 1963 the number of plows gradually increased from 1,691 to 2,287 while ox carts went from 29 to 102. Thereafter ox drawn equipment appears to have increased much more rapidly. For example, 69 percent of the farmers in the sample survey that the German Development Institute carried out in South Gwembe during 1971 had bought plows since 1969, with an average of 1.5 trained oxen and 0.8 plows per farm family (Brandt et al, 1973). While these totals are greater than in North

and Central Gwembe (partly because of more effective tsetse control), in some villages there a majority of households owned oxen and plows, which meant most families could plow their land by utilizing kinship or other ties (including institutionalized bond friendships), various types of exchanges, or rental arrangements.

After the collapse of the lake fishery, cotton cultivation took over as the main source of cash income throughout much of the Valley during the late 1960s. Since initially cotton was not grown in lieu of cereals for consumption, most cultivators owned oxen and plows, which enabled them to handle a larger acreage. The groundwork for cotton had been laid by Mitchell during the 1950s when he selected a small number of farmers in Chief Munyumbwe's area to grow cotton as part of a four crop rotation including maize, sorghum, and sunhemp. Kraal manure was applied to the maize, with no use of either chemical fertilizers or insecticides. Subsequently the farmers switched to a simple maize-cotton rotation, with most dropping use of kraal manure but adopting insecticide applied via knapsack sprayers three to seven times per season.

Initially the number of growers increased very slowly, from only five in 1956 to 43 in 1963, with 55,000 pounds of cotton harvested from scarcely more than 50 acres during the latter year. During the next four years, however, both growers and acreage sown nearly doubled annually with over 350 growers sowing nearly 800 acres during the 1966/67 season. Yields were fairly low (with per chieftaincy averages ranging from 400 to 800 pounds per acre), with village farmers netting about £20 per acre. While the number of growers vacillated during the next few years, another surge in production occurred during the early 1970s with 613 growers cultivating approximately 1300 acres during the 1970/71 season. Another period of consolidation then occurred lasting through 1974, with total yields fluctuating between 700,000 and 1 million pounds (Department of Agriculture Annual Reports: 1956-1974). As before, the average cultivator sowed about two acres, which our Lusitu data suggests produced a net income of about £40.00.

Income from rain fed agriculture compared favorably with that from fishing during the boom years only where village farmers combined cotton sales with sale of cattle and small stock, turkish tobacco, vegetables and/or other crops. This was the situation in a minority of villages in the Lusitu, for example, where approximately one-third of household heads netted over £150 per annum during the early 1970s. Though this was the exception, many villagers elsewhere in the Lusitu and the Valley were also able to raise their living standards between 1955 and 1974 by drawing on a range of income generating activities within the context of the household production system. In addition to dry land farming (including sale of livestock), these included wage labor, remittances from dependents with jobs (and here the growing number of secondary school leavers with employment was especially important), marriage payments and a wide range of trading and small

scale commercial activities. Monies received were used to raise living standards in a number of ways. Clothing and housing improved significantly, as did levels of nutrition and health (village families consumed more vegetables, fruits and protein, while mortality rates decreased). In Lusitu communities the majority of younger household heads, as well as the more enterprising older farmers, acquired metal beds and mattresses along with other household furnishings, portable radios, and bicycles. And as already noted, investment in cattle, plows, and small businesses continued on an upward trend except in the more isolated communities.

As we shall see, however, the majority were living on borrowed time. Though living standards were improving, aside from the switch from hoe cultivation to ox traction there had been virtually no improvement in the system of dry land farming. Indeed, for most of the relocatees and many hosts the situation was slowly deteriorating. There were two reasons for this. The first was a rate of population increase which was certainly no less than the national average of 2.2 percent. The second was the absence of agricultural intensification, with resettlement exacerbating the impact of both factors. When Kariba flooded the more fertile alluvial soils along the Zambezi and the lower reaches of the tributary system, most of the better soils were lost as was the opportunity for double cropping during the annual cycle. Following removal, relocatees transferred their customary agricultural techniques to their new homes. Whereas the better alluvia were able to support either permanent or semi-permanent cultivation, most Karroo soils in the resettlement areas require extended periods of fallowing. Because of increasing population densities, these were not possible, with the result that the newly cleared lands were placed under heavy pressure.

Though the fragility of Valley soils probably has been over-estimated, under the existing system of land use one can expect at best low yields and at worse increasing degradation. Even if the government actually expected the lake fishery to support a majority of Gwembe's population, one of the puzzles of Kariba relocation was the failure of the Department of Agriculture both before and after Independence to give priority to upgrading the dry land farming system of the village farmer. Though the provincial administration had agreed in 1955 to a district council request that government not "demand" Kariba relocatees to change their farming methods, there was no suggestion that government should not attempt to demonstrate and extend better techniques that were already known. Mitchell had demonstrated an improved system of rainfed agriculture that was extended to a small number of "improved farmers" prior to Independence. More technical recommendations, like tie ridging (which was worked out on the experimental farm in the Lusitu) had also been made (Honisch and Hailey, 1971). Yet the major initiative taken at the time of resettlement for the village sector did not deal with agricultural techniques nor production systems, but rather with a

separate land conservation program based on the construction of miles of contour ridges that subsequently were not maintained.

Very little attempt was made either to extend existing knowledge or to introduce or develop food crops suitable to Valley conditions. Local extension staff had been trained in higher rainfall areas mainly as commodity demonstrators, and the food crop that they had been taught to extend was improved varieties of maize with longer maturation periods. Early maturing varieties were ignored (including the hardy but low yielding local variety) with most effort devoted to new varieties like SR 52 which were poorly suited to Valley conditions. Because of this stress on maize (as opposed to early maturing food sorghums and bird resistant millets), the Valley people began to grow less sorghum and millet, hence becoming even more vulnerable to food shortages when rains were inadequate (though it is true that most Valley people preferred maize to other cereals as their food staple, that in itself should have been an argument for seeking improved early maturing varieties such as were being developed in Kenya, Zimbabwe and South Africa).

As for extending new ideas, local extension staff were largely ignorant of recent research findings and recommendations. They were also poorly supervised, in part because even in 1972 the Department of Agriculture had only one well-used vehicle to cover the entire district with all field personnel dependent on bicycles. Even in relatively well situated villages, years often went by without a single visit from extension personnel with the exception of the veterinary assistant who made periodic rounds to inoculate and census livestock. There was one bright spot, however, and that was the opening in 1971 of a new Farmer's Training Center at Malima close to the boundary between South and Central Gwembe. The opening officer (A. Mwemba), who was also the senior agriculturalist stationed on the Valley floor, moved rapidly to offer a range of short courses to farmers who were brought to the Center. In 1972 and 1973, thirty-two courses were offered and were attended, respectively, by 496 and 631 village men and women. Thereafter, because of transportation difficulties, the heating up of the war for Zimbabwean Independence, and other problems, the number of courses declined over the years to zero.

Poor extension services were not restricted to the Valley but were a nationwide condition. The same was true for a range of disincentives to rainfed food production including low producer prices (with no scheduled price at all for sorghum or millet), delayed issuance of inadequate credit, and inefficient parastatal marketing institutions for both cattle and crops. Within the Gwembe, however, the Department of Agriculture exacerbated these inadequacies through its continued neglect of food production for the village farmer, even in overpopulated resettlement areas.

Rather than rainfed farming, departmental priorities both before and after Independence were irrigation for the few, and vegetable growing (itself usually associated with irrigation). The only continuing emphasis under dryland farming was cotton cultivation. Though this provided an important source of income, subsequently an increasing acreage devoted to cotton led, at least in North Gwembe, to a reduction in cereal acreages, greater vulnerability to food shortages, and poor nutrition.

As the Gwembe population continued to increase, the trend toward reduced food shortages in the 1950s was subsequently reversed, although the adverse implications of this situation were muted by the availability, at the village level, of cash with which to purchase bags of meal. This food shortage worsened still further during the 1980s and can be expected to assume ever more serious implications unless intensification of the rainfed farming system becomes the number one agricultural priority for village farmers, the district council, and the Department of Agriculture.

#### h. Flood Water Cultivation and Irrigation

From the start it is important to distinguish between flood water irrigation along the banks of the Zambezi River (and more recently the shores of Lake Kariba) and gravity flow and pump irrigation from small weirs across Zambezi tributaries and from the Zambezi River System -- Lake Kariba included. Flood water irrigation has a long history, being practiced by the Valley people at least since Livingstone traveled up the Zambezi over a hundred years ago. Gravity flow and pump irrigation, on the other hand, only date back to the late 1940s.

Though this section deals with irrigation, it is important to repeat that development for the majority in the future depends on intensifying the dryland farming component of the production system at the household level, which in turn requires a new emphasis first on appropriate research and then on linking research results with an effective extension service. The critical components are already in place, but they have yet to be applied effectively within the Gwembe.

On the other hand, as the years have gone by with population increasing without further intensification of rainfed agriculture, both floodwater cultivation and irrigation assume greater importance for the future. It is hard to imagine, for example, a satisfactory solution to the Lusitu problem (Section 6:c) without the implementation of a irrigation project drawing water from Lake Kariba at Mundulundulu (Figure 1). Similarly, in the years ahead floodwater cultivation should become a major component of the production system of thousands living close to the shores of Lake Kariba, with cultivation during both the rising and the receding flood integrated with livestock management (Scudder, 1980:400-404; Banda, 1985:158-199). As for the irrigation potential of the Buleya-Malima area, eventually that may also have to be utilized.

### (1) Flood Water Cultivation

In tropical Africa two kinds of flood water cultivation have considerable antiquity. The first (crue) makes use of the rising flood and apparently was restricted prehistorically to West Africa where Porteres (1976) associates it with the domestication of African rice (Oryza glabberima) at least three thousand years ago. The second kind of flood water cultivation (decrue) makes use of the receding flood and is distributed throughout Africa along both major and minor river systems. Probably of much greater antiquity, recessional cultivation dates back many thousands of years in the Nile Valley, especially in Egypt where farmers planted the newly deposited alluvia behind the receding flood both along the river and in connected basins.

During the nineteenth and twentieth centuries prior to the construction of the Kariba Dam, the people of the future Lake Kariba Basin practiced one of the more diversified farming systems in Central Africa. Though Trapnell and Clothier (1937) described this as a "relatively advanced system of semi-permanent cultivation of bulrush millet and kaffir corn, which was planted with the hoe principally on sandy alluvial Thorn soils adjoining the rivers," even they tended to underestimate the system's complexity, both in regard to the utilization of mopane soils and the permanent cultivation of the more fertile alluvia either once or twice annually.

In 1956-57 I found the Gwembe Tonga system of recessional cultivation practiced both by villagers living close to the Zambezi in the Sebungwe Region (currently split up between Binga, Gokwe and Kariba Districts) and in Gwembe District. After the flood waters began to recede in March-April, farmers staggered the interplanting of a succession of crops as water levels dropped, with planting continuing throughout the cold season, and with the lowest cropped area on the river banks harvested just before the river began to rise in December. In most flood water gardens, maize, legumes and cucurbits were interplanted, with smaller areas cropped in a local variety of Turkish tobacco (Scudder, 1962).

Concerning the antiquity of this system of recessional cultivation, there is no evidence one way or the other as to its existence prior to the nineteenth century. While most of the major flood water crops were introduced by the Portuguese, recessional cultivation could well have predated their introduction since bulrush millet and sorghum (rather than maize as in the Gwembe) are the principal cereals in recessional gardens along the Middle Niger (Harlan and Pasquereau, 1969). Presumably in the past they might also have been sown in flood recession gardens along the Zambezi, along with various indigenous vegetables.

With the construction of Kariba Dam the better alluvial soils

upriver were flooded, with the reservoir level gradually rising until it reached its maximum level in October 1963. Thereafter it began to recede, with drawdown continuing until the following March. Though the resettled villagers had never planted recessional gardens that late in the dry season, some immediately experimented with ninety day (kaile) maize, harvesting "some of the best maize ever reaped in the valley" the following February, according to Mitchell (1964 Gwembe District Department of Agriculture Report). Unfortunately, the annual regime of the reservoir was so irregular during the next few years that most villagers stopped recessional cultivation in discouragement (Scudder, 1972). Even after the annual regime of the reservoir became regularized in the early 1970s, with the annual drawdown commencing in June-July and continuing at least until December-January, only a few farmers recommenced recessional cultivation. Partly this may have been due to uncertainty and insecurity associated with the irregular reservoir regime of the past and the war years (when fishermen were driven off the lake on the Zambian side) as well as to the existence of other opportunities. Partly it may have been due to the colonization of the better soils by a thick sward of Panicum repens (which not only increased the rigors of land preparation but also attracted competing herds of cattle). And partly it may have been due to the failure of development planners to see the potential of the drawdown area for both crops and livestock.

Though Mitchell had commented favorably on drawdown cultivation, further assessment of its potential was probably put off by a negative evaluation submitted in 1961 to the then Northern Rhodesian authorities by Roberts, Mullins & Barnett -- a firm of Consulting Engineers that had been asked to complete a preliminary investigation of the irrigation possibilities in parts of Gwembe District. Summarizing their extrapolations, they concluded erroneously that "it appears that very little land will be available for producing a dry season crop on soils saturated by the lake" (p. 30). Accordingly, they paid more attention to the possibilities of a mobile combination of pumps and pipelines for serving the drawdown area. This conclusion was unfortunate, for it misinterpreted the annual regime of Lake Kariba that was subsequently established after the completion of the North Bank power station in the early 1970s. No further attention was paid to the potential of drawdown cultivation by government and other planners until the early 1980s.

## (2) Gravity Flow and Pump Irrigation

During the early post World War II years, Stanley Cook approached the Northern Rhodesian government for permission to grow sugar cane under irrigation on 30,000 acres in the Lusitu area near the Zambezi. Though some officials were well-disposed toward this request, others pointed out that the land was gazetted as Native Reserve and should not be allotted for commercial development. In the meantime, a pilot scheme was commenced, with approximately 200 acres planted in cane at

the scheme's peak in the late 1940s (oral communication from C. Mitchell). Unable to obtain a final answer from the Northern Rhodesian authorities, however, Cook requested and received alternate land on the then Southern Rhodesian side some 15 miles downriver. Using planting material from the Lusitu pilot scheme, he then developed what became known as the Chirundu Sugar Estates.

The next post World War II mention of irrigation for North Gwembe followed the relocation to the Lusitu of 6000 relocatees from Chief Chipepo's area for whom there was insufficient land within the lake basin. In 1961, Alexander Gibb and Partners, the consulting engineers to the Federal Power Board, submitted a brief report on drawing off Lake Kariba waters from Mundulundulu to irrigate areas along the lower reaches of Zambezi tributaries below the dam. Though the report dealt primarily with the Mpendele area, it had broader implications, yet to be explored, for the Lusitu as well. From Mundulundulu to a tributary of the Mpendele is less than 2 miles in distance, with a vertical rise from the lake of about 100 feet. According to the Gibb and Partners Report, a steady flow of 140 cusecs across the water shed into the Mpendele system would provide sufficient water, after seepage, of 7-8 inches per month for some 10,000 acres within the Mpendele and Mutulanganga systems (Figure 3). Though the report dealt with those systems alone, the Lusitu is the next river downstream, the upper reaches of which are close enough to the Mpendele/Mutulanganga systems to suggest the possibility of a connecting canal.

Though the brief notes that I took on this report suggest that the consulting engineers considered the scheme technically feasible (with capital development costs and recurrent expenditures per acre estimated in 1961 at £60 and less than £10, respectively), to the best of my knowledge no further attention has been paid to this possibility, in spite of the fact that smallholder irrigation would appear to be the best option for dealing with the current status of the Lusitu as a potential disaster area (resembling parts of the Sahel, its over 15,000 people may be the most densely settled rural population in Zambia). Unfortunately, the adjacent Mutulanganga/Mpendele area, which contains the last good land for surrounding villagers, continues to be periodically considered for a State Farm in spite of the fact that the record for such farms throughout Africa and the Middle East is dismal.

Within the Lake Kariba basin, the first attempt to develop small-scale gravity flow irrigation for the people of the Valley was in 1956. This was at Nkandabwe near Sinazeze in Sinazongwe Chieftaincy of South Gwembe. The Nkandabwe scheme utilized a weir across a small stream with a perennial flow. Located adjacent to the stream, the scheme was sited on upper terrace soils that initially were thought to consist of 50 acres with good irrigation potential. Subsequently this estimate was cut to 40 acres, and then in 1958 to no less than 20 acres. In 1956 the first traces were cut to the irrigation site

located approximately 500 yards from the weir. The initial plan was to open up two acres as a government trial, with villagers subsequently invited to join in if results warranted. Initial emphasis was to be placed on fruit trees (especially bananas and citrus) and sugar cane.

Starting-up operations were delayed until late 1958 because of difficulties in placing piping from the weir. Thereafter events proceeded pretty much as planned. In the two acre trial plot, 80 citrus seedlings of different varieties had been planted by the year end along with 105 bananas and 40 coconuts (of which 27 germinated). In all, four plots were planted, other crops being pawpaws, pineapples, cashews and sugar cane, with various vegetables planted in beds where there were no perennial crops. The perimeter was enclosed by "a stout fence of barbed wire and pignetting" (Department of Agricultural Annual Reports). One complete irrigation took 5 hours at 0.625 cusecs.

By the end of 1959 five acres were under irrigation, with the first six villagers allowed to cultivate quarter acre holdings for a payment of 2 pounds sterling per annum. That year the greatest enthusiasm over the two acre trial plot concerned citrus that continued to do well and a planting of wheat that yielded a heavy rust-free crop. By the end of 1960, the six farmers had been allowed to expand their gardens to half an acre planted in citrus, bananas, pawpaws, cane, pineapples and vegetables. During the same year villagers were allowed to take over eight fraction-of-an acre holdings at the still smaller irrigation experimental plot at Lumbo. Located in Munyumbwe's inland chieftaincy in Central Gwembe, the Lumbo pilot project diverted water from a small spring near the base of escarpment hills. As at Nkandabwe, trials included a range of perennial and annual crops including coffee.

The following year, a third small scheme was opened, while the number of plot holders at Nkandabwe (which continued to be the main scheme) was increased to eleven during 1962. That was a good year for them, since they were able to sell their produce both within the area and to fishermen and fish traders profiting from the booming Lake Kariba fishery. With bananas a "poor" second, sugar cane was the most lucrative crop, with one stick selling for 6d in the vicinity and for up to 2/- at the fish camps. According to the 1962 Annual Report of the district Department of Agriculture, some irrigators made £20 per quarter acre plot with half to three-fourths of that coming from 1/16th acre of cane. Notwithstanding that income, agricultural staff complained that it was difficult to collect farmer fees which continued at two pounds per quarter acre. They were also concerned that farmers were over-using their land. They recommended manuring and the sowing of sunhemp after vegetable plots were harvested. Though Mitchell recounted these details with pride, he was clearly aware of the insignificant scale of the three irrigation projects in a

district of Gwembe's size. Hence under irrigation in one of his last annual reports (1964) he wrote that "there is water in the Lake but little elsewhere. Only Kandabwe's meager 8 acres is worth mentioning. Talk of a scheme at Buleya-Malima is still thought up...but £100,000 would be difficult to find."

Mitchell's Buleya-Malima reference was to the previously mentioned 1961 prefeasibility studies carried out by Roberts, Mullins & Barnett (RM&B), which were financed through the Gwembe Special Fund. After preliminary observations throughout both South Gwembe and North Gwembe, they focused their attention on the Buleya-Malima area where they examined irrigation possibilities based on drawdown cultivation, pumping from the lake and gravity flow from potential dam sites located along the Nangombe River and its tributaries. Though total irrigable land in the area has been estimated at some 70,000 acres, RM&B favored a pumping scheme from the lake that could put approximately 7,700 acres under command. Capital development costs were estimated at £102 per acre with recurrent costs of £21.0 per acre annually; significantly greater than Alexander Gibb and Partners' estimates for the Mpendele scheme in North Gwembe where the need for irrigation was more acute.

Though RM&B recommended that further studies be carried out, with special emphasis on a 200 acre experimental and training station, total capital development estimates of £785,500 for the 7,700 scheme far exceeded current funds earmarked for Gwembe development. During the remainder of the preindependence years, the Buleya-Malima area was ignored, with at least one agricultural official viewing the RM&B report as a complete waste of funds.

Following Independence in 1964, the new government became justifiably concerned about extreme land pressure in Mwemba's Chieftaincy. Though the situation was equally bad in the Lusitu, at least there the inherent fertility of much of the land was good. In much of Mwemba's Chieftaincy it was poor, especially in Siameja where several thousand relocatees scratched out an existence on escarpment grits. Not only were soils less fertile than those used prior to resettlement but per capita acreages were reduced, with Johnson estimating for the chieftaincy "only 0.3 to 0.4 ha of suitable land per capita, compared with 0.6 to 0.9 ha before resettlement" (1974:16).

As the 1960s progressed government officials increasingly came to the conclusion that the only solution to land pressure in Mwemba was to relocate thousands of Valley people to the Plateau. The solution was no solution. Though villagers were quite prepared to move out of the affected areas on their own initiative (and some did from the southernmost portion of the area), they resisted the idea of another major forced relocation. In 1969 a complete reversal in suggested solutions occurred after G. Garbrecht and S. Askoy presented their

"Report on a Preliminary Survey of the Technical Possibilities of Water and Land Resources Development in the Gwembe Valley, Zambia" which emphasized the development of irrigation in South Gwembe.

After a tour of approximately one month toward the end of the 1968-69 rainy season, they recommended "dynamic development involving a radical change in the way of life of the people and of land use." Basing their recommendations on an appraisal of existing reports and flights over the Valley, they concluded that over 150,000 acres were irrigable within the district, of which some 32,000 were in Mwemba, 77,000 in Sinazongwe (including Buleya-Malima) and perhaps 50,000 in North Gwembe. If this potential was developed, along with land and lake transport, and with Gwembe's potential for fishing and ranching, and if the efficiency of dryland farming was increased through soil improvement and protection, "the Valley could be self-sufficient for the next couple of decades with an acceptable high standard of living." Of course an extensive and longterm training program for farmers would be necessary, since irrigation alone would involve the cultivation of such cash crops as cotton, wheat, bananas and vegetables. And should the government decide to proceed a Gwembe Valley Development Authority should be established to handle implementation.

The Garbrecht and Askoy Report probably was the major factor causing a redirection of government thinking. Though the authors had stressed an integrated development approach, including dryland farming, livestock management and fisheries, these components were neglected for a single focus on irrigation. Probably arising out of the high level talks that Garbrecht and Askoy had in Lusaka before their departure, the following year (1970) the Central Government and overseas donors launched, at opposite ends of the Valley, the Zambezi Training Farm and the Gwembe South Development Program, with both focusing on irrigation. At the same time, the Projects Division and the Research Branch of the Ministry of Agriculture and Water Development stepped up exploratory activities (which had begun during 1969) at Buleya-Malima. In the process the district council and the village farmer were largely ignored, as was the district administration and the district development committee. Rather than villagers, council, and district administration working together with technical inputs from the center, the center superimposed on the district a new development strategy with a limited outreach. As for village agriculture, development assistance for that was progressively reduced once the years of depression began after 1974.

#### **i. Coal Mining and Township Development**

One of the more tragic aspects of the development of Gwembe District is that the mines and administrative townships have been developed almost as if they existed in a vacuum, with scant attention

paid to their articulation with the village sector of the economy. This weakness is especially blatant in regard to mining development.

An extension of the major coal deposits of Zimbabwe that run north east and north across the Zambezi, the coal reserves of the Gwembe are situated primarily in Mwemba's and Sinazongwe's Chieftaincies. The only major deposits proven to date in Zambia, their development after Independence was inevitable so as to reduce dependence on imports from Zimbabwe's Wankie coal fields. The first mine opened at Nkandabwe in 1966; one year after Rhodesia made its Unilateral Declaration of Independence (UDI). While Nkandabwe was forced to close down within three years because of extensive flooding of the open pits, a larger mine was opened in 1970 at Maamba. Over the years the workings there have been gradually extended, with the size of the labor force growing to over 1000 and production increasing to over one million tons per annum. To serve the Maamba mine, a first class macadamized road was built from the railroad siding of Batoka along with a planned industrial township of the same name, with an estimated population of somewhat over 6000 by 1974. An aerial tramway was also built to carry coal up the escarpment to the Plateau. A national project, Maamba drew people from throughout Zambia and adjacent countries.

Clearly Maamba has had beneficial impacts on South Gwembe. Like Kariba, its very existence has caused a major improvement in communications (including the delivery of food to South Gwembe following the crop failures of the past three years), while local villagers have access to the mining hospital. The mines have also become a major employer of Gwembe manpower, with 22 percent of the labor force at the mine locally recruited in 1972. Of course, the number of local people benefiting economically from the mines and the township is much greater when those working within the township and those bringing in village produce, livestock, fish and other goods and services for sale are included.

On the other hand, the potential for linking the emergence, literally from scratch, of a mining industry to the development of the surrounding areas was completely ignored. No regional planning, for example, was carried out for the integrated development of both rural and urban industrial sectors within South Gwembe. Though the mines were electrified, no feasibility studies were carried out concerning the advantages to the nation, the mines, and South Gwembe of extending the lines to Siatwinda irrigation project, the local administrative center at Sinazongwe, or to Buleya-Malima, in spite of the cheaper cost of Kariba power in comparison to diesel fuel. Nor were studies made of using the lake side pumps that supply water to the mines as a means for improving uncertain village water supplies en route, in spite of the fact that pollution from the mines lowered water quality in the Kazinze River from which those same villages obtain water for themselves and their stock. Nor were studies carried out on the

extent to which local production, if properly stimulated, might offset the costly import of foodstuffs from the Plateau for the increasing population supported by the mining complex.

The situation is not much better with two of the three administrative townships serving the District. The three centers are Gwembe, Siavonga and Sinazongwe. The district headquarters, Gwembe is not even located on the Valley floor, but rather was built on the edge of the Plateau so as to provide government civil servants with a better climate and easy access to the line of rail (indeed access to the line of rail is better than to the Valley residents that the district headquarters is supposed to serve). With no district villages in the immediate vicinity, Gwembe has virtually no rural linkages, its services -- with the exception of the hospital and jail -- being restricted to employees and their families. The same can be said about Siavonga. Facing outward from the Kariba hills toward the reservoir, Siavonga is the administrative center for North Gwembe. Yet again, rural-urban linkages are minimal. Though the township has been carefully planned, this has been more for the benefit of the resident population and for tourists than for Gwembe villagers, the nearest village being ten miles away by road.

Only Sinazongwe, the administrative center for South Gwembe, is strategically placed in regard to linkages with villages and the administrative needs of the villagers themselves. The district council headquarters at Munyumbwe in Central Gwembe, and the council and government subcenters in the Lusitu also serve local villages, but these are on a much smaller scale than Mamba, Gwembe, Siavonga and Sinazongwe. Also on a small scale is the town of Chirundu, which focuses on immigration and customs traffic to and from Zimbabwe, with local services largely restricted to the hospital and the police station.

## **6. 1975-1983: ECONOMIC DOWNTURN AND THE COLLAPSE OF THE DISTRICT ECONOMY**

### **a. At the District and Village Level**

My own contact with the Middle Zambezi Valley began in 1956. Between that date and 1973, one of the more gratifying aspects of returning to the Valley at several year intervals was to see living standards for the majority continue to rise. This evaluation was not just our own, but was confirmed by villagers throughout the Valley. Our indices for the measurement of development included nutrition, clothing, housing and household furnishings, access to improved medical and educational services, bicycles and agricultural equipment, and increasing livestock and cash income at the household level. In our more intensively studied sample villages in South, Central and North Gwembe, the direction of these indices was up between 1956 and

1973, although there were significant differences in living standards between households within villages and between villages. Furthermore our observations and interpretation of more general reports on the district indicate that this upward trend could be generalized for the majority of villages.

Though we do not know when this rise in living standards peaked, district reports indicate that a downturn had begun by 1975, which accelerated thereafter. At the national level, shortages of such major staples as cooking oil, salt, sugar, soap and detergents, and blankets became increasingly common, with the stock of rural stores spiralling downward along with their profitability. Many were forced to close down. At the district level, most government services -- including education, health, agricultural and fisheries extension and training, and construction and maintenance of physical infrastructure -- either deteriorated or ground to a complete halt, the major exception being cotton production and marketing under the newly created, internationally assisted Lint Corporation of Zambia (LINTCO).

By the mid-1970s departmental budgets for recurrent rural development expenses had been seriously reduced. As the war for Zimbabwe's Independence heated up during the late 1970s, services that already had been cut back ceased entirely. Because of the combined effect of budget reductions and an increasing danger from land mines, tsetse control operations were stopped. Once again tsetse flies began to expand their range. The situation was exacerbated by inadequate departmental funds for purchasing prophylactic and curative drugs. As a result death rates from sleeping sickness increased throughout North Gwembe. Cattle were eliminated entirely from the area between Chirundu and the Kafue because of tsetse encroachment from Zimbabwe. And by 1983, the large Lusitu herds appeared to have been halved, with some farmers reverting back to hoe cultivation.

Further inland stock deaths were increasing in Sinadambwe and in Sikongo villages at the base of the escarpment; indeed, by 1981 tsetse had reached the top of the escarpment at Ibwe Munyama hence threatening the larger herds on the Plateau (communication from Leo Goodfellow). Central Central was also threatened, while some flies had reappeared in South Gwembe. But unlike the situation in the mid-1960s, there was no massive or even restricted governmental response to the increasing threat. Even after Zimbabwean Independence, Annual Reports noted that tsetse control operations continued as inactive as during the war due to inadequate funds for sprayers and chemicals.

As for training activities, both the Fisheries Training Center and the Farmers Training Center in South Gwembe stopped offering courses during the latter part of the 1970s. Though the war was partially responsible (Rhodesian raiders had destroyed or captured all the larger boats on the lake, including twelve based at Sinazongwe in 1979), lack of funds for bringing in students delayed the reopening of

the two centers after Zimbabwe's Independence. Indeed, even in 1982 the Farmer's Training Center had received no fuel allowances, and the reopening of courses in 1981 was financed with foreign aid through the Gwembe South Development Project.

Just as training activities suffered, so too did educational, medical and extension services. Lack of fuel, and the elimination of night allowances for touring officers, cut back on supervisory services throughout the district. Since touring supervisors no longer paid salaries at the end of each month, some civil servants had to travel at their own expense (for travel allowances were also eliminated) to the Plateau to draw their salaries. Classrooms and teachers' housing deteriorated throughout the district due to inadequate maintenance. In Central Gwembe a number of classrooms were condemned after a teacher required extended hospitalization when a building collapsed on him. In such cases, classes were held in the open. Regardless of where held, equipment and supplies of textbooks were inadequate. The demoralization that occurred among teachers was exacerbated in some villages because of a lack of community support -- with parents not turning out to repair schools and furnishings even where tool kits and building materials were available.

At rural health centers, paraffin for refrigerating measles vaccine and other essential drugs, bandages, and blankets for patients often were not available, although staff remained on service (indeed throughout the downturn the dedication of many development staff, in spite of difficult working conditions and reduced morale, was one of the few bright spots).

Inadequate transport in the form of motorized vehicles and bicycles greatly reduced the range and effectiveness of agricultural extension agents and their supervisors. Credit for farmers was virtually unavailable -- the Agricultural Finance Corporation having failed by the end of 1981 to open a Gwembe Office -- with the result that "Gwembe farmers continue to receive mostly lip service as in past years" (1981 District Department of Agriculture Annual Report).

Roads and bridge accesses and crossings also deteriorated due to inadequate maintenance funds and serviceable equipment. Graders often stood idle because of delayed repairs lengthened by a lack of spares, including tires. Vehicular traffic was no longer able to travel the Valley floor from one end of the district to the other. As a result, traffic from both North Gwembe and South Gwembe to the central portion of the district (where the district council, the district headquarters, and the Chipepo Secondary School were based) had to travel the long route via the Plateau and Line of Rail. While it is true that a very legitimate fear of land mines contributed to this situation, three years after the War ended, and well after the main routes had been cleared of landmines, the Valley floor route had yet to be reopened from one end of the district to the other.

At the village level, net incomes fell. Several of our study villages were adversely effected, including Siameja in South Gwembe where many young men were dependent on wage labor on the Plateau that became increasingly difficult to find after the early 1970s. In North Gwembe living standards deteriorated throughout the Lusitu area. In one neighborhood where data was collected on daily diets over a nine month period in 1981-82, nutritional levels declined. The medical officer in charge at the Chirundu Hospital was of the opinion that the drop in mortality and morbidity rates during the 1960s had reversed itself during the mid-1970s throughout North Gwembe.

Especially noticeable was deterioration in housing, household furnishings, bicycles and agricultural equipment. In the early 1970s, the more successful villagers had begun to install concrete floors and aluminum window and door frames in their houses. When those houses were rebuilt (because of the inevitable structural damage by termites and other hazards) by the same owners at a later date, new concrete floors were usually omitted, while the old frames were more apt to be hung from the branches of a tree than re-installed. As for the spring beds and mattresses that were common property in 1972-73, many were not replaced as they deteriorated.

The proportion of villagers owning functional bicycles had also declined, with decrepit frames lying around homesteads along with the cast-off frames of spring beds. And because of increasing encroachment of the tsetse carriers of sleeping sickness, cattle had declined throughout the neighborhood and North Gwembe as a whole. Because of inadequate spares, an increasing proportion of plows and ox carts were inoperable, with some villagers reverting back to hoe cultivation for the first time in twenty years. For this reason, as well as others such as increased emphasis on cotton production (some men, in fact, had not only stopped cultivating cereal gardens but had also stopped building customary granaries in their homesteads) and incapacity due to heavy consumption of alcohol, per household production of food crops had decreased.

#### **b. At the National Level**

Gwembe's downturn since 1975 also characterized the other rural areas of Zambia. According to the ILO Mission that carried out a broadbased survey of the Zambian economy in 1975 and 1979, "The fact of rural decline is well known. Senior Zambians, describing the villages where they were brought up, have frequently said to members of the Mission that they now find these villages in decline with poorer quality of life, a lack of goods and resources and deepening poverty. . . . The Mission cannot state too strongly that the weight of evidence . . . confirms that very large numbers of rural households are severely deprived, suffer acute seasonal shortages and stress, and are much worse off than they were" (ILO, 1981:27). Nation-wide Gross Domestic Product per head declined 54 percent from

1974-80, and private consumption per head declined 21 percent from 1975-79 (xxv), with the suffering of the rural population exceeding, generally speaking, that of the urban population. Among other declines, malnutrition among rural children "has almost certainly increased" (xx).

Though the proportion of emergent farmers may have grown outside of village areas, "we find no evidence to suggest that the real incomes of the masses of subsistence farmers have done anything but deteriorate" (xxvi). Moreover the effectiveness of government staff in the field has "been sharply reduced in the last few years through transport difficulties and lack of petrol. . . . Our own analysis of the budget allocations for petrol and vehicle maintenance of the Ministry of Agriculture shows a reduction by 1980 to one-fifth [my underlining] the level of 1973, in spite of an increase of both vehicles and staff. We have found officers confined to base for months on end through lack of transport." As for other services, "many rural clinics are having to operate without even minimal supplies of basic medicines and equipment, including soap, dressings, anti-malarial drugs, etc. . . . Schools too are suffering, especially primary schools, through extreme lack of books and other most basic equipment," while "many government programmes to assist rural communities to meet basic needs . . . have had to be cut back . . . often to levels so small as to be negligible" (xxvi-xxvii).

Similar inadequacies were stressed by Rene Dumont during his return visit to Zambia in 1979. Generalizing, he refers to "an almost total collapse of government services at the village level." As for the provision of agricultural requisites "everything" is late: "finance, supplies, marketing, payment for crops and repayment for loans." As for credit, the Agricultural Finance Corporation nationwide gave only 25,000 loans, Dumont calling Zambia's 500,000 farmers "forgotten farmers" who are provided with "no incentives whatsoever, except speeches" (1979).

### c. Local Responses to Downturn

Generally speaking, Gwembe households have attempted to follow the same strategies that they have pursued in the past during both good times and bad. Central is the attempt to diversify the household production system to the extent possible. Unfortunately, many past avenues for diversification became less available during the 1970s. Labor migration is a case in point. Though men in the past have sought unskilled wage employment on the Plateau during hard times, between 1975 and 1978 opportunities for employment in the formal sector of the economy actually declined "while the employment seeking urban population has increased by 20 per cent" (ILO, 1981: xxviii). And because costs of urban living had increased significantly, those seeking employment were less able than in the past to spend prolonged time periods job hunting.

Meanwhile in the Valley, the already depressed gillnet fishery had come to a virtual halt during the war. While district reports refer to a resumption of fishing activities by 1981, the nonavailability of credit made it difficult for fishermen to acquire new equipment, especially since the cost of improved boats had skyrocketed while the cost of gillnets and nylon twine had increased significantly.

Another response was to grow cotton as a source of income, a trend that was expedited by the services provided by LINTCO during the early 1980s. At least in some Lusitu villages, where the importation of opaque beer brewed by the National Breweries of Zambia on the Plateau had undermined the village brewing industry, a few women along with many men were turning to cotton cultivation as a source of cash income. This had its cost, however, with district administrative staff and medical personnel fearing that nutritional levels appeared to be suffering because of the tendency, at least in North Gwembe, to increase the cultivation of cotton at the expense of food crops. Both cotton and food crops alike have been devastated by three back-to-back droughts between 1981 and 1984. As a result, as a last line of defense, villagers had begun to sell off their smallstock, although by 1982 an increasing proportion of newly formed households had no stock to sell. With the head of the household unable to find employment, and with land scarcity and degradation increasing, such households were becoming increasingly poverty-stricken.

Though we do not have detailed information on the sociological concomitants of economic downturn for the district as a whole, we do have such information for our four study villages. Of these the most seriously affected is in the Lusitu. There downturn followed a period of exceptional prosperity during the 1960s and early 1970s that was due partly to the village's favorable access to farm land. This downturn is accompanied by, and -- I believe -- correlated with, community unraveling (Scudder, 1983 and 1984). Though the data is inadequate to measure trends, alcohol abuse has become a major problem, with the majority of men in one sample village classified as "daily service" meaning that each day they sought out neighborhood taverns, often arriving by mid-morning and staying until the supply of beer was finished.

Drunkenness was common, while relationships at household, village and neighborhood levels had deteriorated. Especially noticeable was an increase in neighborhood violence and sorcery suspicions and accusations, with disgruntled villagers venting their frustration in a number of highly destabilizing ways. Returning home drunk, they frequently insulted those whom they passed, and periodically, from the edge of their homestead, heaped insults and threats on the unnamed person or persons whom they accused of undermining the wealth of their homestead. Increasingly misfortune was blamed on the malevolence of kin, neighbors, or fellow household members, with those who considered

themselves unjustly insulted or abused more apt to divorce their spouses, to seek the services of witch finders or to retaliate violently.

Though village violence had always occurred sporadically in the past, its incidence and malevolence appears to have increased significantly in recent years. During 1981, there were a number of cases in the Lusitu where men died after the insecticide Rogor had been added to their beer. Rogor was also being used more frequently to poison an adversary's livestock, including cattle, smallstock, dogs, ducks and chickens. No household that was trying to better itself during trying times could consider itself immune from the possibility of attack by jealous neighbors. One ambitious young man from one of the poorer families, for example, woke up to find most of the chickens that he had purchased for export to the Plateau poisoned during the night preceding his departure. Though Rogor was the commonest instrument of malice, scalding water might be poured on dogs, while cattle and sheep might be axed or speared in the bush. Scalding and maiming were not new events for we have recorded them in the past. But their frequency appears to have increased, as has the frequency of assault at beer drinks and theft from fields and homesteads.

I do not know the extent to which the community responses noted above can be generalized to the rest of the district, if at all. The recent history of the Lusitu has a uniqueness which may explain part of the community unraveling observed in recent years. At the time of Kariba resettlement the large majority of potential relocatees wished to move inland along the Zambezi tributaries closest to their homes. Wherever possible, the government observed those wishes. In Central Gwembe, however, the decision to heighten the dam reduced the amount of land available in the valleys of the preferred tributaries. As a result the decision was made by government to relocate 6,000 "surplus" people to the Lusitu area below the dam and over 150 kilometers away. Populated by Goba, the Lusitu also had a bad reputation. Fearing to move there, the people agreed only after a confrontation with government forces in 1958 left nine people dead and over thirty injured.

Thereafter the forced removal proceeded rapidly, with 6,000 people packed into the Lusitu area rather than spread more thinly over the land between Chirundu and the Kariba hills. Population densities were extreme from the start and over the years extensive areas have been totally cleared, the Lusitu being the only area within the district where one can stand on a small rise and see structures in four different neighborhoods, and where, at night, one can hear drums beating in at least six neighborhoods. Today virtually no land is available for newly formed households in the central part of the Lusitu, while land on the margins is being rapidly colonized by both village and emergent farmers. During the dry season, the Lusitu looks

like portions of the Sahel, with the area taking on the appearance of a dust bowl when the winds blow.

With over ten thousand people (more than one-tenth of the population of Gwembe District as a whole), the Lusitu today is a crisis zone with inadequate land for its residents and inadequate grazing for its livestock. To make matters worse, its location on the international border and its dense population made it a "fire zone" during the war with Rhodesian patrols not infrequently entering the area; indeed during the latter portion of the war they actually had a camp on Zambian soil where the Lusitu River entered the Zambezi.

While the Lusitu's history may partially explain the severity of the social disorganization observed there during the early 1980s, I suspect that the major reason was the severity of the economic downturn after 1975, a downturn that followed a decade of rising incomes and improved living standards for the majority of the village population (see, for example, Colson and Scudder 1975).

## 7. THE LONG-STANDING CAUSES OF DOWNTURN

Though villagers may blame their declining fortunes on hostile neighbors, in this section four interrelated factors will be analyzed. Three of these, deteriorating international terms of trade, the War for Zimbabwean Independence and situational factors peculiar to Gwembe District are the more conventional explanations for downturn. But, important as they are, they are insufficient to explain the Gwembe situation. More important are a range of government policies that originated during colonial times. While post colonial elites (including UNIP party members, civil servants working for such parastatals as the Mining Development Corporation as well as ministerial departments, and commercial farmers) have continued to compete at the national level for scarce resources, nonetheless by dominating the political scene, they saw to it that national policies favored their interests as opposed to those of the unorganized village sector (Bates, 1982). This elite bias has manifested itself through a wide range of policies to exploit the labor as opposed to the agricultural capabilities of villagers (Palmer and Parsons, 1977). They can be roughly grouped into policies with a bias toward the urban-industrial areas (including adverse rural-urban terms of trade), and policies biased toward larger scale commercial, as opposed to village, farmers.

### a. Deteriorating International Terms of Trade

Prior to the fall in copper prices that began in 1974 and the rise of petroleum prices that began the previous year, copper provided much of the revenue that "trickled over" into the rural areas in the form of capital development projects and improved services. And

during the good years when Zambia's urban-industrial sector boomed, village men were more apt to find employment when they sought work on the Plateau. All that changed in the mid-1970s. "Since the world copper price peaked in 1974 (never again reaching as much as 60 percent of its peak level in real terms), Zambia has fallen into a prolonged economic slump characterized by falling real output, inflation, declining foreign exchange reserves, and a large amount of arrears in payment for imports" (World Bank 1981:4.30). This theme is reiterated in publication after publication; hence, "severe declines in Zambia's real income came as a result of the fall in world copper prices, which reduced GDP by 29 percent in the three years from 1974 to 1977 and by 35 percent over the five years until 1979. Over the six years 1974 to 1980, real GDP per head, taking account of declines in the terms of trade, fell by 52 per cent -- an unsought and unenviable record by international standards" (ILO, 1981:3). Clearly falling copper prices and increasingly unfavorable international terms of trade hurt Zambia and they hurt Zambia's rural populations, including those living in the Valley.

#### b. The War for Zimbabwean Independence

Both Rhodesia's Unilateral Declaration of Independence in 1965 and the prolonged war for Zimbabwe's Independence adversely affected the Zambian economy in the short run, although certain responses like improving communication with Tanzania and opening the coal mines in the Valley should have long range advantages. Nonetheless, during Zambia's rush to reduce its dependence on Rhodesian coal, Kariba power (for there was always the fear that might be cut off since the only power station -- until the commissioning of the first north bank generator in May 1976 -- was on the Rhodesian side), and southbound transport routes, hundreds of millions of kwacha were spent on roads, raillinks, pipelines and -- both at Kariba and on the Kafue -- energy installations. The conditions under which they were constructed "raised costs enormously. The United Nations in 1975 estimated the cost to Zambia of UDI . . . at about K560 million -- in 1980 prices, about K1,500 million. This does not take into account the direct costs/military activities, nor the further costs of dislocation after 1975 when the liberation war reached its final stages" (ILO, 1981:1).

Expensive to Zambia as a nation, the still more serious impact of the war on the people and economy of Gwembe District has yet to be analyzed. When capital development and recurrent costs for rural development were being cut at the national level, it is possible that the ever present danger of land mines and Rhodesia raids within the Valley presented an excuse for more serious cutbacks there than elsewhere. While this has not been documented, it is a fact that during the latter part of the 1970s expensive tsetse control operations, for example, came to a complete halt. Furthermore by 1983 spraying operations had yet to recommence on even a minor scale, suggesting that the still stated fear of undetonated landmines may

continue to be used as an excuse for allocating scarce departmental resources to other districts.

In addition to reducing government services disproportionately, the violence associated with the war directly affected most villagers as well as resident government staff. The 1979 Annual Report for North Gwembe illustrates for a part of the district the seriousness of war impacts. On April 3, Rhodesian forces attacked a Landrover carrying civilian personnel in the Kariba hills near the turnoff to Chief Simamba's headquarters. Six prominent people were killed including two Gwembe residents. One was a prominent local businessman, the other was Moses Muleya, Personnel Manager for the Kariba North Bank Power Station and one of the most promising young politicians in the district who, though unsuccessful, had already run well in past parliamentary elections. The same year three major bridges in the escarpment along the Lusaka-Chirundu Road were blown up, temporarily isolating North Gwembe from the rest of the country. Gun fire from across the Zambezi at one point caused district council personnel stationed in the Lusitu to evacuate to Siavonga, while Rhodesian forces on occasion crossed the river to terrorize Lusitu villagers, killing at least one local woman and wounding other residents.

Throughout the subdistrict landmines continued to raise havoc in 1979, with villagers and government staff alike fearing to travel outside their homes. One lorry en route to collect cotton from inland areas of Chief Sikongo's area was blown up, with two people killed including the officer in charge of the Lusitu LINTCO depot. As a result of such incidents, government services ground to a halt. The NAMBOARD depot closed down until the next agricultural season, while security and transport problems meant that the Gwembe Boma-based district educational officer did not visit some schools for years. The Catholic Hospital at Chirundu, located close to the border, closed down at an earlier date as did the Zambezi Training Farm with the expatriate staff withdrawn from the country.

Such impacts could also be documented for other years and for other areas of the district. A current member of the Central Committee and a long-standing parliamentarian, Maxwell Beyani was injured when the vehicle in which he was riding struck a land mine in South Gwembe. Two persons from our village sample were killed when Rhodesian forces fired upon a lorry in the escarpment hills, killing 18 people. During another raid, eleven government and district council boats docked at Sinazongwe township were either destroyed or captured, while a raid on Chipepo Harbour in Central Gwembe badly affected the operation of Chipepo Secondary School.

Communications and services within the district continue to suffer from the impact of the war. At the end of 1982 none of the boats destroyed during the war had been replaced. This adversely

affected a range of government services including fisheries development and "famine relief" to remote communities near the lake following crop failure. Access, penetration and feeder roads that had deteriorated during the war had yet to be brought back to prewar conditions by 1983.

**c. Situational Variables within Gwembe District**

**(1) Ecological and Demographical Constraints**

Since 1981 a number of promising events have occurred that in time may help the District's downturn to bottom out. To date they have had impact on the village sector only in restricted locales. Their overall impact has been negated by three successive droughts that caused crop failure throughout much of the Valley during the 1981/82, 1982/83 and 1983/84 seasons and by the increased incidence of bovine trypanosomiasis in North Gwembe.

The impact of increasing population pressure on the land is being felt in such major resettlement areas as the Lusitu and Siameja. Though the carrying capacity of the land was exceeded the day resettlement occurred in such areas, it has taken several decades for the accumulative impact of Kariba resettlement to be felt. Hence it is only now that newly married couples in the Lusitu are no longer able to acquire land within walking distances of their villages. In the past, there were either new lands still to be pioneered, or lands available from relatives through subdivision. Now young couples are increasingly finding neither source available. If they, and others, are to continue to farm, some form of agricultural intensification (such as improved rainfed agriculture, floodwater farming or irrigation) need occur.

**(2) Attitudinal and Sociocultural Constraints**

Much harder to analyze are the attitudes and states of mind of the Valley's residents as they relate to the increasing need for intra- and inter-community cooperation. Almost without exception, rural development analysts emphasize the need for Zambian development planning and implementation to be decentralized to district and subdistrict levels. What is referred to is not mere lip service to decentralization but the actual decentralization of decision making along with the fiscal decentralization needed for implementing decisions made. Whether at district or community level, there is a need for strong participatory action organizations that can put pressure on policy makers and can serve not just emergent farmers and other elites but the majority of the village population.

At least in the Lusitu, downturn has not fostered cooperation among villagers. On the contrary, rather than coming together as a community to put pressure on district and national officials, or at

the very least allowing each household to follow its own strategies, villagers have tended to accuse their neighbors of causing their misfortunes through both natural and supernatural mechanisms, with an unknown proportion actually sabotaging efforts of others to improve their living standards.

Is the egalitarian and individualistic nature of the Valley people a major constraint to participatory activities? When the Zambezi Training Farm recommenced activities after the end of the War, plot holders welcomed back the expatriate volunteers, believing that they could solve long-standing transportation problems. One farmer, whose occupancy of an irrigated holding dated back ten years, noted that crops either rotted or were sold locally for give-away prices because of inadequate transport to take them to Siavonga and the Plateau. While a cooperative was seen as the solution, reporters from the Times of Zambia were told that "efforts in the past to form a cooperative have been fruitless because some of our colleagues are not keen on the venture" (Times of Zambia, September 4, 1982). Though lack of participation is only one of a number of reasons, to date all efforts to create viable cooperatives in the Valley have failed. At the same time visitors to the Valley, including former residents, not infrequently comment on the lack of self-help community- or project-based activities in comparison to the Plateau.

I have difficulty evaluating such comments. The history of the Valley contains numerous examples of community- or project-based cooperative activities, some of which have reached beyond the boundaries of both kinship and residential units (such as villages and neighborhoods). Although the organizing procedures are not known to us, villagers from different neighborhoods united in the 1950s to physically oppose the Cassava Order in Sinadambwe's Chieftaincy, and resettlement to the Lusitu in Chipepo's Chieftaincy. More recently, two volunteers from without the Valley facilitated, in one of the most isolated areas of the Valley (Ibwe Munyama), the mobilization of 52 men from several villages to construct, literally from scratch within a month, a new motorable road from the top of the escarpment to the Valley floor -- an impressive achievement by any standards (communication from Ginny and Leo Goodfellow). Also throughout the district, periodically villagers come together to make bricks for schools and dispensaries and to repair buildings already made (during 1981 and 1982 three of our four study villages were involved in such activities).

The problem with the above examples, however, is that all of them are based on the relatively short-term mobilization of people for specific tasks. While clearly local leaders are able to organize that type of community participation, we have only a few examples of on-going community or project action organizations that deal, sequentially, with a range of development opportunities and problems. Moreover, in each case their sustainability is problematic since they

are relatively new organizations and since, in each case, their origin and initial survival was due to expatriate initiative and management.

With assistance from the Gwembe South Development Project the farmers on the Nkandabwe and Siatwinda irrigation projects have been organized in separate water user and irrigation management associations for a number of years. Involving all the irrigators, both associations were becoming increasingly effective during the early 1980s. In 1982, for example, when I visited the Siatwinda project, the association (without GSDP assistance) had mobilized men and women to complete the arduous task of deepening the channel from the pump to the receding edge of Lake Kariba. While it is true that such government-induced collective organizations for the Valley as cooperatives have failed, the above examples suggest that there may be more hope for organizations created for and adapted to specific local situations. Whether or not they can sustain their effectiveness without outside assistance remains to be seen.

Another question mark concerns the longer term implications of the type of social disorganization and community unraveling that has characterized at least some Lusitu villages in recent years. Not only are we unaware of the extent of such disorganization in other portions of the Valley, but we also do not know the circumstances under which it can be reversed and the rapidity with which reversal can occur. Throughout their history the people of the Gwembe have shown great adaptability. It is even possible that a reverse trend had already begun during the 1981-83 period. While sorcery had become the major explanation for misfortune (unlike the situation in the 1950s, 1960s and early 1970s), the number of village recruits (including recruits from the most demoralized villages) to fundamentalist religious sects and various cults had also begun to increase. As elsewhere in Zambia (Long, 1968), would such recruits not only redirect their efforts to more productive activities and formation of new communities, but also set an example for other villagers?

#### **d. Government Policies as the Major Underlying Cause of Downturn**

The fall in copper prices followed by the increasingly adverse impact of the War for Zimbabwean Independence triggered the timing of the downturn within Gwembe District. This, however, was not merely because there were now insufficient funds for development of the village sector, but rather because longstanding government policies diverted increasingly scarce funds away from the village sector to meet other objectives that continued to seem more pressing. Before outlining these policies, it is important to establish that funds were in fact available after 1974 that could have been allocated to rural development.

### (1) The Funds Were There

In a chapter on "The Distorted Growth of Import Substitution Industry," Seidman argues persuasively that Zambia did not lack "investable surpluses" after 1974. Indeed, Zambia "probably produces investable surpluses which total some K500 to K600 million every year. . . .<sup>5</sup> But the necessary institutional changes have not been made to ensure that these surpluses are directed to the appropriate expansion of productive sectors, in order to reduce dependence on copper exports and increase employment throughout the whole economy" (1979:107).

Dumont's 1979 report and the 1981 ILO report on Zambia: Basic Needs in an Economy Under Pressure provide further insight on how those "investable surpluses" were used. One use was for rural reconstruction centers which started up in 1975 with a range of purposes including "achieving food self-sufficiency, reversing rural-urban migration, securing full employment, and generating foreign exchange through export of cash crops" (ILO:52). Though funding information was not available in 1979, an estimated K17 million was utilized during the initial year. Yet according to Dumont the results have been "simply disastrous at great financial cost." The same applies to other state ventures into commercial agriculture. In spite of Eicher's conclusion that "after 20 years of experimentation, there are presently no African models (of agrarian socialism) which are performing well" (1982:161), recently Zambia has initiated another such experiment based on at least one state farm for every district.

Other uses for scarce capital were for middle and high income housing, and increased salaries and allowances for officials. During the Second National Development Plan (1972-76), funds for low-income housing and improvement of low income residential areas were cut on the basis of funds not being available. Yet "expenditure on medium- and high-cost housing exceeded the planned provision" (ILO, 1981:XL). Furthermore, subsidies in the form of low rent and low user charges "on houses provided for government and parastatal employees continued to be given most generously, around K90-100 million annually, while no loans or grants were available to villagers" (pp. XL and 10).

Another major expense related to increased public sector allowances and salaries during the 1975-80 period. Proportionate to salaries, the most advantageous allowances went to the mostly high paid officials. They "are eligible for . . . commuted car allowances, entertainment allowances, payment of electricity and water bills, the provision of one or two servants and a security guard, as well as for generous subsistence allowances when travelling abroad" (1981:130). As for salary awards, "the total annual additional cost of the salary awards -- over K40 million in a full year in 1980 prices -- exceeds the sum we estimate to be required to meet basic needs in water, health, education and housing over the next five years" (p.

130). In sum the ILO analysis shows that "although funds and manpower were available, they were not used according to the pronounced objectives of meeting the needs of the poorer sections of the population" (p. 115).

Though the funds were there, and although no less a personage than President Kaunda himself had been advocating development for Zambia's 500,000 plus small-scale farming households since 1972, they were not used for village development because of long-standing policy biases against the village sector, all of which date back to the colonial era. During the colonial regime, an unorganized peasantry was mobilized as a cheap source of labor for the farms, administrative centers, and mines of the ruling minority. More recently a still unorganized peasantry continues to have virtually no political clout and continues to provide a cheap source of labor in contrast to the miners who have been able to achieve significant increases in salary through a strong mineworkers union.

At the Center, there appears both a disdain for and a fear of Zambia's villagers. The disdain is suggested by the continued reference, by politicians as well as other elite, to low income Zambians as "the masses." The fear is indicated by a series of misconstrued policies, such as rural reconstruction centers and other "back to the land" movements, complemented by periodic demands for forced repatriation to the countryside. The purpose of such policies is to reverse migration from rural areas to the line of rail and the major urban centers, a migration that is a rational response on the part of villagers to Zambia's longstanding policy biases against the village sector. (DeWilde notes that between 1963 and 1974 Zambia's rural population fell from 80 percent of the total to 65 percent as villagers left "the relatively stagnant purely agricultural provinces to the economically more dynamic Central and Copperbelt provinces" 1977:86).

Though an oversimplification of a complex situation, for the purposes of this analysis, policy biases can be divided into three. These are biases toward the national elite versus the low income rural and urban majority, toward the urban-industrial sector versus the rural sector, and toward larger-scale individual and state farms versus the much larger number of village farmers. In all three cases there is an obvious continuity with the colonial past.

## (2) The Elite Bias

The dualistic economy of Zambia has been dominated by a small minority since the turn of the century. Though the base of this minority has been broadened since Independence through political participation in the changeover from a colonial to a national regime and through education, the political economy of contemporary Zambia continues to be dominated by a small elite that may be as highly

centralized as any in tropical Africa (ILO, 1981:80) and that manipulates development policy to its advantage.

While the political base is restricted to party members, the economic base is also restricted. For example, "the richest 2 percent of all households earn roughly 20 percent of the entire national household income -- the same amount as the poorest 50 percent" (Zambian Government: 1980:7). Concentrated along the line of rail and in the urban centers, this small minority continues to benefit from capital development and recurrent expenditures that remain "heavily biased towards the urban areas, and often to the needs of high-income households" (ILO, 1981:7). The negative impacts of this elite bias for the village sector are reinforced by the elite's fear of the steadily increasing numbers of low income urban migrants from rural areas. Their propensity to riot when the prices of food staples are raised tends to keep producer prices low even when policy makers desire to raise them.

### (3) Development Policies that Favor Urban-Industrial Areas over Rural Areas

According to Simon, since Independence in 1964, "more than 80 percent of productive capital went to the Copperbelt and towns along the railway line" (1979:14). This was in spite of the declared intentions of successive national development plans to improve the national distribution of expenditure. Indeed, "in many respects, there has been a deterioration in the proportion of total expenditure going to the rural areas, not just a stagnation" (ILO, 1981:7). When budget cuts must be made the usual trend is for "them to fall on provincial votes more than headquarters, on district votes more than provincial, and on allocations to subdistrict levels heaviest of all. It is the periphery that suffers first and gets least" (p. 74).

Even during good times, since Independence rural-urban terms of trade have deteriorated, with the main deterioration occurring not since 1975 but between 1965 and 1970. "The subsequent deterioration has continued a trend, not initiated it" (xxx), with a further fluctuating deterioration occurring since 1973 for "a total decline since 1965 of 65 percent" (p. 7; see also Fry, 1975, Dodge, 1977:133-4; and deWilde, 1978:93). Even during good years what this meant for villagers was that from 1964 to 1973, "prices of agricultural goods generating incomes for the rural population declined by nearly 54 percent relative to the prices the rural population had to pay for the urban processed goods they wanted to purchase" (ILO, 1981:7). Such adverse terms of trade continued the labor migration of villagers to the line of rail and the urban-industrial areas that the imposition of hut taxes payable in shillings had initiated during the first decade of the present century, although recent declines throughout the economy have slowed down the rate of movement.

#### **(4) The Bias Toward Larger Individual and State Farms**

The bias against the village farming household dates back to the earliest years of the Colonial regimes when hut taxes were introduced to force men into the market economy as an abundant and lowly paid labor force. At the same time the lack of appropriate housing and other facilities in urban areas (which was based on intentional government policies) kept their families on the land where they contributed to part of the cost of supporting their menfolk, hence allowing wages to be "kept lower in the long run" (Arrighi, 1973:140). On the other hand, villagers' attempts to market maize as opposed to their labor were discouraged by the administration in a number of ways. The ILO report refers to one case where Kaonde farmers were kept from exporting maize to Zaire in 1910 because the administration wished to channel their energies into mining copper rather than sowing crops (p. 5 as quoted from Fry, no date). Thereafter European rather than village farmers were encouraged to supply maize to the mines and towns, with the administration trying to further dampen any village inclinations to increase production by introducing a dual pricing system in 1943 with maize produced at the village level priced below that grown by European farmers.

While the price to European farmers was also kept below the import price before Independence so as to keep down the cost of food for a lowly paid labor force on the Copperbelt, adverse rural-urban terms of trade for the commercial farming community were lessened to an extent by much better access to agricultural inputs and services. Though a uniform pricing system is now extant, this bias toward the larger commercial farms (which are increasingly being farmed by Black Zambians) has continued since Independence (Klepper, 1979).

Farmers in low rainfall areas like the Gwembe have suffered from the national emphasis on maize production as opposed to other cereals. This emphasis has several aspects. First, research until very recently has emphasized more high yielding varieties of maize at the expense of other food staples, with agricultural staff trained to extend its production even to inappropriate areas (ILO, 1981:21). Second, prices have risen far faster for maize than for what the ILO mission called the crops of the poor including fish, cassava, sorghum and millet (three of which are important to Gwembe producers). Between 1967 and 1980, for example, the maximum producer price for dried fish rose only 61 percent while the low income price index increased by 229 percent (p. 64). As for sorghum, between 1971 and 1980 the producer price went up only 28 percent as opposed to 192 percent for maize during the same time period (p. 62). While it is true that village farmers outside Gwembe District have benefited from rises in the price of maize (as have some emergent and village farmers within the district), nonetheless, "the main direct beneficiaries of high and uniform maize producer prices are those who are less poor and less in need of incomes" (p. 62).

Access to credit, subsidized fertilizers and other inputs is also easier for non-village individual commercial farms, and since Independence, state farms and such other government-sponsored agricultural enterprises as rural reconstruction centers. Though Barclays Bank has experimented with an innovative program of credit for smallscale farmers, other credit from the major banks is virtually unavailable to the village as opposed to the commercial farming community. As for the Agricultural Finance Company, we have already referred to Dumont's statement that it provided credit to only 25,000 of the 500,000 village farmers (1979). Its receipt is often delayed, as is the supplying of other inputs, the ILO report noting that "nothing can do more to discourage would-be entrants into cultivation for the market than delays in input or credit supply, in the collection of produce, or in the receipt of payment for a previous crop until after the time of land preparation, sowing and fertilizing for the next crop" (p. 66). Though in this kind of situation we are dealing more with the inefficiencies of government parastatals than with policy biases, these are just another hazard which the village farmer is inflicted with (and is less able to cope with than the commercial farm enterprise).

e. Implicati~~on~~ for the Development of Gwembe District

While these policy biases have had an adverse impact on the village sector throughout Zambia, their implications for development vary from district to district. The burden suffered by Gwembe District is a heavy one. Through 1954, the development of the district, along with that of other peripheral areas, suffered in comparison to Plateau villages closer to the line of rail (Vickery, forthcoming, describes the contrasting situation among favorably located Plateau Tonga). Then came the Kariba project, the disadvantages of which will outweigh the advantages if certain innovative policy decisions are not made and implemented within the next few years. While it is true that Kariba catalyzed the development of the district between 1955 and 1974, aside from the immediate trauma of removal (Colson, 1971; and Scudder and Colson, 1982), Kariba resettlement caused a radical and unfavorable redistribution of population in relationship to arable lands. Without the implementation of major changes, it is hard to see a future for that ten percent of the population living in the Lusitu area, for example. And even with the implementation of major policy changes it is hard to imagine the residents of Siameja improving their living standards in their present South Gwembe habitat.

Large-scale dams like Kariba are a classic example not just of development from above but also of unfavorable rural-urban terms of trade, with the impoverished Gwembe Valley subsidizing the export of electricity to the wealthier urban-industrial areas of Central Africa through the loss of valuable lands, the upheaval of its population and the temporary but serious undermining of the effectiveness of its district council.

Gwembe villagers have also suffered from low producer prices for two of its major crops of the 1960s: fish and sorghum. Though the adverse impact may be unintended, the village economy has also been damaged by the commercial operations of a number of government parastatals along the line of rail. National Breweries of Zambia (NBZ) is a case in point. By exporting opaque beer by the tanker load to the more accessible taverns, NBZ has undercut the village brewing industry. In the late 1960s and early 1970s, for example, a significant proportion of village women brewed beer for sale in Lusitu villages, as they continued to do in much of Central and North Gwembe during the early 1980s. With profit margins not infrequently exceeding 100 percent, this business benefited the families of the brewers by redistributing income primarily from men to women, while keeping capital within the district. Not only are profit margins from opaque beer much lower for taverns, which provide a source of living to a much smaller number of people, but now most of the capital involved is immediately drained from the district to the line of rail.

Though fewer businesses have been adversely affected, a similar situation applies to the government distributor of SupaLoaf, with bread baked along the line of rail by a government parastatal forcing local bakers out of business. Yet another example, noted by Dumont for the rural areas as a whole but equally applicable to the Gwembe, are more expensive ready-made dresses from Livingstone factories which "are depriving small tailors with sewing machines of employment" (1979). In the 1960s and early 1970s the more successful Gwembe stores used to have one or two tailors permanently employed. Today many of those same tailors are lucky to find parttime employment while the same stores display more expensive urban-made frocks and childrens' clothes. This is not necessarily because such items are preferred. Store keepers are apt to favor them because of periodic difficulties in buying cloth to keep locally employed tailors busy and government minimum wage regulations that are uniformly applied to urban and rural areas alike.

These three cases are yet another example of unfavorable government policies since opaque beer, SupaLoaf and Livingstone dresses are all made by government subsidized parastatals. Though there are individual exceptions, not only are parastatals subsidized, but most are inefficient. According to Dumont, in general they obtain only 2 percent income from high capital investments as opposed to 15-25 percent for private traders (1979).

## 8. THE FUTURE

Since Zimbabwe became independent in 1980, some rehabilitation and development has occurred within the Valley, raising the question as to whether or not the downturn that began during the middle 1970s has bottomed out or even possibly reversed itself. The description

that follows is supposed to be a suggestive rather than comprehensive listing of the increasing tempo of development-related activities.

In North Gwembe the Zambezi Training Farm and the Chirundu Hospital reopened. Under the management of CELIM, a private voluntary organization of Christian volunteers, and with financial assistance from the Italian government, the Diocese of Milan and the Zambian government, the research farm was reestablished in 1981. As the number of volunteers increased to five, refresher courses were given to the original irrigation farmers, the two year course for training additional farmers was recommenced, and a major ZTF-facilitated self-help housing program was initiated for plottolders at the Lusitu outstation. For the first time, a Zambian agricultural officer was assigned to the project. More emphasis was also placed on training and organizing participants to take over the eventual management of the farm and associated projects.

At the hospital Dr. Nampili, who had already served the area for many years before the war, returned -- assisted, as in the past, by a number of nursing sisters. Recurrent costs for these facilities were lower than in other rural areas of the Valley, since both received electricity from Kariba via Chirundu.

Although reduced activities had continued throughout the War, at the other end of the district the Gwembe South Development Programme also began a phase of both rehabilitation and development. Two major decisions were made in 1982. One was to convert GSDP into an Integrated Rural Development Programme (IRDPs were a national program for channeling international funds into select districts under the coordination of the Ministry of Agriculture and Water Development), which in time would expand outward from South Gwembe to the rest of the district. The other was to bring the Gwembe South Development Programme directly under the district council, although the Gossner Service Team continued to play a major coordinating role. To deal with the new IRDP, a steering committee was created, while council members voted at their June, 1982, meeting to prepare budget estimates and receive into the district treasury at least some funds from international donors (at the same time the council voted to leave with the provincial agricultural officer funds for appropriate capital development projects).

If implemented, such fiscal decentralization (which is entirely consistent with the Local Administration Act of 1980) could be a major step toward enabling the district council to plan, implement and manage its own development. As for coordination and supervision by the council, that should be facilitated by the fact that the Secretary of the Gwembe South Development Programme, Grey Madyenkuku, is also one of two trustees of the council. Planning weaknesses within the council could be partially offset if the National Commission for Development Planning followed through on the tentative decision to

place its first district advisory team of planners in the Gwembe (the NPC had already begun to place such teams in provincial capitals). Management skills, where needed, could be provided through Zambian and expatriate personnel recruited by the council, the government and the Gossner Service Team under the IRDP. Indeed during 1983, one senior expatriate adviser was recruited by Gossner, while a number of recent Natural Resource Development College graduates were assigned for the first time to the Project's Sinazeze headquarters.

The Food and Agriculture Organization of the United Nations (FAO) and the World Bank also gave renewed attention to the Gwembe during the early 1980s. FAO, with United Nations Development Programme financing, had worked first with the government of the Central African Federation (and after UDI with the Zambian Government) in establishing in the early and mid-1960s the Kariba Lake Fisheries Research Institute, later reconstituted as the Central Fisheries Research Institute when Zambian and international personnel withdrew to the Plateau. In the early 1980s, FAO directed its attention toward Lake Kariba floodwater farming and pump irrigation when it assisted the National Irrigation Research Station to establish at Chiabi in Central Gwembe a lakeside experiment and demonstration station, which incorporated a small number of local farmers (both men and women) as participants. FAO was also interested in a national project dealing with smallstock (especially goats) which included a possible North Gwembe component.

The World Bank was a major source of funds for both the construction of the dam and the initial South Bank power generating installations in the 1950s and the North Bank power station in the 1970s. Also in the 1970s the Bank's interest in farmers' training and education led to funding for capital expenditures at the Buleya-Malima training center, and for expansion and other assistance at the Chipepo secondary school. In the early 1980s, the Bank was considering a major agricultural development project for Southern Province which was to include some funding for tsetse control in Gwembe District. Though oddly North Gwembe, which was the locale of the most serious tsetse problem, was excluded, this serious deficiency would be corrected if feasibility studies during the early 1980s lead to a collaborative tsetse control program involving the four Middle and Lower Zambezi states, with financial assistance from the European Economic Community and other possible donors.

In addition to these broader interventions and plans, various private voluntary organizations, often with both Church and donor government support, and private entrepreneurs from the Plateau began to pay more attention to Gwembe District after 1980. Especially impressive was the catalytic role that a Zambian couple (the Goodfellows) played in facilitating development with strong local participation in the Ibwe Munyama area. In addition to road construction, their program also included crop, livestock and health

components. With funding from a wide range of church and other organizations, by 1984 those involved had begun to expand their livestock and other activities to the Valley floor below Ibwe Munyama. As the drought worsened, famine relief operations were initiated. These included the distribution of seed sorghum, seed distribution being in Watts' opinion (1984) the most important single contribution that private voluntary organizations could make to the Valley's welfare (during the 1983/84 season Watt found no early maturing cereal varieties available when he visited various Gwembe stores).

On the lake shore, two Danish volunteers (with different sponsorship and funding) opened up in 1981 a small irrigation training program at Gwena for primary and secondary school leavers. This was a new venture. In both North and South Gwembe the Catholic Church, in particular, further expanded its development activities, while the Salvation Army provided the land and financial and other assistance for the Ibwe Munyama Project. The other Gwembe churches, including the United Church of Zambia and the Wesleyan Church, continued their pre-War activities.

By 1984, still other Zambian and international institutions were becoming involved in Gwembe Development. Following an exchange of information between University of Zambia personnel and the University of Zimbabwe's Sebungwe Regional Study, the Vice Chancellor of the University of Zambia appointed John T. Milimo, Director of the Rural Development Studies Bureau (which is Zambia's National Integrated Rural Development Centre), to coordinate possible joint research activities and to formulate a research for development strategy for Gwembe District. The University's Kafue Basin Survey also extended its scope to include the Zambezi below the Kariba Dam.

During 1984 the Rural Development Studies Bureau prepared a research proposal for possible funding agencies and sponsored at Siavonga a national workshop on integrated rural development with special reference to the Gwembe Valley. This workshop brought together for the first time many of the individuals and agencies concerned with Gwembe development including local officials, the Gwembe South Development Programme, the Ministry of Agriculture and Water Development and the National Commission for Development Planning. The Ministry of Agriculture and Water Development in particular began to step up its research activities within the Gwembe. In addition one of its officials, Moses Banda, initiated research on the agricultural potential of the Valley as part of his course of work for a Ph.D. degree at the University of Edinburgh.<sup>6</sup>

The increasing interest of private entrepreneurs and companies in the district after the war was not to help the Valley people as such (although some provided important benefits), but rather to extract resources from the lake and from the land. After UDI, the Rhodesians had developed a major, open water commercial fishery on the south side

of Lake Kariba. This was based on the extraction of a small cupleid, Limnothrissa niodon (the so-called Lake Kariba sardine or kapenta) which had bred up in large numbers after being stocked by Zambian fisheries officials in the 1960s. By 1983, approximately 10,000 tons were being extracted annually on the Zimbabwean side with estimates of 20,000 tons of sustainable yields for the entire lake.

Sustainable yields for Zambian waters were estimated at 8,000 tons (the south bank potential was higher because it incorporated the richer waters of the Sanyati Basin), and it was these that Zambian entrepreneurs wished to extract. Though some were businessmen residing in Siavonga who catered to tourism, none were citizens of Gwembe District. Though they provided an important source of employment (though at subsistence wages), once they had obtained permission from local chiefs (and theoretically from the district council) for sites to establish facilities for servicing their operations, their contact with local governing institutions was minimal. Their annual permits to fish the lake, for example, were provided by the Department of Fisheries from its plateau headquarters immediately south of Lusaka. Once established, some also tried to acquire from chiefs additional land along the lake shore margin for commercial farming ventures.

Elsewhere within the district the establishment of medium-scale commercial farms (100-200 acres) was accelerating, although in these cases the large majority of farmers were prominent local citizens (including teachers and former teachers, local businessmen and government officials employed on the Plateau) who had built homes on their lands away from villages. Part of a small but increasingly influential district elite, these were the type of men who dominate the district council. Though pioneers who carved holdings out of the bush under difficult conditions, their activities nonetheless restricted still further the rapidly decreasing areas of arable land available for village expansion.

The end of the War also renewed the search for minerals in the Valley, and especially for uranium, which was known to occur though not necessarily in commercial quantities. An Italian company based on the Chezia River explored Central Gwembe in 1981 and 1982. A Japanese company, based at the old Nkandabwe coal mine in South Gwembe, also carried out extensive prospecting activities during those years, while another company was improving the road system in North Gwembe's Sinadambwe Chieftaincy in connection with its prospecting and pilot mining activities.

All the activities mentioned so far have been catalyzed by nongovernmental and nonvillage personnel and funded primarily by international or private capital from without Zambia (international) and Gwembe District (private). Though the Government has given its approval to the various activities, and in some cases provided staff,

government funding has continued to be minimal for basic services for agriculture (including tsetse control and fisheries), education, and health. At the June 1982 meeting of the district council no progress report was made by the Ministry of Agriculture and Water Development "because there was no project that the ministry was undertaking." This statement in the council minutes of the meeting was somewhat exaggerated for a site had been selected for a larger research station near the Lusitu area, and some bush clearing had actually begun, although funds were yet to be made available for otherwise developing the station.

Moreover, except with funding through the Gwembe South Development Project, the Farmers Training Centre was still hard put to give courses. Though tsetse control barriers were being reestablished, funds to recommence spraying operations were insufficient. And while the Fisheries Training Centre had reopened as a national research and development facility, the Centre lacked finance for completing an experimental rig for kapenta research (which might be applicable to a smaller scale of operation affordable by Gwembe citizens) and for the recommencement of training courses. The following year (1983), the main Valley road linking the three subdistricts had yet to be reopened, although electric lines were being brought to the Lusitu for running the diesel-fueled reticulation system that villagers and livestock alike were dependent on for potable water (and which, through the efforts of then district council chairman, Costa Valhakis -- the other trustee of the council -- had actually been extended to additional villages during the War years).

While insufficient funds continued to be allocated at the district level, some important policy decisions -- if implemented -- had been made at the national level. One, already mentioned, was the Local Administration Act of 1980 which merged the district council and the district administration into one department under the Prime Minister's Office, for the purposes of creating a more effective, decentralized district administration. While decentralization had been a much debated topic since the Simmance Report had made various proposals in 1972, in fact the predominant tendency between 1964 and 1980 had been "continuing centralization" (ILO, 1981:134). So while the Local Administration Act is an important step in the right direction it remains to be seen if officials at the Center are actually willing to delegate major decision-making responsibilities, plus funds to implement decisions made, to the periphery. Through 1980 such efforts as had been made to decentralize financial resources, and they were minor, were to the provincial rather than to the district level (ILO, Vol 2:226-227).

Another major policy decision was implemented in 1982 when a reasonable price was gazetted for sorghum for the first time since Independence. Sorghum trials had begun at the national research station at Mount Makulu near Lusaka during the 1980/81 farming season,

while a proposal for increased research on both sorghum and millet, including field trials in the Gwembe, was working its way through the Ministry of Agriculture and Water Development in 1982. At the same time trials with early maturing maize were begun by Mount Makulu personnel in the Lusitu during both the 1982/83 and 1983/84 seasons. If maintained, these initiatives are of great importance for Valley farmers, although their impact to date has been minimal because of the three year drought which devastated the initial trials within the district.

At the village level households continued to follow diversified production strategies as a means for dealing with uncertainty and adversity. As in the past, strategies tended to vary from household to household. Along the Zambezi below the dam and along the shores of Lake Kariba, the gillnet fisheries was reestablished following the end of the war. By September 1983, a small but increasing number of traders once again had begun to arrive with ice to purchase fresh fish for the line of rail market. Inland, cotton cultivation was becoming increasingly popular although the three drought years had a dampening effect. Small-scale vegetable growing for consumption and sales continued to increase, while the growing kapenta fishery, mineral prospecting and hiring by the district council for small-scale road maintenance and other public works increased employment available within the Valley.

Even the prolonged drought has had one positive effect since literally thousands of villagers moved down to the edge of the receding reservoir to practice recessional cultivation and graze their livestock during the 1983 dry season -- the numbers involved being more than at any time since relocation. Though the cultivable area will be less once the reservoir refills, this massive response by village farmers to hardship has shown them that the drawdown area is a major resource.

While some government officials also have become aware of the agricultural potential of the drawdown area, close coordination between cultivators, the Ministry of Agriculture and Water Development, and the Central African Power Corporation are essential if the cultivators' energies are to be appropriately rewarded. While adaptive research at Chiabi already is identifying crops which can be grown during both the recession and the rise of Lake Kariba, coordination with the Central African Power Corporation has been minimal to date. At the very least the Corporation should notify agricultural officials when reservoir levels can be expected to fall and, alternately, to rise so that those officials can pass that information on to Gwembe farmers. Furthermore, every effort should be made to integrate, for agricultural purposes, a regularized drawdown into the annual operating schedule of the reservoir, and to integrate livestock and flood water cultivation into the Siatwinda and Buleya-Malima pump irrigation projects (Banda, 1985:147-149).

Looking to the future, it is tempting to believe that the events described are sufficient to stop and reverse the downturn, especially if some increases in government expenditure for rural development occur. But such is wishful thinking, for the overall situation in the Valley at the village level continues to deteriorate. While local initiative continues as before, the constraints on village households raising their living standards continue to be onerous. Options are limited, and those that exist are more likely to support a subsistence mode of production than capital accumulation. Currently because of the drought villagers are reported to be in desperate conditions, many having sold off their livestock at reduced prices to feed their families. Once the drought ends, few villagers will have the capital to rebuild their herds in tsetse free areas, to repair or renew agricultural equipment, or to purchase new and improved fishing gear so long as local wages remain so low, credit unavailable and jobs along the line of rail scarce.

Important as they are, present policy changes are insufficient unless for the first time in Zambian history they are accompanied by a major reallocation of funds to the village sector. As already noted, the funds are there but the village sector is too disorganized to compete for them. In the meanwhile major Valley resources continue to be exported from the district with little return, in terms of direct income or revenue sharing, to the people or their district council, whether those resources be hydropower from the dam, coal and amethysts from the mines, or kapenta from the reservoir. Without major policy changes, the same will presumably be true of uranium since its mining is a more capital intensive venture. Although the Local Administration Act of 1980 is important, it remains to be seen if it is accompanied by real fiscal decentralization (though such might initially be accomplished through the new Integrated Rural Development Programme, at the time of my last field trip major donors had yet to step forward).

In sum, though pricing policies for Valley crops have improved in the past few years, most of the other policy biases (toward the elite, toward the urban-industrial sector and toward larger commercial farmers) have not changed. Whether they can be changed without major structural changes is unlikely. Though the different observers of the Zambian scene quoted in this chapter all agree that structural changes are needed, they vary on the nature of the necessary changes, according to their understanding of the crisis and their ideological stance. The most detailed blueprint is contained in the 1981 ILO report, which advocates a basic needs and minimum income strategy for allocating increased funds to lower income rural and urban communities, political and fiscal decentralization, and greater community involvement below the district level (see p. 46 of the ILO report for the nature of the structural changes needed to redirect resources for meeting a basic needs strategy). None of the authors, however, address the question as to whether the necessary changes can

be made without a major restructuring of class relationships within or without the context of the present one party system. That too must remain another unanswered question relating to the future of Gwembe District and its citizens.

#### NOTES

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1. The purpose of these four reports is to help identify development strategies for the peoples of the Gwembe and institutional mechanisms for implementing those strategies. It is my opinion that the area's very real development potential could be best realized through a closer coordination of the research and development activities of both Zambia and Zimbabwe, since agro-ecological conditions within the Valley are similar in both countries. There are also close ties of ethnicity between the people, with intermarriage back and forth across the Zambezi a common occurrence before the formation of Lake Kariba separated kin, neighbors, and co-ethnics.

Furthermore, certain common resources and problems, such as the lake fisheries, lake transport, and tsetse control favor an

international approach. In time this might lead to a joint planning and development effort involving the villages, district councils, government departments and universities, and private voluntary organizations of both Zambia and Zimbabwe. In the meantime, I believe increased attention should be paid to upgrading the planning and managerial capabilities of the Valley's district councils in anticipation of the day when increased responsibility (including fiscal decentralization) can be handed over to the peoples of the Valley at district, subdistrict, and community levels.

The historical data presented in this report draw heavily on fieldnotes that Elizabeth Colson and I have written during our twenty-nine year study of Gwembe District and its people. During this study we have, between the two of us, spent approximately eight years in Zambia and Zimbabwe, with restudies usually made at one- to three-year intervals. The most recent field information was acquired during a short visit to Zambia and Zimbabwe from September 6 through September 24, 1983. That visit provided the motivation for this report, for it occurred to me then that a background document on the history of development within Gwembe District might prove useful to local, government, university, nongovernmental organization, and donor personnel interested in the district's development. The 1983 visit started with discussions in Harare with University of Zimbabwe and government personnel. The period September 13-22 was spent in Zambia in order to familiarize Alois Hungwe and Marshall Murphree of the University of Zimbabwe's Sebungwe Regional Study with parts of Gwembe District and to introduce them to Zambian personnel who shared their interest in the Middle Zambezi Valley. Prior to joining Murphree in Lusaka, Hungwe and I toured the northern portion of Gwembe District looking especially at pump irrigation projects and at drawdown (recessional) cultivation. After the North Gwembe tour we attended meetings in Lusaka with the Vice-Chancellor and other members of the University of Zambia staff and with the research staff of the national agricultural research facility at Mt. Makulu.

When Murphree joined us we proceeded to Nega Nega for talks with senior staff at the National Irrigation Research Centre before continuing on to the Sinazeze headquarters of the Gwembe South Development Project. In South Gwembe we visited more irrigation projects as well as several fish camps. Returning to Zimbabwe via Chirundu, we spent our final night in the Lusitu area of North Gwembe.

As for the other three reports in this series, the first (Scudder, Colson, and Scudder, 1982) was a 1982 evaluation of the Gwembe South Development Project (GSDP). It was carried out over a one-month period at the invitation of the Gossner Service Team

and the Gwembe South Development Project, which at the time covered Mwemba and Sinazongwe Chieftaincies of Zambia's Gwembe District.

Submitted in August 1982, and revised the following December, the second report (Scudder, 1982a) suggested a research program whereby the University of Zimbabwe could become an active partner in planning, implementing, monitoring, and evaluating the integrated development of the human, forest, and wildlife resources of the northern portion of the Zimbabwe's Sebungwe Region. It was primarily the product of two brief field trips in July-August 1982 through the Sebungwe region. Both trips were at the invitation of the University of Zimbabwe. On the first, Professor Colson and I accompanied Professor Geoffrey Bond and Professor Marshall Murphree up Lake Kariba on the university research boat Erica. During the second, Professor Malcolm Blackie and I made on an extensive inland tour through Binga, Gokwe and Kariba Districts, with special emphasis on the Sengwa River Basin.

The third report (Scudder, 1982b) was a brief memo outlining eight ways for raising living standards in Gwembe District and for reducing agricultural shortfalls. These dealt with the development and multiplication of appropriate varieties of maize and sorghum for the Valley, the development of the Lake Kariba drawdown area, goat marketing, tsetse control, kapenta fishing, and physical infrastructure (with special emphasis on an integrated land and water transport system and on rural electrification).

2. The terms North, Central, and South Gwembe are roughly equivalent to the older terms Lower, Middle, and Upper River Regions plus their hinterlands (Colson, 1960:13-25). These are less appropriate today not just because of the formation of Lake Kariba, but also because of the intention of the central government to divide Gwembe into three distinct districts that will separate administratively the northern, central, and southern portions of the district.
3. To avoid confusion, in this historical analysis I have chosen to use territorial designations that were in use at the time of the events described. The Central African Federation composed of Malawi and Northern and Southern Rhodesia broke up in 1963, with Northern Rhodesia becoming the independent republic of Zambia in 1964. In 1965 Southern Rhodesia became Rhodesia, following a unilateral declaration of independence by the white settler-run government. Following a prolonged period of warfare, Rhodesia became Zimbabwe under a majority government in 1980.
4. During the Colonial period of the 1950s and 1960s, the exchange rate was US\$2.80 to one pound sterling. The approximate rate was

US\$2.40 to one pound sterling when the Zambian kwacha was introduced during 1968.

5. Between 1969 and 1981 exchange rates varied from K(wacha) 0.68 to the US\$1 in 1972 to K0.78 in 1981 (it was K0.71 to the US\$1 in 1969).
6. Accepted in July 1985, Banda's dissertation provides important background material on the Gwembe Valley before going on to analyze recent agricultural initiatives in South Gwembe -- with special emphasis on flood water cultivation, smallholder irrigation, and the Gwembe South Development Project. It is an important document for those interested in the agricultural history of Gwembe District and in future development possibilities.

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