

TOWARD A

REPLICABLE AGRICULTURAL SCHEME

AMONG THE RURAL POOR

A PROPOSAL TO

THE FOOD AND AGRICULTURE ORGANISATION

From

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### PRE-SUPPOSITION

Rural agricultural development done among the rural poor without first altering the existing traditional social structures and patterns, results in the collapse of the new development as traditional patterns ultimately prevail.

### HYPOTHESIS

When social structures are created which significantly shift existing social patterns toward community-wide decision making and broad-based community participation, then it is possible to build an economic base adequate to the needs of a rural community.

### OBJECTIVE

To develop an adequate and enduring economic base through tripling agricultural productivity and income in a rural village in the context of a comprehensive development plan, which could be replicated in any rural village in Zambia.

## RURAL FARMING IN ZAMBIA: A CONTEXT

The "Back to the Land" campaign initiated in 1972 by His Excellency, President Kaunda, has received increasing attention in recent years due to the fall of copper prices on the world market and a gradual exodus of large, commercial farmers from Zambia. Today, agro-industry is generally viewed as the nation's sole hope of regaining economic stability. Responsibility for it has been placed squarely on the shoulders of the rural peoples. However, this responsibility is not easily assumed in a nation where years of national reliance on copper mining and focus on industrialisation have taken more than half of the population from the land to the cities, and many traditional farming skills have been lost or forgotten!

Where rural farming is still practiced, it is generally on a subsistence basis, providing just enough food and income to keep one's family alive from one growing season to the next. More often than not, this is viewed as sufficient. Most families expect to endure periods of two to four months when there is scarcely enough food for one meal per day. They expect one or more of their children to die from malnutrition. They assume it is each family's responsibility to make it on their own from year to year. In this tradition of individual subsistence patterns, it is not surprising that many co-operative agricultural efforts in Zambia have failed, and that new approaches are being eagerly sought by both the government and the private sector.

In Zambia, the obstacles to significant agricultural expansion among the rural poor are predominantly cultural. The aim of this research is to determine what local village structures are necessary to shift these cultural patterns enough to permit village families to expand and upgrade their agricultural production, and yet be totally and effectively operated by the people themselves.

## THE PROJECT BACKGROUND

### A. TYPICAL ZAMBIAN GEO-SOCIAL CONFIGURATION

The Kapini Human Development Project area 24 kilometres north of Lusaka consists of 7 square kilometres of savannah landscape. It was selected as a typical rural village in Zambia, where there is visible human suffering, a lack of basic structures to promote and sustain human community, and a wealth of unused human and natural resources. Much of the land is uncultivated and unused. As in most rural villages, the majority of residents live in scattered mud-brick houses, farm small plots by ox and plough during the single growing season, and operate from year to year on a subsistence basis. Much of the year the land and the people are idle, and adults and children generally lose weight and physical vitality between November and April, when food is scarce before the annual crops are harvested. Malnutrition, disease and a high infant mortality rate are everyday facts of life. Water is obtained from a series of family wells, many of which are dry from June to December, and little irrigation is practised. During the rainy season, small dirt roads and locally-made bridges throughout the village have often become impassable.

In Kapini, as in Zambia's other rural villages, several tribes can be found living side-by-side, tolerating one another's presence except when a family becomes too successful or prosperous. Land is procured from the village headman, of which there are usually more than one in a delimited area. Even though Kapini is just 24 kilometres from Lusaka, it is like the most distant rural villages in that it has survived for years without basic urban services such as health and sanitation facilities, road and transportation services, public buildings, agricultural training or education structures. In addition, there have been no formal community structures beyond the Village Productivity Committee to initiate or sustain corporate effort or services in the community.

## PROJECT BACKGROUND

### B. THE KAPINI HUMAN DEVELOPMENT PROJECT

On 26th February 1978, at the invitation of the area chief, the three headmen and other village elders, the Kapini Human Development Project was initiated in Zambia. It consists of 16 socio-economic programmes designed by 120 residents and 30 outside consultants to meet every human need in the project area. The Kapini HDP comprises three villages—Kapini, Mulowa and Malekano—with a population of nearly 1000 people. Its purpose is to demonstrate what any Zambian village could do to become economically self-sufficient and socially self-reliant in a reasonable period of time.

During the week-long planning Consult in February, KHDP residents concluded that agricultural expansion would be the key to building a sound economic base in Kapini. Four major programmes were designed: Kapini Model Farms, Land Irrigation Network, Live-stock Expansion Scheme and Food Processing Industries. To date, the experimentation in new methods of agriculture in the KHDP has been of a small-scale, demonstration nature, taking a broad variety of forms in the first three programmes. These have been designed to capture a wide cross-section of community interest and participation, and to provide intensive training for a selected number of emerging farmers. In addition, the farm programmes have established valuable linkages with outside expertise and resources, including many departments of the Ministry of Agriculture and Water Development and the Natural Resources Development College (NRDC). The contract has been set and the structures have been created for a dramatic shift from the still-prevailing subsistence patterns to a large-scale agricultural scheme which will initially involve up to one-half of the 120 families in the KHDP area.

## THE OBJECTIVES

The broad objective of this agricultural scheme will be to triple agricultural productivity and income in the KHDP, and in the process to discover what combination of local structures and simple technology are effective in facilitating and sustaining a dramatic shift from subsistence farming to corporate, commercial agriculture in the rural village. The downbeat of this undertaking will be primarily in the action arena. Research will include the compilation of baseline data in the KHDP and in the twelve replication projects to be started in the Mungule Area (where Kapini is now located), as well as the technological research required in agriculture. An evaluation component is recommended at a later stage of development.

Secondary objectives for this undertaking will be as follows:

1. To compare the productivity and effectiveness of three different forms of irrigation and three different modes of farm management, which could be replicated in any rural village.
2. To demonstrate that agricultural development in rural villages, as they stand and without mass re-location or re-grouping, can provide a sound economic base for national development.
3. To provide the critical economic base that will enable the addition of ancillary industries toward full employment of all adult residents in the village.
4. To discover and to demonstrate the potential for utilising human and natural resources in the villages to build a less precarious and more human mode of life.
5. To serve as a demonstration in Zambia of what is possible in any rural village through simple irrigation methods, farm management techniques and village social structures.

## THE PROPOSED AGRICULTURAL SCHEME

The creation of an enduring and replicable economic / agricultural base in Kapini will be implemented in two parts. The first will bring 30 acres of land under three alternative forms of irrigation, and will initially train forty families in intensive, year-round vegetable farming. The second part will bring 100 acres of land under cultivation, and is designed to enable every local farmer to plant and harvest a high-yield cash crop for additional family income, expanding his present acreage by at least one acre.

PHASE ONE: Ten acres of the 30 acre vegetable scheme will be supplied by irrigation pump. This will be operated initially by farm trainees and then turned over to individual families in one-fourth acre plots. This scheme was begun in May 1980 on a pilot basis with one-half acre plots operated by farm trainees.

In the 100 acre scheme 40 acres will be placed under cultivation by farm trainees. Ten acres of the 100 acre scheme was farmed during the 1979-1980 season and will be expanded to 20 acres for the 1980-1981 season.

An estimated gross income from irrigated farmland is approximately K 2000 per acre per season. With one-half acre plots this represents an income of K 500 per family. Expenses are estimated at K 150, thus producing a profit of K 350 per family at a minimum. Therefore it is reasonable to expect a family to at least double the annual income which is presently estimated at K 360 in each season, and at the optimum to triple the income.

PHASE TWO: In the 30 acre scheme an additional 10 acres will be brought under irrigation with the installation of a borehole and windmill, and the remaining 10 acres with use of a ram pump and reservoir. In each case initial operation will be with farm trainees with assistance from the families and then turned over to the families in one-fourth acre plots.

In the 100 acre scheme the remaining 60 acres will be put under cultivation with individual families involved in the land clearing and preparation phases.

In all schemes and phases appropriate procedures will be set up for the families, the village management office and the farmers' association so that a portion of the income will go into the support of public facilities and social programmes in the village. Purchasing and marketing structures will be initiated combining the advantages of co-operative efforts with individual initiative.

## THREEFOLD APPROACH TO IMPLEMENTATION

The approach for implementing this plan will be threefold.

- A) Utilising Village Structures: New social structures will be used to undergird the agricultural expansion, specifically those which facilitate community decision-making and participation, new leadership development, and responsible financial management.
- B) Incorporating Social Patterns: The existing social patterns—extended family, symbolic leadership and the celebrative dynamic—will be incorporated into the programme.
- C) Updating Agricultural Methods: Existing agricultural practises will be revised within training programmes which introduce new methods of irrigation and farm management which could be used in any rural village in Zambia.

### A. CREATING VILLAGE STRUCTURES

The KHDP Consult plan and programmes are comprehensively designed to deal with every human need in the community. Therefore, the new social structures, created by the project, will be fully utilised to support and strengthen the agricultural component. The expectation is that agricultural development in Kapini will succeed—where so many rural agricultural schemes have failed—because of the economic and social programmes which surround the agricultural efforts of the village.

- 1) Geographical Sub-Divisions: In Kapini, the community is divided into five Stakes or neighbourhoods, according to geo-social patterns. Each Stake has its own Stake leader, Farmer's Association representative, and Health Caretaker. Weekly classes are conducted with a common format in all five Stakes.
- 2) On-Going Task Groups: These represent the comprehensive task of care for the total needs of the people and the building of a more human community. In Kapini, there are three social and three economic Guilds, including Health, Education, Welfare, Agriculture, Industry and Commerce. The Agriculture Guild, for example, is the vehicle through which the farm programmes have been implemented and additional

structures such as the Farmers' Association have been created. The Welfare Guild, on the other hand, publishes the weekly "Call of Kapini", and plans and supervises community recreation, celebrations, volunteer workdays and Stake classes.

- 3) Regular Representative Decision-Making: Both the emerging and established leadership have the opportunity to express the will of the broader community and determine together how it can best be implemented. In Kapini, the Quarterly Village Assembly determines the basic direction and priorities of the project for the coming quarter. As the Stakes and Guilds work within this community consensus, they channel their concerns and recommendations into a small representative body called the Secretariat which presents recommendations regularly to the Village Council which approves any shifts in programming on behalf of the Village Assembly. Composed of Headmen, 5 Stake and 6 Guild representatives, the National Independent Party Branch Chairman and one Auxiliary staff member, it holds Guild and Stake leaders accountable to the community consensus. The Management Office coordinates the project on a day-to-day basis.
- 4) Local Economic Vehicle: This provides savings and loan facilities for individuals as well as for community structures. In Kapini, the Savings Association & Credit Co-operative Organisation (SACCO) has been established and comprises a growing membership of 55 adults. In anticipation of increased community-generated income, the Village Council and Secretariat are establishing a KHDP Financial Commission which will complement the function of SACCO by overseeing income and expenditures for all community structures.

## B. INCORPORATING SOCIAL PATTERNS

While the Guild task forces and small-scale economic undertakings in the KHDP to date have engaged primarily single young adults, it is clear that the scope of the proposed agricultural scheme will require a fuller participation on the part of families and established leadership if it is to provide an adequate and enduring economic base in the community. The new project structures will therefore be used to strengthen and incorporate the traditional family patterns, established leadership and the communal/celebrative dynamic into the scheme. Stake and Village Council leaders and Farmers' Association representatives, all composed of established community leadership, plan to awaken the community's interest and bring a relatively equal number of families from each of the 5 Stakes into the scheme. The Farmers' Association will make presentations on the scheme at weekly Stake classes and Village Council meetings, sponsor a Farmers' Rally, engage the three headmen in advocating the scheme, and unveil a detailed picture of the 120 acre plot scheme at the Quarterly Assembly. The presentations will be accompanied by cost/profit projections, a listing of training requirements for those working the plots, and a time schedule for family interviews. Guest speakers from Natural Resources Development College, the Ministry of Agriculture and its Extension Office will be secured by the Farmers' Association. The Association will organise meetings for the farmers and initial training in the principles and practices of intensive, irrigated vegetable farming. The selected families will be commissioned at the Quarterly Village Assembly, "...on behalf of the Kapini Human Development Project and all rural villages in Zambia."

While attempting to re-capture the traditional patterns of community-wide effort in land preparation, irrigation, training, bulk purchasing and marketing, profits in the scheme will be based upon family productivity in order to combine the values of co-operative effort (which, alone, usually fails) with those of individual or family incentive.

### C. TRADITIONAL METHODS COMBINED WITH NEW TECHNOLOGY

Traditional rural agricultural methods in Zambia utilise hoes, ox-drawn ploughs and a relatively unsophisticated use of fertilisers, and chemicals. Large-scale farming is done only during the rainy season and consists primarily of maize, which is the staple food in the nation. Irrigation is generally limited to small, home vegetable gardens, performed by carrying buckets from a nearby well. While most farmers will receive training in how to use these traditional methods more effectively, new methods will be introduced to those who are ready to move to higher levels of productivity.

This programme will involve an initial input of expertise and capital in order to install the pump, borehole, windmill and ram pump. Subsequently, very little outside support will be needed. One requirement for obtaining a plot in the scheme will be regular attendance at classes where theory and methods of general farming and irrigated vegetable farming will be taught, and on-the-job training will occur. Much of the training will have carry-over value for the farming already carried out in the village. This approach will further include:

1. Three different water supply systems for irrigation: irrigation pump, windmill borehole pump, and ram pump with reservoir. The effectiveness and short-comings of each system in this rural setting will be evaluated in relation to the other two, with a view to replication.
2. Simple, manually operated machinery will be used where appropriate. Engines or motors will be used at a minimal level beyond initial land clearing and ploughing, making this experiment applicable in any area which is accessible for the initial installations.

3. Experimentation with three modes of group agricultural organisation and management. a) Co-operative family plots, wherein inputs, training and marketing are done co-operatively and the actual farm work is a family responsibility for an assigned plot and crop. b) Farm Trainees, consisting of young 7th grade leavers who plan and perform a joint farming effort for profit under regular supervision. c) Independent family farms, which emphasize the individual family intensifying and expanding their own land under production while making use of the inputs and marketing services of the local Farmers' Association as they may require.

## REQUEST FOR ASSISTANCE

The Institute of Cultural Affairs request that the Food and Agriculture Organisation (FAO) provide K58,250 for the creation of these replicable agricultural developments in the following five areas of expenditure:

1. LAND CLEARING AND PREPARATION: Land clearing has commenced on the 30 acres and the 100 acres schemes. Funds are required for the completion of the land clearing, terracing and ploughing of this area.
2. IRRIGATION PUMP: One small pump is already on site. A second pump will be secured with pipe, fittings and sprinklers.
3. WINDMILL, BOREHOLE PUMP AND TANK: Water Wells Limited has been contacted concerning the drilling of a borehole and arrangements for site surveys are being made with the Water Affairs Department. The windmill will be secured through a local agent. Pump and tank are available locally.
4. RAM PUMP AND RESERVOIR: Preliminary estimates by engineering companies in Lusaka indicate that a hydraulic ram pump can be constructed locally. Approximately 200 metres of galvanised pipe - in two diameters - will be required for a permanent installation. Cement bricks, made in the village, will be used to construct the reservoir.
5. RESEARCH AND EXPERTISE: The Ministry of Agriculture and Water Development has offered to place an agricultural expert in the Project for one year. This requires, at minimum, a two-bedroom house for this civil servant and his family. This housing will be built by the local "Kapini Construction Company" on contract to the Institute of Cultural Affairs with professional supervision. (Following this year, the house will continue to be used to host experts and trainers who would volunteer their time and expertise

to assist in further development of the KHDP demonstration.) This agricultural officer, drawing upon the resources of the ministry, will work with an assigned Institute staff person to analyse the performance and assess the replicability of the various irrigation, land use, and management schemes employed. Additional professional assistance in establishing base-line agricultural and social data will be secured from the Rural Development Studies Bureau of the University of Zambia. Copies of the research results will be made available to FAO, the Ministry of Agriculture, and the University, State House, and the 250 other Human Development Projects.

THE PROPOSED BUDGET

1. LAND CLEARING AND PREPARATION

Land clearing, 15 remaining of 30 acres	K 1,800	
Terracing 15 acres	1,200	
Initial ploughing & discing, 15 remaining of 30	1,800	
Land clearing and preparation, 80 remaining of 100 acres	<u>14,000</u>	
		K 18,800

2. IRRIGATION PUMP

Pump	1,000	
Pipes and fittings	1,000	
Sprinklers	1,000	
Valves	<u>250</u>	
		3,250

3. WINDMILL, BOREHOLE PUMP AND TANK

Borehole drilling	6,000	
Windmill	2,000	
Pump	1,000	
Galvanised tank	<u>1,000</u>	
		10,000

4. RAM PUMP WITH RESERVOIR

Hydraulic ram pump, manufactured in Lusaka	1,000	
Galvanised pipe, 200 metres	800	
Reservoir construction materials	<u>2,000</u>	
		3,800

5. RESEARCH AND EXPERTISE

Complete local construction costs for two-bedroom house	12,000	
Office and duplicating materials	5,000	
Professional consultation	1,800	
Institute Staff Salary, 1 year	<u>3,600</u>	
		<u>22,400</u>

TOTAL.....K.58,250